## INITIAL OPTIONS APPRAISAL APPENDIX A – FULL ANALYSIS TABLE

Stage 2 Develop and Assess



## DEPARTURES





Departure Direction	Runway 09	Classification	Runway 27	Classification
North	R09_D_N_01	REJECTED	R27_D_N_01	PREFERRED
North	R09_D_N_01A	FAVOURABLE		
North	R09 D N O2	REJECTED	R27_D_N_O2	REJECTED
North	 R09_D_N_O3	REJECTED	 R27_D_N_O3	REJECTED
North	R09_D_N_04	PREFERRED	R27_D_N_04	REJECTED
North	R09_D_N_05	ACCEPTABLE	R27_D_N_05	FAVOURABLE
North	R09_D_N_06	REJECTED	R27_D_N_06	ACCEPTABLE
North			R27_D_N_07	REJECTED
North			R27_D_N_08	REJECTED
East	R09 D E O1	REJECTED		
East	R09_D_E_03	ACCEPTABLE		
East	R09_D_E_04	FAVOURABLE		
East	R09_D_E_05	PREFERRED		
South	R09_D_S_01	ACCEPTABLE	R27_D_S_01	REJECTED
South	R09_D_S_01A	REJECTED	R27_D_S_01A	REJECTED
South		REJECTED	R27_D_S_02	REJECTED
South		REJECTED	R27_D_3_02	REJECTED
South	R09_D_S_O3	REJECTED		DECEDDED
			R27_D_S_04	PREFERRED
South			R27_D_S_05	REJECTED
South	R09_D_S_O6	PREFERRED	R27_D_S_06	REJECTED
South			R27_D_S_07	ACCEPTABLE
South	R09_D_S_08	FAVOURABLE	R27_D_S_08	REJECTED
South			R27_D_S_09	REJECTED
South	R09_D_S_010	REJECTED	R27_D_S_010	FAVOURABLE
South			R27_D_S_011	REJECTED
South	R09_D_S_013	REJECTED		
South	R09_D_S_014	REJECTED		
South	R09_D_S_016	REJECTED		
West	R09_D_W_01	REJECTED		
West	R09_D_W_O2	FAVOURABLE		
West	R09_D_W_O3	REJECTED	R27_D_W_03	REJECTED
West			R27_D_W_O4	FAVOURABLE
West	R09_D_W_05	REJECTED	R27_D_W_05	PREFERRED
West	R09_D_W_06	ACCEPTABLE	R27_D_W_06	ACCEPTABLE
West	R09_D_W_07	PREFERRED		
North west	R09_D_NW_01A	REJECTED		
North west	R09_D_NW_O2	PREFERRED		
North west	R09_D_NW_03	REJECTED		
North west	R09_D_NW_04	REJECTED		
North west	R09_D_NW_05	ACCEPTABLE		
North west	R09_D_NW_O6	REJECTED		
North west				
North west	R09_D_NW_08	REJECTED		
North west	R09_D_NW_O9	FAVOURABLE		
North west	R09_D_NW_010	REJECTED	R27_D_NW_010	FAVOURABLE
North west			R27_D_NW_011	ACCEPTABLE
North west			R27_D_NW_013	REJECTED
North west			R27_D_NW_014	REJECTED
North west			R27_D_NW_015	PREFERRED
Southeast Options 1-7			R27_D_SE_O2	REJECTED
Southeast Options 1-7			R27_D_SE_04	ACCEPTABLE
Southeast Options 1-7			R27_D_SE_05	FAVOURABLE
Southeast Options 1-7			R27_D_SE_07	PREFERRED
Southeast Options 12-18			R27_D_SE_015	FAVOURABLE
Southeast Options 12-18			R27_D_SE_016	PREFERRED
Southeast Options 12-18			R27 D SE 018	ACCEPTABLE
			R27_D_SE_018	
Southwest				PREFERRED
Southwest			R27_D_SW_09	FAVOURABLE

Departure En	velope: SID Runwa	ay 27 North						7 NORTH	
			'DO NOTHING' BASELINE For the north design envelope, the 'do nothing' scenario for departures i terms of today's operation is based around the existing conventional	R27_D_N_01 n Whilst this is not a replicated route, it reflects the current operational practice of initially using the TNT 2N SID to the north wast followed by ATC vectoring to the north.	R27_D_N_02 Option 2 proceeds straight ahead after take-off with no offset before making a single right turn to head directly north.	R27 D.N. 03 Option 3 proceeds straight ahead after take-off with no offset before making a single right turn to head north, but on a track that is slightly to the weat of Option 2.	R27_D_N_O4 Option 4 proceeds straight alward after take-off with no offset before making a single right turn to head north. It is similar to Options 2 and 3 but servinates further east.	R27_D_N_OS Option 5 has a 15° northerly offset to avoid Melbourne and is a route that takes multiple turns to avoid overflight of Darby.	R27_D_N_O6 Option 6 has a 15° northerly aftert to avoid Mellocume and is a route designed to avoid overflight Derby. It is similar to Option 5 however the torns have been designed for 210KIAS to align with th
			TRENT SID. The 'do authing' scenario for departures consists of a model	SUD to the north weat followed by ALC vectoring to the north. This follows the nurway heading for 1 mb before commencing a right turn just to the north east of Melbourne, onto a north weat heading to pass to the south weat of Derby. A second right turn diverges it	After initial departure this option follows the runway heading for 1.4nm before commencing a 90o right	After initial downships this partice follows the common bandian for them before commonstance a right tree part	b. After initial dependence this partice follows the common bandian for 1 are hafters commonstring a 80% sight town	The initial 15" effect to the meth much in the much energies worth of Mathematics with the first time to the	encommondations within CAR 779 which much in a slighthy different back
			track that has been derived to provide an accurate representation of what occurs today. In addition to the modal track, a polygon has also been created that represents an area where current operations are	from the TNT departure and routes it on a north by north east heading to the terminating point north of Relner	turn to the north just to the north east of Melbourne. This north heading routes it over eastern Derby and the east edge of Belger and the route seminates to the north east of Crick. The route has a constant clining gradient of 6%, terminating or 17,0001 and the CAP 77B recommended	The route has a constant climb gradient of 6%, terminating at 7,000H and the CAP 778 recommended	note situat regularate fait glass modifies al relative meaning for interacting constanting or Dorngin war with to the north asis of AMBataman. This takes if a not a north heating modifies also the fait earlier medge Derby and passing over eastern Ripley. The route terminates to the north east of Crich. The route has a construct climbing gradient of dN, terminating at 17,0001 and the CAP 778 recommended	and Notingham and the route then turns to a north west heading before finally turning north and	between Spondon and Borrowash. A second left turn is made between Derby and Notingham whic
			dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this SID was based on the model track created using Noise and Track Keeping data at altitude	The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	speed of 210 KIAS has been applied to the first turn.	speed of 210 KIAS has been applied to the first turn.	speed of 210 KMS has been applied to the first turn.	terministing north west of Bulper. This noves endernours to avoid overflight of built up and noise sensitive areas; however, all turns have been limited to 190KWS to enable light turns. Although PANS-OPS compliant it is a complex roote that	to a north west heading passing over southern Belper before finally turning north and terminating no east of Belper. Although PNIS-OPS and CAP778 compliant it is a complex route that may require to be assessed
			of 4,000H and 7,000H with the addition of a radiar vectoring area when any provide. The track length has been calculated on the distance from					paint initiate to 1-postuce to anothe right turns. Autologin PARE-UPS comparing in a compare noise not will require to be assessed for flyability as part of the procedure validation process within Stage 4 of CAP1616.	Annough FAVG-CPS and CPF778 comparts in a compart international may require to be assessed Byobility as part of the procedure validation process within Stage 4 of CAP1616.
			the Departure End of Runway to the end of the modal track plus the distance from the end of the modal track to the common point.						
Group Communifies	Inpoct Noise impact on health and	Level of Analysis d Initial Options Appraisal:	Rutway 27	Rumier 27	Rumor 27	Runway 27	Runway 27	Runway 27	Runway 27
	quality of life	Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario was						
			based upon the existing TRENT SID. In terms of potential noise impact, initial quantitative analysis has						
			identified that: - Up to 4,000 ft, this 'do nothing' scenario is estimated to overfly approximately 1,800 households with an	Up to 4,000ft, this option is estimated to overfly approximately 1,450 households with an approximate population of 2,700. Taking account of 2,350 planned property developments, this option is estimated to	Up to 4,000ft, this option is estimated to overfly approximately 20,500 households with an approximate o population of 37,700. Taking account of 700 planned property developments, this option is estimated to	Up to 4,000ft, this option is estimated to overfly approximately 16,050 households with an approximate population of 28.700. Taking account of 350 planned property developments, this option is estimated to	Up to 4,000ft, this option is estimated to overfly approximately 10,600 households with an approximate population of 20,300. Taking account of 2,250 planned property developments, this option is estimated	Up to 4,000ft, this option is estimated to overfly approximately 2,300 households with an approximate population of 4,300. Taking account of 2,150 planned property developments, this option is estimated to	Up to 4,000%, this option is estimated to overfly approximately 5,500 households with an approx population of 10,100. Taking account of 1,850 planned property developments, this option is est
			a samale to overly opproximately 1,500 hostenoids with an approximate population of 3,500. Taking account of 2,250 planned property developments, this option is estimated to overfly and impact a	overfly and impact a total population of 7,100. The potential noise impact on health and quality of life up to 4,000h is assessed as likely to affect fever people than the 'do nothing' scenario. Up to 7,000h, this option is estimated to ownth approximately 6,850 households with an approximate	p overfly and impact a total population of 39,000. The potential noise impact on health and quality of life up to 4,000H in a assessed a lifely to affect more people from the 'on onfrig' teamonic. Up to 7,000H, this option is estimated to overfly approximable 39,000 households with an approximable	popularar to early or taking advantage of 62.02 (Diffuse to protein) and impact a total popular of the advantage of the ad	to overfly and impact a total population of 24,600. The potential noise impact on health and quality of lif up to 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	a overfly and impact to table population of 8,300. The potential noise impact on handh and quality of life up to 4,000 fit assessed as likely to affect more people than the 'do nothing' scenario. Up to 7,000 fit is agrico's estimated to overfly approximately 8,850 households with an approximately	to overfly and impact a total population of 13,500. The potential noise impact on health and qualit up to 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.
			total population of 7,900.	Up to 7,000H, this option is isilmated to overify approximately 6,850 households with an approximate population of 12,800. Taking account of 4,300 planned property developments, this option is estimated to overly and impact a total population of 20,800. The potential noise impact on heath and quality of life		population of 45,400. Taking account of 800 planned property developments, this option is estimated to	<ul> <li>population of 53,800. Taking account of 4,300 planned property developments, this option is estimated to querify and import a tratal population of 61,800. The potential project ran bank and public of 61</li> </ul>		
			is estimated to overfly approximately 33,750 households with an approximate population of 65,200. Taking account of 10,550 planner property developments, this option is estimated to overfly and impact a	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.
			property severopments, mis option is estimated to overity and impact a total population of 85,600.						
ommunifies	Air Quality	Initial Options Appraisal: Qualitative							
			No change to air quality is predicted in maintaining baseline conditions The maiority of the extant procedure involves overflight above 1:000ft.	<sup>h</sup> Although there is likely to be a charge in aviation emissions by location below 1,000 feet, the location is	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is I not within the vicinity of a designated AQMA and as per CAPI 616, para 872 a full Air Quality Assessment	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the loca
			other than the areas in the immediate vicinity of the Departure End of Ronway.	<sup>r</sup> not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is desired not required. This option overflies no AQMAs. When compared to the 'an onthing' scenario, this option is desired to be					
			In terms of AQMAs, the existing Runway 27 TRENT SID overflies one AQMA when the aircraft is above 1,000H.	beneficial as it overfiles fewer AQMAs.	equal as it overfless the same number of AQMAs.	equal as it overflies the same number of AQMAs.	of dis-benefit as it overflas more AGMAs.	<ul> <li>This option overflies no AQMAs. When compress to the Vanimus set requests, building scenario, this option is deemed to be beneficial as it overflies fever AQMAs.</li> </ul>	beneficial as it overflies fever AQMAs.
ider Society	Greenhouse Gas impact	Qualitative							
			Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by aircraft may vary slightly due t	0					
			the nature of radar vectoring, although aircraft do all follow the extant procedures in a broader sense. The existing procedures do not support	This ortion has been desired to surrowt continuous climb operations. An element of order sectorion more	r. This ortion has been desirated to surrover continuous climb operations. An element of order vertains mo	r. This option has been designed to support configurus climb controllors. An element of order sectoring more	This ortion has been desired in support configures climb operations. An element of order verticion more	This online has been designed to support continuous climb operations. An element of polyr vertexing move	This option has been designed to support continuous climb operations. An element of order vertexit
			optimal aircraft performance and therefore are predicted to have a greater environmental impact compared to proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a	still be required to manage aircraft separation distances. The track mileage of this option is 42.74 km (23.08 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to	still be required to manage aircraft separation distances. The track mileage of this option is 38.82 km to (20.96 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to	still be required to manage aircraft separation distances. The track mileage of this option is 36.82 km o (19.88 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to	still be required to manage aircraft separation distances. The track mileage of this option is 40.41 km o (21.82 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore espected to	y This option has been designed to support continuous climb operations. An element of rodar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 40.88 km (2.207 mt), Whan compared to the 'do nothing' iconario, this option is longer and is therefore sepacidal to	still be required to manage aircraft separation distances. The track mileage of this option is 39.57 (21.37 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore exp
			virial stage 2 or the CMP to to process, there is no requirement or a charge sponsor to conduct quantitative emissions analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage.	result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to	to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact	to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes	> result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed t be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact	o result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact	result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is dee be of enviromental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the e
			the less greenhouse gases are emitted. In the case of the 'do nothing'	volumes of greenhouse gases released.	volumes of greenhouse gases released.	of greenhouse gases released.	volumes of greenhouse gases released.	volumes of greenhouse gases released.	volumes of greenhouse gases released.
			baseline scenario, the track length to the common point is 38.05km (20.55nm).						
ider Society	Capacity and resilience	Initial Options Appraisal: Qualitative							
			Maintaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more avaliatable flight paths and fewer deliver (both in the air and on the around).	The introduction of PBN routes is expected to deliver benefits by increasing ainpace capacity which subsequently leads to more predictable (light paths and lever delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more availatable flight paths and fewer delays (both in the air and on the around).	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more availatable flight paths and ferver delaw both in the air and on the around.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and ferent delays (both in the air and on the ground).	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity whi subsequently leads to more predictable flight paths and fever delays (both in the air and on the gro
			resilience could be significantly affected, following the removal of the TNT DVOR and the requirement to adapt PBN procedures as part of th FASI-N Programme.	the mandatabase in our could in high lock or leaves diseased by indexiding functions expecting managements and some table (they have a second or the second	<ul> <li>subsequently leads to more predictable tight paths and tever delays (both in the air and on the ground). The reduction of the reliance on coldated ground based non-replaced aids will significantly increase operational realismos through the introduction of PBN.</li> </ul>	The mediation is new roots in highlicits or lawer dismant by including functions opportunity more subsequently liked to more provide table flight paths and ferrer defang (both in the air and on the ground). The reduction of the reliance on outdated ground based nongational aids will significantly increase operational resilience through the infocustion of PBN.	The introduction or row rounds is deplotes to believe daments by including analysis explose copionly writer. Subsequently leads to more predictable light prints and lever deflaring (both in the sit and on the ground). The reduction of the reliance on outdated ground based nongational aids will significantly increase operational realisment through the infordaction of PEN.	subsequently leads to more predictable fight paths and sever delays (both in the air and on the ground). The reduction of the reliance on outdated ground based narrigational leads will significantly increase operational resilience through the introduction of PBN.	subsequently leads to more predictable tlight paths and lever delays (both in the air and on the gr The reduction of the reliance on outdated ground based non-replaced aids will significantly incre operational resilience through the introduction of PBN.
			FA26-N Programme.						
Wider Society	Tranquility	Initial Options Appraisal: Qualitative	As per CAPI 616, Appendix B, para B76, change sporsors are require	d			1		
			to consider Tranquility with specific reference to AONBs and National Parks only, unless other areas have been identified through community presented to additional section areas identified to community	This option overfiles no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified transmission optimized in the statutorily identified tranquility receptors (ACNBs or National Parks), nor any	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified transmission overflies and the transmission of the statutory overflies and the st	This option overflies no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified transmission and is therefore compared to the the optional contract of the statutory operation and the statutory operation of the statutory operation operation of the statutory operation operation of the statutory operation operatio	This option overflies no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified draw the community approximate and is therefore community to far the action common and	This option overfiles no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified downly community economics and is threadern community to the the section community of the section o	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor o identified through community any environment and is through a community to the Via authors' commi-
			engagement. No additional specific areas were identified by communit engagement. The 'do nothing' scenario overflies no tranquility receptors (AQNBs or National Parks).	ty identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario assessed as neutral.
fider Society	Mark and	Initial Options Appraisal:	National Parka).						
vider 300ery	biodiveniny	Qualitative							
			The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	The change sporsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sties of Special Scientific Interest (SSSIs), Special	The chrone second has manual the designated Sites of Spacial Scientific Interest (SSSI). Spaci
				Protection Areas (SPAa), Special Areas of Conservation (SACa) and RAMSAR sites, as identified on the DEEPA MAGE Map, CAR1416, Annually P, annu RTA, states that because of dimension and minima	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEERA MAGIC Map. CAR1616 Amountin B areas R74 states that because of dimension and minimum	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEERA MAGIC Map. CAD1616. Amounting R. page 874 states that because of dispersion and minima			The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Speci Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on DEFRA MACIC Map. CAP1616, Appendic B, pare B74, status that because of dispersion and mis
			dispension and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendia B, para B80, states that in general, airspace charge proposal will not	ber in virtidez in the comparison of the comp	beci in reflector in the result of the re	besi for reflecture interpretario and the second	DEFRA MAGIC Map, CAP1616, Appendix B, pana B74, status that because of dispansion and mixing, there is unifiely to be an impact on local air quarkly from aircraft abova 1,000fit. Furthermore, CAP1616 Appendia B, pana B80, status that in general, airpanse charge proposed limit not ware an impact on biodivenity as they do not involve ground-based infrastructure. However, the change sponsor	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, status that because of dispersion and mixing, there is unifiely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B00, state the in general, airpance change exposured will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor	DEFRA MAGIC Map. CAP1616, Appardix 8, para 874, states that because of dispersion and mit finers is unikely to be an impact on local air quality from aircaft above 1,000K. Furthermore, CAP Appendix 8, para 880, steles that in general, caringona change proposal will no how an impact biodiversity as they do not involve ground-based infrastructure. However, the change sponsor
			have an impact on biodiversity as they do not involve around hased	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Network Experimentation of the ACP process by Subject Network Experts.	Biodentersky as may do not invorve ground-based intractive. However, the change spontor & acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 o the ACP process by Subject Matter Experts.	Exclosiversity as may do not involve ground-based intrastructure. However, the change sponsor & acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	is adversing as may as not involve ground-adaea intranscure. However, the change sponsor i addrowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 o the ACP process by Subject Matter Experts.	is adversing as may be not involve ground-based intradiructive. However, the change sponsor i addrowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Expents.	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stag file ACP process by Subject Matter Experts.
			infrastructure. However, the changes porsion acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.						
eneral Aviation	Access	Initial Options Appraisal: Qualitative							
			No change to existing airspace arrangements. Any General Aviation	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement participing to General Aviation access will be reviewed	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All' Reference Points and existing Letters of Agreement pertaining to General Aviation access will be re-
			users of ainspace in the vicinity of EMA will maintain their current level a access under extant operational arrangements.	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	Impact to General Anaton access a anticipated to be minimal as a consequence of the ALP. All Ysual Reference Points and existing Letters of Agreement pertaining to General Aviation occess will be reviewed and updated (where applicable) prior to implementation to ensure their continued validly. Aimpace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	and updated (where applicable) prior to implementation to ensure their continued validity. Airsp classification requirements and any additional airspace requirements will be reviewed as part of St
				activities.	activities.	ocfriñes.	activities.	activities.	activities.
eneral Aviation /	Economic impact from increased effective capacity	Initial Options Appraisal:							
commercial airlines	increased effective capacity	y Qualitative			The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will				The introduction of PBN is expected to deliver benefits by increasing airsing a gapacity which in turn
			No increase to effective capacity anticipated for continued use of extan	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will a lead to more predictable flight pdfs and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing	The infroduction of MEN is expected to deliver benefits by increasing airpaces copacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected at to facilitate economic benefit by octentingfilly increasing the fraquency of air framsourt movements, increasing at to facilitate economic benefit by octentingfilly increasing the fraquency of air framsourt movements.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and lewer delays (both in the air or on the ground). This is expected as to facilitate economic benefit by cotentiable increasing the frequency of air transcort movement, increasing	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and lewer delays (both in the air or on the ground). This is expected to bacitate economic benefit by potentially increasing the frequency of air transport movement, increasing to bacitate economic benefits.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit to advertable increasing the frequency of air transact movements, increasing the facilitate product the second	
				passenger numbers and increasing cargo tannage carried.	passenger numbers and increasing cargo tornage carried.	passenger numbers and increasing cargo tormage carried.	passenger numbers and increasing cargo tormage carried.	passenger numbers and increasing cargo tormage carried.	passenger numbers and increasing cargo formage carried.
eneral Aviation / ommercial airlines	Fuel burn	Initial Options Appraisal: Qualitative							
			The existing EMA procedures for departures do not enable continuous						
				This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no consistence within Steps 2 of the CAD1616 process to purptify fuel how this will be producted in Steps	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no anonimment within Steam 2 of the CAD1616 percent to avantify fuel how this will be conducted in Steam	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no manufacture stability States 2 of the CAD1616 accesses to available for the well be available for the context of a States	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no environment within Steps 2 of the CAR1616 presents to eventify find how this will be conducted in Steps	This option supports continuous climb operations, reducing the overall amount of feel burnt. There is no environment white Steep 2 of the CAPI 616 excess to available for how this will be conducted in Steep	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There are unservice within States 2 of the CARI 614 amounts to exactly find hum, this will be conducted in
			Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track	requirement within Steps 2 of the CAP1616 process to quantify fuel borry, this will be conducted in Steps 3. Therefore, to enable a comparison, the logic applied is that the short the track length, the less losi is bornt. With regards to this option, it is 42.74 km (23.08 m) long. When compand to the ido nothing'	man operative plant support scenarios a unitaria of the scenario	<ul> <li>mequirement within Steps 2 of the CAP1616 process to quartify fuel borrt, this will be conducted in Steps</li> <li>Therefore, to enable a comparison, the logic applied at infurt the short the truck length, the lass fuel is borrt. With regards to fits option, if is 34.822 km (19.88 rm) long. When compared to the 'do nothing'</li> </ul>	<ol> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the lass feel is burnt. With regards to this option, it is 40.41 km [21.82 nm] long. When compared to the 'do nothing'</li> </ol>	max oppose support support support and the support of the support supp	3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less burnt. With regards to this option, it is 39.57 km (21.37 nm) long. When compared to the ide not
			mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' bruesine scenario, the track length to the common point is 38.05km	' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	<ul> <li>scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as mor fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.</li> </ul>	<ul> <li>scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fue will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.</li> </ul>	I scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as mor fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	e scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit a fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
			baseline scenario, the track length to the common point is 38.05km (20.55rm).						
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common nongation standard across the work).	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common norigation standard across the world.	It is anticipated that no entra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common norigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common noregation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common particular bandard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new Pl procedures as PBN has become a common nargation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal:		processures as nervinas pecome a common nongation standard across the world,	processures as nervinas pecome a common navigation standard across the world.	processures as nervinas pecame a common nongation standard across the world.	procedures as norvinas become a common navigation standard across the world.	processures as new nas become a common navigation standard across the world.	
		Qualitative	It is not proportionate at this stage for EMA to assess potential other cast for commercial airlines - there may be casts associated with maintaining legacy systems to continue flying conventional navigation but there are	is g Other casts to commercial airlines may include updates to Fight Management Systems (FMS), navigation databases and operating procedures, increased pilot hise costs versus training etc. It is not proportionate a	Other casts to commercial airlines may include updates to Flight Management Systems (FMS), navigation at databases and operating procedures, increased pilot hire casts versus training etc. It is not proportionate	Other casts to commercial airlines may include updates to Flight Management Systems (FMS), navigation at databases and operating procedures, increased pilot hire casts versus training etc. It is not proportionate a	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation at databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate o	at databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate a	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), novi databases and operating procedures, increased pilot hire costs vesus training etc. It is not proportio
			too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	databases and operating procedures, increased pitol his costs versus training etc. It is not proportionate this stage of the ACP for EMA to assess the 'other cost's to commercial sintness of thring PEN procedures.	al databases and operating procedures, increased pilot him costs versus training etc. It is not proportionate this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of thring PBN procedures.	al dotabases and operating procedures, increased pilot hire cash versus hairing etc. It is not proportionate a this stage of the ACP for EMA to assess the 'other cash' to commercial airlines of thring PBN procedures.	this stage of the ACP for EMA to assess the 'other casts' to commercial airlines of thring PBN procedures.	this stage of the ACP for BMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN proced
Airport / Air navigation service	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures: however, maintaining accessibility to current	There are no expected additional infrastructure casts. All options relate to the implementation of PBN and	d There are no expected additional infrastructure casts. All options relate to the implementation of PBN an	d There are no expected additional infrastructure costs. All options relate to the implementation of PBN and	There are no expected additional infrastructure costs. All options relate to the implementation of PBN are	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and	There are no expected additional infrastructure casts. All options relate to the implementation of PE
provider			convertional proceedures; however, mantaining accessibility to current ground-based equipment (operated by NERI) may become prohibited expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of IPN and y no additional infrastructure is required as the introduction of IPN reduces the elaboration or organized infrastructure, in particular ground-based navigation sids are no longer needed.	d There are no expected additional infrastructure costs. All options relate to the implementation of IRM and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based novigation aids are no longer needed.	I There are no expected additional infrastructure costs. All options relate to the implementation of IPN and no additional infrastructure is required as the introduction of PBN executes the reliance on ground infrastructure, in particular ground-based novigation sids are no longer needed.	<ol> <li>There are no expected additional infrastructure costs. All options relate to the implementation of IPN are no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based novigation sits are no longer needed.</li> </ol>	<ol> <li>There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN relaces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.</li> </ol>	I here are no expected additional infrastructure costs. All options relate to the implementation of PB no additional infrastructure is required as the introduction of PBN reduces the reliance on grou infrastructure, in particular ground-based navigation aids are no longer medded.
liment / Air	Onemtine of out	Initial Chatrons Anno 1991	prior to the proposed removal date.						
navigation service provider	- Personal COR	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extern procedures.	I Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	g Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process	g Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	3 Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process	3 Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at ENA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and tr of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP pr
Airport / Air	Deployment costs	Initial Options Appraisal: Qualitative		Some deployment costs are anticipated with respect to the implementation of the new departure	Some deployment costs are anticipated with respect to the implementation of the new departure	Some deployment costs are anticipated with respect to the implementation of the new departure	Some deployment costs are anticipated with respect to the implementation of the new departure	Some deployment costs are anticipated with respect to the implementation of the new departure	Some deployment costs are anticipated with respect to the implementation of the new departure
sovider		Godinarive	No deployment costs applicable to extant procedures.	procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	procedures and training of air traffic controllens; however, these cannot be identified at this stage of the ACP process.	procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	procedures and training of air traffic controllers; however, these cannot be identified at this stage of ACP process.
ichety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative							
				A possible hazard has been identified with aircraft departing on the SID to the north that could conflict with	h A possible hazard has been identified with aircraft departing on the SID to the north that could conflict with	h A possible hazard has been identified with aircraft departing on the SID to the north that could conflict with	A possible hazard has been identified with aircraft departing on the SID to the north that could conflict with	A possible hazard has been identified with aircraft departing on the SID to the north that could conflict with	A possible hazard has been identified with aircraft departing on the SID to the north that could confil
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids supporting the existing SID	<ul> <li>potable mature market service and the potential supplining on the rate of white market is and on the control of the potential supplining on the rate of the rate frame frame bases control of a and an increase in controllier workload supplicit and no increase in controllier workload supplicit and an increase in controllier workload. This is an extent hozard and ATC would manage the ATC subulicity to tackfordly to maintain supportation of required.</li> </ul>	> picable installs in a data base identical on mutual large of the sub-for the num for advance of the sub-formation of the sub-forma	> picatol readu nas memory and the potential load of potential and the read read factor backware are control of any offer and the potential load of borisontial or vertical separation between arcself and on increase in controll or vorticals separation between arcself and on increase in controll or vortical separation and the control of any offer	<ul> <li>pointer madu na deem deminad mor tartical logal ring on the act of the more frain down than control act of the act of the second of the second act of the second of the second act of the second of the second act of t</li></ul>	<ul> <li>pointed matter as been firmined whereas the pointed or the source norm into tober control or annials from the north result in the pointed to ad horizontal or vertical seguritation between an arcraft and an increase in controller workload. This is an extent heard and ATC would manage the ATC situation backcally to minimize an architection and and an increase in controller workload.</li> </ul>	arrivals from the north resulting in the potential to a departing on the advance of the north result of the potential of vertical separation between and an increase in controller workload. This is an extent hazard and ATC would manage the AT situation tractically to maintain separation if required.
			(should CAP1781 or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	7,000H were to be moved by NERL, this may introduce a potential conflict with this envelope securities in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO vertical. Further assessment will be conducted at Steges 3 and 4 of the CAP1616 process to confirm the want	<ul> <li>7,000H were to be moved by NRL, this may introduce a potential coeffict with this annelops resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ACCO vertical Further assessment will be conducted at Stages 3 and 4 d the CAPI 61 b process to coeffirm the exact</li> </ul>	<ul> <li>7,000H were to be moved by NERL file may introduce a potential conflict with this emalges resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO vertical Further assessment will be conducted at Steges 3 and 4 of the CAPI 616 process to confirm the exact</li> </ul>	7,000fty wave to be moved by NEBL, this may introduce a potential conflict with this envelope neuritopi the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload Further assessment will be conducted of Steger 3 and 4 of the CAP1616 process to confirm the exact	7,000fly were to be moved by NERL, this may introduce a potential conflict with this enrelape resulting in the potential loss of horizontal or vertical separation between a circuit and an increase in ATCO workload. Further assessment will be conducted of Sloges 3 and 4 of the CAP1616 process to confirm the earch	7,000(f) were to be mowed by NEBL, this may introduce a potential conflict with this envelope result the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO wor Further assessment will be conducted at Steges 3 and 4 of the CAP1616 process to confirm the e
			ATCO WORKOOD.	Further assessment vill be conducted at Stages 3 and 4 of the CAP1616 process to continue the exact nature of all hazards and mitigations.	Further assessment vill be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stoges 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stoges 3 and 4 of the CAP1616 process to confirm the ex nature of all hazards and mitigations.
			1						
					When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
		Summary of Analys	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of ainspace	When compared to the 'do nothing' scenario, this option performs:			The second s		
		Summary of Analys	it does not provide a sustainable solution in terms of airspace modernisation and is unviable following the removal of the TNT DVOR	Wone in the following areas:	Wanse in the following areas: - Noise impact up to 4,000ft	Wanie in the following areas: - Noise impact up to 4,000ft	Worse in the following areas: - Noise impact up to 4,000ft	Worse in the following areas: - Noise impact up to 4,000ft	Warse in the following areas: - Noise impact up to 4,000ft
		Summary of Analys	I does not provide a sustainable solvition in terms of airpace modernisation and is unvisible following the removal of the TNT DVOR beacon, which could have a significant impact on capacity and realismose. The existing SID does not enable continuous climb operation to 7,000(ft, which leads to a genetar volume of fuel bort, emissions and	Wonse in the following areas: - Greenhouse gas emissions - Fuel burn	Wanse in the following areas:	- Noise impact up to 4,000ft Retrain the following report	- Noise impact up to 4,000ft - Greenhouse gas emissions - Fael burn	Worse in the following anexas: - Noise impact up to 4,000th - Greenhouse gas emissions - Fuel burn	
		Summary of Analys	It does not provide a sustainable solution in terms of airpace modernization and is aurivable following the removal of the TNT DVDR beacon, which could have a significant impact on capacity and realismes. The availing SID does not enable confinematic dispersions to 7,000ft, which leads to a greater volume of half burn, umission and incide all avery hands. Its terms of Tormshills, Bislanda, Stand	Wone in the following event: - Generhouse gas emissions - Food boars Better in the following events - Notes impact or the 4,0000	Worne in the following ereas: - Noise impact up to 4,000ti - Sourchowang area minimum - Faul barn Exter in the following areas:	- Noise impact up to 4,000ft Retrain the following report	- Noise impact up to 4,000ft - Greenhouse gas emissions - Ford burn - Air Quality	Noise impact up to 4,000ft - Greenhouse gas emissions - Foal burn Better in the following areas:	- Noise impact up to 4,000ft - Greanhouse gas emissions - Fold born Better in the following areas:
		Summery of Analys	It does not provide a sustainable solution in terms of inspace modernisotics and a similar bolivery in termsol of the TN DVDC hascen, which could have a significant impact on capacity and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state neural state of the state of the state of the state of the solution caces and the convention state of the state of the minimal cost increases to today's operations. Furthermore, there are state minimal costs increases to today's operations. Furthermore, there are state minimal costs increases of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the	Wone in the following sense: - Countroput gas entities a - Fault trans Before the following senses: - Naise impact to gas 4,0000 - Naise instruct to gas 7,0000 - A Country	Wone in the following areas: - Noisi impact up to 4,000th - Gamerhous gas emissions - Fuel burn	- Noise impact up to 4,000H	- Nois import up to 2,000 - Contenhous gas minimize - Ar County - Ar County Baffer in Realing unsee - Nois import up to 7,000	- Hoise imposed upon 3 4.000H - Contenhones gene window Faral John - Hoise imposed upon 27,000H - A Couldry	- Noise impact up to 4,000ft - Greenhouse gas emissions - Fuel burn
		Summary of Analys	I dana net provide a sustantizible solution in terms of airpose anderministica multi a multish fabiliting the served of the TIN DEVER bacara, which scale I have a superface of the served of the TIN DEVER bacara, which scale I have a superface of the origination of the the served of the served of the served of the served of the served scale as the served results. I have a superface of the served bacara minimal (see long the backy) segment scales of the back, while minimal (see long the backy) segment scales of the served minimal (see long to backy) segments. For the served minimal (see long to backy) segments. For a safety procedure one served is following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the accounters are sufer. Following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the	Vitrain and Antoloxing areas: Generations gas entitions • Facilitations Antoles in the deformation generation Belowing integrating to 2000b	Notena in the following species Notena inpact op to AGDIO - Generatives gas emissions - Faral hom Barler in the following ensem - Faral hom Barler and the following ensem - Faral hom Barler and the following ensem - Faral hom - F	<ul> <li>Hoai marka top b 2,000h</li> <li>Bahar in the School surge annual</li> <li>School have a second strategy of the School second se</li></ul>	- Noisi mirpact up to 4,000h Graverhous gas emissions - Fuel bar- - Air Quality Eduction in the following aware:	- Noise impact up to 4,000ft - Graverhouse gas emissions - Fuel burn Better in fau following areas: - Noise impact ou to 17,000ft	- Noise impact up to 4,000ft - Grannhouse gene emissions - Foul boom Bather in the following enexa: - Joine impact up to 7,000ft
		Summary of Analys	It does not provide a sustainable solution in terms of inspace modernisotics and a similar bolivery in termsol of the TN DVDC hascen, which could have a significant impact on capacity and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state neural state of the state of the state of the state of the solution caces and the convention state of the state of the minimal cost increases to today's operations. Furthermore, there are state minimal costs increases to today's operations. Furthermore, there are state minimal costs increases of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the	Near is the database generations 2 Section Near Section 2 Section	Notena in the following species Notena inpact op to AGDIO - Generatives gas emissions - Faral hom Barler in the following ensem - Faral hom Barler and the following ensem - Faral hom Barler and the following ensem - Faral hom - F	<ul> <li>Hoai marka top b 2,000h</li> <li>Bahar in the School surge annual</li> <li>School have a second strategy of the School second se</li></ul>	Team information of the \$4,000     Constructions     Constructions     Constructions     Constructions     Construction	<ul> <li>Naw import up the 2,0006</li> <li>Construction gene missions</li> <li>Full form</li> <li>Marrison for Michael up to 2000</li> <li>All form of the structure of the s</li></ul>	Noise inport op 6 40001     Contributing part ministen     Fail lann     fail
		Summary of Analys	I dana net provide a sustantizible solution in terms of airpose anderministica multi a multish fabiliting the served of the TIN DEVER bacara, which scale I have a superface of the served of the TIN DEVER bacara, which scale I have a superface of the origination of the the served of the served of the served of the served of the served scale as the served results. I have a superface of the served bacara minimal (see long the backy) segment scales of the back, while minimal (see long the backy) segment scales of the served minimal (see long to backy) segments. For the served minimal (see long to backy) segments. For a safety procedure one served is following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the accounters are sufer. Following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the	Wood in the following sense: - Sear Hour gas ententions - Sear Hours Before the following entences - Hour and the search of the sense - Ard Couldry, the the JODIO Equation of the remaining criteria because there is no change when compared to todary's reportion.	Notena in the following species Notena inpact op to AGDIO - Generatives gas emissions - Faral hom Barler in the following ensem - Faral hom Barler and the following ensem - Faral hom Barler and the following ensem - Faral hom - F	- Noai mipot vp to 4,000th Better in the following enex: - Noai mipot vp to 7,000th - Simerhous gas emissions - Fore born	<ul> <li>Naw input up to \$2,000</li> <li>Constructions growth minima interview in the second second</li></ul>	Theorem interrupt on the 2000     Construction age on the interrupt of the advectory o	Noise inport op 6 40001     Contributing part ministen     Fail lann     fail
		Summary of Analys	I dana net provide a sustantizible solution in terms of airpose anderministica multi a multish fabiliting the served of the TIN DEVER bacara, which scale I have a superface of the served of the TIN DEVER bacara, which scale I have a superface of the origination of the the served of the served of the served of the served of the served scale as the served results. I have a superface of the served bacara minimal (see long the backy) segment scales of the back, while minimal (see long the backy) segment scales of the served minimal (see long to backy) segments. For the served minimal (see long to backy) segments. For a safety procedure one served is following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the accounters are sufer. Following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the	Wana is a failoring over: Carachical processions Fail lows Marking and the second second second second second second Marking and the second second second second second second second second Marking and the second se	Notena in the following species Notena inpact op to AGDIO - Generatives gas emissions - Faral hom Barler in the following ensem - Faral hom Barler and the following ensem - Faral hom Barler and the following ensem - Faral hom - F	<ul> <li>Hoai marka top b 2,000h</li> <li>Bahar in the School surge annual</li> <li>School have a second strategy of the School second se</li></ul>	Hear import on the 2008     Constructions     Construction     Constructions     Constructions     Constructions	Hour import on the X000     Kontrol     Kontrol on the X000     Kontrol o	- Noise report up to 2008 Constructing the intermitting of all low of Basis in the following unset Basis in the following unset Basis in the following the set of Basis in the following of the set of Basis in the following of the set approximation of the set of the set approximation of the set of the set of the set of the following of the set of the set of the set basis in the set of the set of the set of the set of the set basis in the set of the set of the set of the set of the set basis in the set of the set basis in the set of the set basis in the set of the set basis with a set of the set of
		Summery of Analy	I dana net provide a sustantizible solution in terms of airpose anderministica multi a multish fabiliting the served of the TIN DEVER bacara, which scale I have a superface of the served of the TIN DEVER bacara, which scale I have a superface of the origination of the the served of the served of the served of the served of the served scale as the served results. I have a superface of the served bacara minimal (see long the backy) segment scales of the back, while minimal (see long the backy) segment scales of the served minimal (see long to backy) segments. For the served minimal (see long to backy) segments. For a safety procedure one served is following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the accounters are sufer. Following the servered in the TIN DEVER is inclusively and the star ACCD workshold is laby to increase due to the	Wana is a failoring over: Carachical processions Fail lows Marking and the second second second second second second Marking and the second second second second second second second second Marking and the second se	Notena in the following species Notena inpact op to AGDIO - Generatives gas emissions - Faral hom Barler in the following ensem - Faral hom Barler and the following ensem - Faral hom Barler and the following ensem - Faral hom - F	<ul> <li>How investigation by the 2,000h</li> <li>Both in the following source</li> <li>Both in the following source</li> <li>Both in the source</li> <li>Contributing gains analytica</li> <li>Ford low in the source</li> <li>Both in the source of the remaining otheria because from is no change when compared to today's question.</li> </ul>	Hear import on the 2008     Constructions     Construction     Constructions     Constructions     Constructions	Hour import on the X000     Kontrol     Kontrol on the X000     Kontrol o	Noise inport op 6 40001     Contributing part ministen     Fail ban     Fail ban     fan datum     fandatum
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of radar vectoring may caption is 39.57 km f herefore expected to orio, and is deemed to to confirm the exact	This applies has been disrigned to support continuous clinits providers. At subserve of order version pro- ter 2010 in environment to the support control occurs. The last is, beinger of this genera version 2473 form 2020 environment on compared to the last function generation, for update in larger to a bandwork aspected reach are increases in generational and the last function generation, and is denoted the of environment dis-lawering data the last state of the support of the problem of the support of environment dis-lawering data the last state of the support of the problem of the support of providence generations are estimated.	This option has been disrupted to support contribution (child speciations, d) solutions of a solid vectorizing may 2010 be a solid special disruption of the solid special disruption of the solid set of 4533 me 2020 small. When compared to the file contribution, file, solid special disruption of the solid multi in on increase in genericous generics compared in the file contribution generics, and is described the of environment dis-based. More in edge university on the solid point of the solid set of the contribution of genericous generic edges of the solid set of the solid set of the contribution of genericous generic edges of the solid set of the solid set of the contribution of genericous generic edges of the solid set of the solid set of the contribution of genericous generic edges of the solid set of the solid set of the solid set of the solid set of the solid set of the solid set
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onal Parks], nor any nothing' scenario and	This option ownfiles no stachashy identified transpullary receptors (PCMBs or National Parks), nor any identified through community angugement and is therefore comparable to the identifying science's and constant or needed.	This option ownflex no startstoly identified tempulity receptors (ACMBs or National Parks), nor any identified freque), community arrangement and it that down comparable to the identifying scenario and canada as reacted.
est (SSSIa), Special as identified on the spersion and mixing, there an impact on change sponsor assessed in Stage 3 of	The charge somer two mapped the designed Size of Special Sciencife Interest (SSS), Special Protector, Anon (DAR), Special Annu et Conservation (SAC) and DAROSE Also, as determined (DER) MARIC (Mac, 1997) 16, Appendic B, Part 2, Nath Te Hancoux et al depension and mission from its utility of the one mapper to head only quick from sizer Andreas 1, 2008. Furthermore, CMP 16, Jo- Bodowsky and a device of a section of the dependent and mission of the Andreas Special Endowsky and a device of the designated also around 10M will be essential in Steps 3 of the ACP process by Subject Matter Equation.	The charge sponse from mapped free designeted Size of Special Sciencific Hennet (SSS), Special Protection, Arous (2942, Special Arous of Conservation (SAC) and 204058 Alon, on Adverdised on the USPH MMGC More, 2016 16. Appendic Tap, 2017 Alons that Tablecond I dispension and mini- fame is unlikely to be on impact to head in a quality from accord Modes 1. 2006. Furthermore, 2017 16, Joseph Market, and a special and a special from accord and a 1.2006. Furthermore, 2017 16, Joseph Market, and a special of the special and a special dispension at mini- biotherwise produces of a robust parameter and dispension. Hence, the charge spacement actioned legans front oney parameter and dispension. Hence, the charge spacement for ACP process by Subject Matter Egunn.
of this ACP. All Visual coass will be reviewed d validity. Aimpace ed as part of Stage 3	Impacts to General Asia for course is enfolgeded to be related as a consequence of the ACP. All Mond Measures Finnis and anoing Latters of Againment participation to General Asiation account will be reviewed and spatised policies applicable prior to implementation to secure their continued entity. Areases characteristics requirements and any additional complements will be reviewed as point of Stags 2 accelerates.	Insperts to General Australian course is indicated as the involved run is consequences of the ACP. All Mond- linearous Portun and auding Latitude of Agesement participation to General Australian account will be reviewed and updated polices applicability pror to implementation to answer their contributed antity. Areases charalteristic reviewed as and any additional implementation and her writewed as point of Stage 2 activities.
scity which in turn will und). This is expected movements, increasing	The introduction of PBN is expected to definer basedink by increasing singures coposity which is form will lated to more participable flight paths and lower delays (both in the air or or the ground). This is separate to highlight examines: baseling hypothesis in the second system of the second system o	The introduction of PBV is supercluid to indirer basedink by increasing singuous coposity which is form will based to more predictable flight paths and lever diskips (both in the site or or the ground). This is supercluid to liabilities accounts: based by predictably increasing the frequency of air intropy of momental, pressarger modules and increasing scope strenges control.
uel burnt. There is no se conducted in Stage length, the less fuel is ad to the 'do nothing' nic dis-benefit as more to confirm.	This epifors supports confinence clinic operations, makeing the control amount of feed bardt. There is no manipument with "Stage 2 of the COFA of process to groundly find hum, this call be concluded in Stage hum. The stage of the stage o	This splicit supports continuous climb specificies, reducing the several arrows of feed horst. There is no majoritement which Stage 24 the LCPA 14.6 process to specify the data. In this will be concluded in Stage both the stage of the stage. The same of the stage of the stage of the stage of the stage, it is assumed that is also do account is based on the stage of the stage of the stage. The same of the stage of the stage of the stage, it is assumed that is added to account is based on the stage of the stage. The same of the stage of the stage. The same of the stage of
to fly the new PBN the world.	It is entrippined that no entro plot/over training will be required to enable plots to By the new PBN procedures as PBN has become a common nonjigition standard across the world.	It is anticipated that no extra plot/crow training will be required to enable plots to By the new PBN procedures as PBN has become a common renigition standard across the world.
ems (FMS), navigation is not proportionate at ring PBN procedures.	Other cost to communical airlines may include update to FigH Monogenetry System (FMC), nonspirot dubtases and operating procedures, increased pick his cost ware straining at. It is not proportionite to dis atrge of the ACP for EMA to causes the "other cost" to commercial airlines of thing RBN procedures.	Other costs to commercial arises may include update to Fight Management System (FMC), norigation divibuses and operating procedures, inclusional piloh in costs wans taining at it, is not proportionate of this atogs of the ACP for EMA to assess the tother cost's to commercial airlines of thight PBN procedures.
mentation of PBN and eliance on ground r needed.	There are no expected additional inframature cank. All options relate to the implementation of PRN and no additional inframature in required the introduction of PRN and and the inframedure of the function or general infrastructure, in particular ground-based resignation ands are no longer needed.	There are no expected additional infrastructure cata. All options relate to the implementation of PRN and no additional infrastructure in expected on the introduction of PRN reducts the theritance on provad infrastructure, in particular ground-based nariogation aids are no longer needed.
rocedures and training ge of the ACP process. The new departure ed at this stage of the	Some approximation can be an exceptional with respect to the implementation of new proceedings and their or in velocit carteful and 19 MAs becauses, these counts of identificant of the stage of the ACP process. Some displayment cash are servicipated with respect to the implementation of the mere department procedures and training of our traffic constants. However, these counts the identifiest of this stage of the ACP process.	Some operational can be an excitability with request to the implementation of mere proceedings and their original controlling of all tables, however, these counces is advected in a taking of the ACP process. Some displayment cash are anticipated with request to the implementation of the mere department proceedings and training of an IMES controlling. However, these council to identified at this stage of the ACP process.
that could conflict with trion between aircraft I manage the ATC network (j.e. above erreilope resulting in se in ATCO workload. to confirm the exact	A module hannel has been shorted and shorted segreting on the 20 m Am and the south coeffs and Amounts have the test having the hyperistical based for south or worked according to the south or and on sourcess on coefficient and the source of the south or the south of the sout	A possible hannel has have therefuel with strong happening on the 20 s the earth flow sould could a solid A poincide have the west have the poincide law of strong the excitate approximation strong and an increase in could be accelerated with the strong term of the strong term of the short the term of the acceleration of the strong term of the strong term of the 2000 filling the strong term of the strong term of the strong term of the 2000 filling term of the acceleration of the strong term of the 2000 filling term of the acceleration of the strong term of the strong term of the 2000 filling term of the acceleration of the strong term of the strong term of the 2000 filling term of the strong term of the strong term of the strong term of the 2000 filling term of the strong term of the strong term of the strong term of the 2000 filling term of the strong term of the strong term of the strong term of the 2000 filling term of the strong term of the strong term of the strong term of the 2000 filling term of the strong term of the strong term of the 2000 filling terms of the 2000 filling term of the strong term of the strong term of the 2000 filling terms on term of the 2000 filling term of the strong term of the strong term of the 2000 filling terms on term of the 2000 filling term of the strong term of the 2000 filling terms of the 2000 filling terms on term of the 2000 filling term of the strong term of the 2000 filling terms of the 2000 filling term of the 2000 filling terms of
	What compared to the low notifying scenario, this option parforms Where in the following messes i Construction gas materials - Pail laws - Pail laws - Noise inquist of up 5,0008 -	When compared to the the notifying sciences, this option parliams: Winness the Machaning sciences 1. Generalback gas an initiations 1. Generalback gas an initiations 1. Search and the sciences Back or far factoring sciences Back or factoring sciences 1. Search 2015 (2015) 1. Search 2015 1. Se
mpared to today's	- Are Guarty Equal/neutral in terms of the remaining criteria because there is no change when compared to today's apperation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
option as this option er system. Additional cumulative impact of	At this fear, is it and possible to fully determine the softy implications of this specific option as this option. This basen caused in a basicing matter that a soil of design options apport of whice trapers. Additional analysis will be required in Steps 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	At this time, is in ort possible to bly determine the addy implications of this specific option as this option. In a barne nasessed in advance matter have as of addings options apport on wide system. Addisonal analysis will be required in Stops 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.
ed the ACCEPTABLE	Ecael on the KDA Shortfal Assessment methodology, Option O7 has been deemed the REJECTED option within the design envelope.	Based on the KDA Shorfal Assessment methodology, Option OB has been deemed the REJECTED option within the design envelope.

	velope: SID Runway	∠/ Southeast	'DO NOTHING' BASELINE	R27_D_SE_O2 Option 2 proceeds straight ahead after take-off with no offset and uses	SID 27 Southe R27_D_SE_O4 Option 4 has a 10° northerly offset, as an alternative to avoid Melbourne	R27_D_SE_O5 Option 5 has a 10° southerly offset followed by a series of tight turns to	<b>R27_D_SE_O7</b> Option 7 has a 10° northerly affset and then heads south east to follo
			For the southeast design envelope, the 'do nothing' scenario for departures in terms of today's operation is based around the existing conventional DAVENTRY SID. The 'do nothing' scenario for departures	Option 2 proceeds straight check after take-oft with no offset and uses CAP778 speeds and turn criteria to route to the south east. After departure this follows the runway heading for 1.4nm with no offset	Option 4 has a 10° northerly offset, as an alternative to avoid Melbourne to the north. The 10° offset to the north results in the route passing north of Melbourne	Option 5 has a 10° southerly offset followed by a series at tight turns to avoid Coalville and Leicester. The 10° offset to the south results in the route passing south of Melbourne	Option 7 has a 10° northerly offset and then heads south east to tol similar route to Option 5 to avoid Coahille and Loughborough. The 10° offset results in the route passing north of Melbourne and fi
			consists of a modal track that has been derived to provide an accurate representation of what occurs today. In addition to the modal track, a	passing close to the south east commer of Melbourne. A left turn is then made anto a southerly heading for a short distance before making a second left	and then turning left hohed south. A second turn is made to the north east of Ashby-de-la-Zouch to route in a south east direction, passing west o	and then making two turns in quick succession to head to the south est. This results in a track that passes north of Coalville and south of Shepshed	
			polygon has also been created that represents an area where current operations are dispersed due to radar vectoring and potentially may	turn to route north of Coalville. It heads in a south easterly direction overflying Mountsorrel and terminates close to System	Coalville. The option terminates to the north west of Leicester close to Groby.	and Loughborough before terminating north of Syston just to the north east of Leicester.	Akhby-de-la-Zouch and Cookville. This track continues to pass sour Shepshed and Loughborough before terminating north of Syston. The route has a constant climb gradient of 6%, terminating at 7,00 the CAP 778 recommended speed of 210 KMS has been applied to
			affect people on the ground. The overflight analysis conducted on this SID was based on the modal track created using Noise and Track	The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first	The route has a constant climb gradient of 6%, terminating at 7,000t and the CAP 778 recommended speed of 210 KIAS has been applied to the first	The route has a constant climb gradient of 6%, terminating at 7,000ft. The two initial turns have been limited to 190KIAS to enable the tightest	the CAP 778 recommended speed of 210 KIAS has been applied t turn.
			Keeping data at altitudes of 4,000th and 7,000th with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the Departure End of Rurway to the	turn.	tum.	turn possible to achieve a more northerly route to avoid Coalville. The route is PANS-OPS compliant but should it become a preferred option then it is recommended that it is assessed for flyability as part of the procedure.	
			calculated on the distance from the Departure End of Runway to the end of the modal track plus the distance from the end of the modal track to the common point.			It is recommended that it is assessed for thability as part of the procedure validation process within Stage 4 of CAP1616.	
Group	Impact	Level of Analysis	Runway 27	Runway 27	Runway 27	Runway 27	Runway 27
nmoninas	quality of life	Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario was				
			based on the existing DAVENTRY SID. In terms of potential noise impact, initial quantitative analysis has	Up to 4,000ft, this option is estimated to overfly approximately 3,450	Up to 4,000th, this option is estimated to overfly approximately 600	Up to 4,000th, this option is estimated to overfly approximately 750	Up to 4,000ft, this option is estimated to overfly approximately
			identified that: - Up to 4,000 ft, this 'do nathing' scenario	households with an approximate population of 6,400. Taking account of 50 planned property developments, this option is estimated to overfly and impact	households with an approximate population of 1,200. Taking account of 1,250 planned property developments, this option is estimated to overfly	households with an approximate population of 1,500. Taking account of 750 planned property developments, this option is estimated to overfly and impact a total population of 3,000. The potential noise impact on health	households with an approximate population of 1,700. Taking acc planned property developments, this option is estimated to over
			is estimated to overfly approximately 2,650 households with an approximate population of 5,000. Taking account of 0 planned property developments, this option is estimated to overfly and impact a	a total population of 6,500. The potential noise impact on health and quality of life up to 4,000ft is assessed as likely to affect more people than the 'do	and impact a total population of 3,700. The potential noise impact on health and quality of life up to 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	impact a total population of 3,000. The potential noise impact on health and quality of life up to 4,000th is assessed as likely to affect fewer people than the 'do nothing' scenario.	impact a total population of 1,700. The potential noise impact or and quality of life up to 4,000t is assessed as likely to affect fewe than the 'do nothing' scenario.
			total population of 5,000.	nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 11,750 households with an approximate population of 22,200. Taking account of	Up to 7,000H, this option is estimated to overfly approximately 16,300 households with an approximate population of 30,500. Taking account of	Up to 7,000ft, this option is estimated to overally approximately 15,700 households with an approximate population of 29,900. Taking account of	Up to 7,000th, this option is estimated to overfly approximately households with an approximate population of 20,600. Taking a
			<ul> <li>Up to 7,000 ft, this 'do nothing' scenario is estimated to overfly approximately 9,200 households with an approximate population of 16,900. Taking account of 3,450 planned</li> </ul>	600 planned property developments, this option is estimated to overfly and impact a total population of 23,300. The potential noise impact on health	5,900 planned property developments, this option is estimated to overfly and impact a total population of 41,600. The potential noise impact on	2,850 planned property developments, this option is estimated to overfly and impact a total population of 35,400. The potential noise impact on	<ol> <li>1,750 planned property developments, this option is estimated to and impact a total population of 24,000. The potential noise im</li> </ol>
			approximate population of 10,900. Taking account of 3,430 planned property developments, this option is estimated to overfly and impact a total population of 23,300.	and quality of life up to 7,000ft is assessed as likely to affect some amount of people as the 'do nothing' scenario.	health and quality of life up to 7,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	health and quality of life up to 7,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	health and quality of life up to 7,000ft is assessed as likely to affe people than the 'do nothing' scenario.
ommunities	Air Quality	Initial Options Appraisal:					
		Qualitative	No change to air quality is predicted in maintaining baseline	Although there is likely to be a change in aviation emissions by location below 1.000 feet. the location is not within the vicinity of a designated AQAV	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated	Although there is likely to be a change in aviation emissions by l below 1,000 feet, the location is not within the vicinity of a desig
			conditions. The majority of the estant procedure involves overflight above 1,000th, other than the areas in the immediate vicinity of the Departure for a Personne	and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing'	AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing'	AQMA and as per CAP1616, para B72 a full Air Quality Assess deemed not required. This option overflies one AQMA. When compared to the 'do no
			Departure End of Runway. In terms of AQMAs, the existing Runway 27 DAVENTRY SID overflies no AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it overflies more	scenario, this option is deemed to be equal as it overflies the same number	scenario, this option is deemed to be of dis-benefit as it overflies more	scenario, this option is deemed to be of dis-benefit as it overflies
			IN PARTICIA.	AQMAs.	of AQMAs.	AQMAs.	AQMAs.
ider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative					
			Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by aircraft may vary slightly due				
			to the nature of radar vectoring, although aircraft do all follow the extant procedures in a broader sense. The existing procedures do not	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft	This option has been designed to support continuous climb opera element of radar vectoring may still be required to manage air
			support optimal aircraft performance and therefore are predicted to have a areater environmental impact compared to proposed options.	separation of robart vectoring may sim be required to manage direction separation distances. The track mileage of this option is 52.82 km (28.52 nm). When compared to the 'do nothing' scenario, this option is longer and is	separation distances. The track mileage of this option is 57.58 km (31.09 s nm). When compared to the 'do nothing' scenario, this option is longer and	separation distances. The track mileage of this option is 50.72 km (27.38 nm). When compared to the 'do nothing' scenario, this option is longer and	separation distances. The track mileage of this option is 57.29 km nm). When compared to the 'do nothing' scenario, this option is lo
			Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative emissions analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track	therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental	is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of	is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of	is therefore expected to result in an increase in greenhouse gas en compared to the 'do nothing' scenario, and is deemed to be
			covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do	dis-benefit. More in-depth analysis, will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental dis-benefit. More in-depth analysis will take bace at Stage 3 to confirm the exact volumes of greenhouse gases released.	enviromental dis-benefit. More in-depth analysis will take place at to confirm the exact volumes of greenhouse gases released
			mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length to the common point is 34.88km (18.83nm).		-		-
ider Society	Capacity and resilience	Initial Options Appraisal: Qualitative					
			Maintaining estant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and sever delays (both in the air and on the ground). The reduction of the	The introduction of PBN routes is expected to deliver benefits by increasing anypace capacity which subsequently leads to more predictable flight paths and fever delays (both in the air and on the ground). The reduction of the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the	The introduction of PBN routes is expected to deliver benefits by in airspace capacity which subsequently leads to more predictable flip
			DTY DVOR and the requirement to adopt PBN procedures as part of	and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	and fewer delays (both in the air and on the ground). The reducti reliance on outdated ground based navigational aids will signif increase operational resilience through the introduction of PI
			the FASI-N Programme.	increase operational resilience through the introduction of PBN.	increase operational resilience through the introduction of PBN.	mcrease operational resilience through the introduction of PBN.	increase operational resilience through the introduction of PE
/ider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are				
			required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and	This option overflies no statutorily identified tranquillity receptors ( or National Parks), nor any identified through community engagem
			by community engagement. The 'do nothing' scenario overflies no tranquility receptors (AONBs or	therefore comparable to the 'do nothing' scenario and assessed as neutral.	is therefore comparable to the 'do nothing' scenario and assessed as neutral.	is therefore comparable to the 'do nothing' scenario and assessed as neutral.	is therefore comparable to the 'do nothing' scenario and assess neutral.
ider Society	Biodiversity	Initial Options Appraisal:	National Parks).				
Taki Society	biodine any	Qualitative	The change sponsor has mapped the designated Sites of Special	The change sponsor has mapped the designated Sites of Special Scientific	The change sponsor has mapped the designated Sites of Special Scientific		
			The change sponsor has mapped the designated sites of special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interchange sponsor has mapped the designated states of special scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map.	Interest (SSSIs), Special Protection Areas (SPAs), Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DERA MAGIC	The change sporsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC	The change sponsor has mapped the designated Sites of Special S Interest (SSSIs), Special Protection Areas (SPAs), Special Areas Conservation (SACs) and RAMSAR sites, as identified on the DEFRA
			MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air	CAP1616, Appendix B, para B74, states that because of dispersion and	Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air guality from	Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from	Map. CAP1616, Appendix B, para B74, states that because of dis
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,0008. Furthermore, CAPI 616, Appendix B, para BBO, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general airsonce change proposal will get have an impact or	aircraft above 1,000th. Furthermore, CAP1616, Appendix B, para B80, states that in general, girsnore change proposal will not have an impact on	and mixing, there is unlikely to be an impact on local air qualit aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, par states that in general, airspace change proposal will not have an i
			have an impact on biodiversity as they do not involve around-based	they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matte	biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the	biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the	biodiversity as they do not involve ground-based infrastructure. H the change sponsor acknowledges that any potential impact to
			infrastructure. However, the change spansor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	Experts.	the change sponsor acknowledges that any potential impact to the designated sites around ENA will be assessed in Stage 3 of the ACP proces by Subject Matter Experts.	the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	the change sponsor acknowledges that any potential impact to designated sites around ENA will be assessed in Stage 3 of the ACI by Subject Matter Experts.
seneral Aviation	Access	Initial Options Appraisal:					
		Qualitative		Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	consequence of this ACP. All Visual Reference Points and existing L Agreement pertaining to General Aviation access will be reviewe
			of access under extant operational arrangements.	updated (where applicable) prior to implementation to ensure their continues validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	d updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	updated (where applicable) prior to implementation to ensure to continued validity. Airspace classification requirements and any ad airspace requirements will be reviewed as part of Stage 3 activi
				requirements will be reviewed as part of stage 3 activities.	airspace requirements will be reviewed as part of stage 3 activities.	airspace requirements will be reviewed as part of stage 3 activities.	airspace requirements will be reviewed as part of stage 3 activi
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative					
			No increase to effective capacity anticipated for continued use of	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the around). This is expected to facilitate	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fever delays (both in the air or on the around). This is expected to	The introduction of PBN is expected to deliver benefits by increa airspace capacity which in turn will lead to more predictable flight and fewer delays (both in the air or on the ground). This is expect
			estant procedures, therefore no economic benefit for GA/airlines.	economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo	facilitate economic benefit by potentially increasing the frequency transport movements, increasing passenger numbers and increasing
				carried.	tonnage carried.	tannage carried.	tonnage carried.
eneral Aviation / ommercial airlines	Fuel burn	Initial Options Appraisal: Qualitative					
			The existing EMA procedures for departures do not enable continuous	This option supports continuous climb operations, reducing the overall	This option supports continuous climb operations, reducing the overall	This option supports continuous climb operations, reducing the overall	This option supports continuous climb operations, reducing the o
			climb operations. Within Stage 2 of the CAP1616 process, there is no requirement for a	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	amount of fuel burnt. There is no requirement within Stage 2 o CAP1616 process to quantify fuel burn, this will be conducted in S
			change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track	enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 52.82 km (28.52 nm)	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 57.58	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 50.72 Im (27.38 nm) long. When compared to the 'vha optimia' senario. this	Therefore, to enable a comparison, the logic applied is that the sh track length, the less fuel is burnt. With regards to this option, it is km (30.93 nm) long. When compared to the 'do nothing' scenari
			mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nathing' baseline scenario, the track length to the common point is	long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel	km (31.09 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-death analysis will be carried	km (27.36 km) long. When compared to the 'do nothing' scanano, this option is longer and at this stage, it is assumed that it will be of economic dischengent on smore hard will be human More in-denth analysis will be corried	bit (30.93 nm) long. When compared to the 'ao nothing' scenario option is longer and at this stage, it is assumed that it will be of ec- discheredit as more fuel will be burnt. More indexth analysis will be discheredit.
			34.88km (18.83nm).	will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm	out in Stage 3 to confirm.	out in Stage 3 to confirm.	out in Stoge 3 to confirm.
ommercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no eatra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to enable pilots to fiv the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to pilots to fly the new PBN procedures as PBN has become a com
Commercial airlines	Other costs	Initial Options Appraisal:	would be practised by crews through existing simulator exercises.	navigation standard across the world.	navigation standard across the world.	navigation standard across the world.	navigation standard across the world.
		Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining leagcy systems to continue thing conventional paviaation	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures. increased airlot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased oildt hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Fli Management Systems (FMS), navigation databases and opera procedures, increased pilot hire costs versus training etc. It is
			but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for ENA's usas indiming etc. In a not proportionate at this stage of the ACP for ENA's casses the "other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of thying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other commercial airlines of flying PBN procedures.
irport / Air avigation service rovider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current	There are no expected additional infrastructure costs. All options relate to the	There are no expected additional infrastructure costs. All options relate to	There are no expected additional infrastructure costs. All options relate to	There are no expected additional infrastructure costs. All options in
ronder			ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be	implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	the implementation of PBN and no additional infrastructure is require the introduction of PBN reduces the reliance on ground infrastruct particular ground-based navigation aids are no longer needed
érport / Air	Operational casts	Initial Options Appraisal:	implemented prior to the proposed removal date.	Some operational costs are anticipated with respect to the implementation of	Some operational costs are anticipated with respect to the implementation	Some operational costs are anticipated with respect to the implementation	Some operational costs are anticipated with respect to the implem
avigation service rovider		Geodinarine	No change to operational costs is attributable to maintaining the extant procedures.	Some operational casts are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implement of new procedures and training of air traffic controlling staff at however, these cannot be identified at this stage of the ACP pro-
irport / Air aviantian service	Deployment costs	Initial Options Appraisal: Qualitative		Some deployment costs are anticipated with respect to the implementation of	Some deployment costs are anticipated with respect to the implementation	Some deployment costs are anticipated with respect to the implementation	Some deployment costs are anticipated with respect to the impleme
avigation service rovider		na, - Mittali Mi	No deployment costs applicable to estant procedures.	the equipyment costs are annequated with respect to the implementation of the wedgeparture procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure procedures and training of air traffic contro however, these cannot be identified at this stage of the ACP pro
ofety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		Possible hazards have been identified, some of which are estant and are	Possible hazards have been identified, some of which are estant and are	Possible hazards have been identified, some of which are extant and are	Possible hazards have been identified, some of which are estant o
				currently mitigated through existing ATC procedures. Firstly, aircraft departing on the SID to the south east may conflict with EMA	currently mitigated through existing ATC procedures. Firstly, aircraft departing on the SID to the south east may conflict with EMA	currently mitigated through existing ATC procedures. Firstly, aircraft departing on the SID to the south east may conflict with EMA	currently mitigated through existing ATC procedures. Firstly, aircraft departing on the SID to the south east may conflict v
			The life and long second	arrivals from the south resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in controller workload. This is an under heard and ATC and ATC and ATC about the family and	arrivals from the south resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in controller workload. This is	arrivals from the south resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in controller workload. This is	arrivals from the south resulting in the potential loss of horizontal a separation between aircraft and an increase in controller workload
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of around-based novinational airs supportion the existin SID	an extant hazard and ATC would manage the ATC situation tactically to maintain separation if required. Secondly, there could be unknown or no interaction possible between the	an extant hazard and ATC would manage the ATC situation tactically to maintain separation if required. Secondly, there could be unknown or no interaction possible between the	an extant hazard and ATC would manage the ATC situation tactically to maintain separation if required.	an extant hazard and ATC would manage the ATC situation tacti maintain separation if required.
			removal of ground-based navigational aids supporting the existing SID, aircraft departing EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	Secondly, there could be unknown or no interaction possible between the departing aircraft and the ATC network and controlling authority (i.e., above 7,000th as it may involve flight in Class G 'uncontrolled' airspace. This	Secondly, there could be unknown or no interaction possible between the departing aircraft and the ATC network and controlling authority (i.e., above 7,000tt) as it may involve flight in Class G 'uncontrolled' airspace.	Secondly, there could be unknown or no interaction possible between the departing aircraft and the ATC network and controlling authority (i.e., above 7,000tt) as it may involve flight in Class G 'uncontrolled' airspace.	Secondly, there could be unknown or no interaction possible betw departing aircraft and the ATC network and controlling authorit above 7,000th as it may involve flight in Class G 'uncontrolled' of
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.	could result in the potential loss of horizontal and/or vertical separation between aircraft that may result in an increase in ATCO workload. The	This could result in the potential loss of horizontal and/or vertical separation between aircraft that may result in an increase in ATCO	This could result in the potential loss of horizontal and/or vertical separation between aircraft that may result in an increase in ATCO	This could result in the potential loss of horizontal and/or ver separation between aircraft that may result in an increase in A
				sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensure that network connectivity and additional airspace	workload. The sponsor would be required to maintain close liaison with NBRL through bilateral meetings to ensure that network connectivity and	workload. The sponsor would be required to maintain clase liaison with NERL through bilateral meetings to ensure that network connectivity and	workload. The sponsor would be required to maintain close liais NERL through bilateral meetings to ensure that network connection
				requirements are met. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	additional airspace requirements are met. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	additional airspace requirements are met. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	additional airspace requirements are met. Further assessment will be conducted at Stages 3 and 4 of the C process to confirm the exect nature of all hazards and mitigat
		Summary of Analys	the 'do nothing' scenario in relation to this ACP is not a viable option	process to contirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	process to contirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	process to contirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	process to contrim the exect nature of all hazards and mitigat When compared to the 'do nothing' scenario, this option performs
			as it does not provide a sustainable solution in terms of airspace modernisation and is unviable following the removal of the DTY DVOR	Worse in the following areas:	Worse in the following areas:	Worse in the following areas:	Worse in the following grans-
			beacon, which could have a significant impact on capacity and resilience. The existing SID does not enable continuous climb	Noise impact up to 4,000tt     Noise impact up to 7,000tt	<ul> <li>Noise impact up to 7,000ft</li> <li>Greenhouse gas emissions</li> </ul>	- Noise impact up to 7,000ft - Greenhouse gas emissions	- Noise impact up to 7,000th - Greenhouse gas emissions
			operations to 7,000ft, which leads to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquility, Biodiversity, General Aviation access and Economic impact, the 'do	- Greenhouse gas emissions - Fuel burn - Air Quality	- Fuel burn Better in the following greas:	- Fuel burn -Air Quality	- Fuel burn -Air Quality
			Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this	-Air Quality Equal/neutral in terms of the remaining criteria because there is no change	Better in the following areas: - Noise impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000tt
			scenario. From a safety perspective, it is assumed that current EMA operations are safe. Following the removal of the DTY DVOR, it is	when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change	Equal/neutral in terms of the remaining criteria because there is n
			acknowledged that the ATCOs workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a	At this time, it is not possible to fully determine the safety implications of thi	when compared to today's operation.	when compared to today's operation.
				set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be	specific option as this option has been assessed in isolation rather
				second and the other options.	required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	set of design options as part of a wider system. Additional analysis required in Stage 3 and 4 of the CAP1616 process to determine to cumulative impact of this option when compared to all the other of the other statement of this option when compared to all the other of the statement of the s
				Brend on the IOA Shortling to compare water	Based on the IOA Shortist American method-loss. Out of 0.1		Record on the IOA Souther Assessment and which the
					Based on the IOA Shortlist Assessment methodology, Option O4 has been deemed the ACCEPTABLE option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option OS has been deemed the FAVOURABLE option within the design envelope.	
			IOA Shortlist Assessment Option shortlist classification for stage 3	REJECTED	ACCEPTABLE	FAVOURABLE	REFERED

Departure F-	velope: SID Pumu-	27 Southeast		-	SID 27 Southeast Options 12-18	
veparture En	velope: SID Runway	r ∠/ Joutheast	Pointerfuence in the second se	Charact 15 tests 10° controls for factor that have left such at Cauching to provide on alternative options. For English to the sear. The 10° differ that have makes the search of the search and factor thanks that have a search and the search control of the search of the search of the search of the search of the search of the search of the search of the search control of the search of the search on alter placement of the Hill where I trans left to reach bornearth quarks and the search control of the search of the search on alter placement of the the search of control of the search of the search of the search of the the CAP 728 eccommended queed of 210 KMA has been explicit to the first that.	Let 2 a common spring that the the transmission of the transmissi	Content 18 here a 10° resolution of Allow and Centurns left seach of langtherogen to provide an element on points of relights to the east. The 10° offset results in the code parating control of Alloborne and their praiding the towns to hand a south most in east, meaning in orth of bet the 10° offset results in the code parating context, meaning in orth of bet physical and context the south east, meaning in orthogen and parates context, and a south most in east meaning and parates context, and the south east of the most hand context of the parates of the Allower and the south east context of the most hand context of the grander of dd to March and the south east context of the grander of dd to March hand been opplied to the first hum.
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal: Qualitative	Runway 27	Runway 27	Runway 27	Runway 27
			For comparison purposes within the (DA, the do nothing iscentio was band upon the auting DAVE/17/50. Internet of the auting DAVE/17/50. Internet of the auting DAVE/17/50. Internet of the auting particular and automatic analysis has distincted to overly approximately 2.250 boueholds with an approximate paperinter of 5,000. Taking account of D planos and strategies to overly approximately 2.250 boueholds with an approximate paperinter of 5,000. Taking account of D planos - Up to 7,0000, this do nothing caraonicia a autineat to overly approximately 2.2000 boueholds with an approximate paperinter of 1,5000 boueholds with an approximate paperinter of 2,000 boueholds with approximate approximate paperinter of 2,000 boueholds with an approximate paperinter of 2,000 boueholds with approximate approximate paperinter of 2,000 boueholds with approximate appro	Up to 4,000t, this option is astimuted to swelly approximately 600 households with an approximate population of 1,200. Taking account of 1,209 binomic property development, this system is an antibiated to swelly household on a system of the system of the system of the system people than the undergradient of 2000 taking the state the people than the only account of the properties of 1,2000. Taking account of the 2000 the control on settimated to excit point of the the people than the only account of 2000 taking the state the household on a state of the system is a state of the system is an approximately 1,2000 household and the system of 2000 taking the state of the system of market of the system of 2000 the settimes and the system with the system of the system of the system is a state point of the health and quelty of 140 up to 2,000 the samead as likely to effect more people than the to indust occurs.	Up to 4,0001, this option is estimated to swelly expresentedly 750 households with an expressional population of 1,500. Taking account of 271 phone of property developments, this option is atteined to such and and called (if the p-1,000) is causated at layer softler fore popula- tion is the second second second second second second second to 2,000, the option is asteinated to overly expresentably 10,720 households with an expresentable population of 25,500. Taking account of 20, a 7,000, the option of 25,500. Taking account of and most of second second second second second second most of the second second second second second second most of the second second second second second health and quelty of the up to 7,000 his second set in later more people than the do noting canonic.	Up to 4,000ft, this option is estimated to overly approximately 1,950 households with an approximate population of 3,700. Taking account of 0 planear property developments, this option is estimated to userily and out quality of like you could be a strained to userily and out quality of like you could be a strained to the property time to a strain out the strain out of the strain out of the households with an approximate population of 27,000. Taking account of households with an approximate population of 27,000. Taking account of and import a strain population of 27,000. Taking account of and import a strain population of 27,000. Taking account of headth and quality of like up to 7,0000 is assessed as likely to affect more people than the do nothing iscenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditors. The majority of the earby procedure involves overlight down 1,0000, cher than the aross in the immediate using it of the Departure End of Rummy. In turns of AQMs, the earling Rummy 27 DWENTRY SD overfiles no AQMs.	Although have is likely to be a change in existion emissions by location balou 1,000 bet, the location is not which the vicinity of a designed AQMA and a per CAP designed for trajected. This option overlines to AQMA. When compared to the isotendria location is designed to be of dis-based to it overfiles more AQUAA.	Although there is likely to be a change in existion emissions by location balow 1,000 has, the location is not within the vicinity of a disposed AQUA and as par CM-balow and a transmission by the second second and the second and the second and the second seco	Although flave is likely to be a change in orisiton entraines by location balou 1.000 bet, the location is not within its wickshy of a designed AQMA and a per CM second and or required. This option onething water and the second of the second seco
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative				
			Control module do not exceedia controlmone climb operatives or hard the module that the assess that length frame by control more your algebytes to the notword or index vectoring, although anicord do call Biolan et al. and that proceedings on the clinear length and the sector of the control of the contr	This pation has been designed to support continuous climb operations. An element of oxder vectoring may all lat required to monogo accord secontion distincant. The tack integrad of this cliquid is a large of the integrad of the second second second second second is a second second second second second second is a second second second second second second is a second second second second second second be confirm the each volumes of previous genes released.	This option has been designed to support continuous climb operations. An element of index vescuring roup all la required to monoga anicolit separation distances. The took integrad previous fits (applice) as large out (b). When compared to the distancing anicolity fits (applice) as large out in compared to the distancing anicolity of the distances of the concernent of ab-band theories index monoganes. The space as to confirm the exact volumes of gravehouse geans velocited.	This option has been designed to separat continuous climb operations, An element of nodar vectoring may all be required to monoga aircraft separation distances. The track milesge of this option is 58 20 km [3], 46 million (1), this compared in the driv nutring sectoring, this option is to larger and its compared to the track nutring sectoring sectoring and the sectoring drive sectoring sectoring sectoring sectoring and the sector of the to confirm the sector relations of greenhouse gases released. Its confirm the sector relations of greenhouse gases released.
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Metabolica edu 1 - 1 - 12	The interdention of DP4	The tasked office of D*+	The tensor deater of 00% is a second second
under A	Terrardia	http://www.com	Maritariang estant proceedures would maintain current copacity, however, des to he relations: upon ground-based novigistional aids, resilience could be significantly affected, following the removal of the DTY DVOR and the requirement to adopt PRN proceedures as part of the FASI-N Programme.	The introduction of PBI roats is separated to drive handhard by increasing engoace capacity which absoparetly faced to more predicable Bight pathward and lever drivery (both in the air and on the ground). The reduction of the relations on andiated ground based increasor and is significantly increase operational resilience through the introduction of PBI.	The introduction of PRN rotats is expected to delive heards by increasing comprace capacity which subsequently loads to more predictional Fight pathware and lower delays (both in the air and on the ground). The reduction of the relations on outstand ground based integrational disa will significantly increase operational realitence through the introduction of PRN.	The introduction of PBM rotes is expected to delive banefits by increasing engineer accessive this subsequently leads to more predictable light paths and lever delays (both in the air and on the ground). The reduction of the relations on ondered ground based metglighted and will significantly increase operational realitience through the introduction of PBN.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appandia B, pana B76, change sponsor an required to consider Transpullity with specific reference to ADNBs and Hatanai Parto sub, reflex after anous howe bain identificate through community engagement. No additional specific aneas were identified by community engagement. The ido nothing' scenario everifies no transpulprezeptors (ADNBs or Hatianal Parka).	This option overflies no statutorily identified trainquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nathing' scenario and assessed as neutral.	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutorily identified transuility receptors (ACNBs or National Park), nor any identified through community engagement and is therefore comparable to the slo nating' scenario and assessed as neutral.
Wider Society	Bladwensty	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designeted Stee of Spaced Scientific Innural (SSII), Spaced Protection Areas (PAR), Spaced Areas (South Change (SSI)), Spaced Protection Areas (Areas), Spaced Protection, Space 1274, Jostes for Macourse of depension and margins free is unlikely to be an impact on local or analy from aircraft above (J.OSII), Furthermore, C.PF161A, Ageneda Hearts and margins (Parket Innural Areas), Space 1274, Jostes for Macourse analytic for a strategies and the space of the space of the space analytic for a strategies and the space of the space of the space and the space of the space of the space of the space of the space and the space of the space of the space of the space of the space instantial impact the discognized that across (DAI will be acrossed in Spage 3 of the ACP process by Subject Matter Equery.	The charge sponsor has mapped the designated State of Special Joness (SSI), Special Protection Areas (SPA), Special Protection (Areas (SPA), Special Protection (Areas (SPA), Special Protection)), Areas (SPA), Special Protection, SPA, states the taccourse of dependent and maining. Areas is sailably to be an special charge and protection of the special Protection (SPA), Special Protection, SPA), Special Protection, SPA, Special Protection,	The change sponsor has mapped the designated State of Special Asset of Interest SCHL, Special Protection Areas (SPAL, Special Asset of Change CHI SCHL, Special Protection Areas (SPAL), Special Asset of Arape, CHI SLA, Papped A, Jaron SPA, states the because of departici- ne and mains, there is studied by bein impact to local are quality from accord above. JOBC: Furthermore, CHI SLA, Aspendi B, Jaron BBO, Scholaming at May do and impact the studies of the studies of the Change sponsor admonstration to the studies of the ACP process by Salignet Matter Equat.	The change sponsor has mapped the designated State of Spacial Scientific Interest (SSM), Spacial Protection, Anna (SPM), Spacial Areas of CMap. CPU 16, Arganothic By 2000 EP 4, attacts that have been and maining, them is a unlikely to be an impact to local air quality from scient shows 1.000H. Furthermore, CPU 61, 6, Arganothic By 2000 House of the state of the state of the simulation of the state of the state biodensity at the photon include shows and infrastructure. However, the change sponsor advandages that any potential inspact to the designated the source and the VM is the assessed of the SMD and Space biodensity at the photon include grand and instructure. The Arganotic absorbed the source and the Arganotic biodensity at the photon include grand and simulation. However, the change sponsor advandages that any potential inspace to the designated the source biodensity. The Arganotic by Subject Matter Equent.
General Aviation	Access	Initial Options Appraisal: Qualitative				
			No change to existing airspace arrangements, Any General Aviation users of airspace in the vicinity of BMA will maintain their current level of access under extent operational arrangements.	Impact to General Arction access is anticipated to be minimal as a consequence of this ACP. All Youal Releases Points and actifug Lettera a Agreement pertaining to General Artation access will be reviewed and updated (where opticable) prior to implementation to essues their continued volisity. Arcapace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	Impact to Ganeral Avation access is anticipated to be minimal on a Consequence of the APC, AI Visual Reviewes Points and estimating Latters of a Agreement particular gas Ganeral Aviation access will be reviewed and spatiated (here applicable) prior to implementation to sense their continued validity. Airopaca dostification requirements and any additional airopace requirements will be reviewed as part of Stage 3 activities.	Impact to General Avidion access is anticipated to be minimal as a consequence of this ACP, AIV Visual Betaence Parits and existing Letters of Agreement pertaining to General Avidion access will be reviewed and updated (where applicable) prori to implementation to sense their continued validity. Anepace dassification requirements and any additional airspace requirements will be reviewed as port of Stage 3 activities.
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extrat procedures, therefore no economic benefit for GAVaritines.	The introduction of PBN is expected to deliver benefits by increasing engrade capped which in turn will lead to more predictable flight paths and fever delays (both in the cir or on the ground). This is expected to facilitate accounts benefit thy potentially increasing the frequency of ar transport movement, increasing passenger numbers and increasing cargo bonnga corried.	The introduction of PRN is expected to deliver benefits by increasing arrangeac expectry which in turn will lead to more predictable flight poths and forwer didays (both in the cir or on the ground). This is expected to focultate account is clearist by potentially increasing the beguency of air transport movements, increasing passenger numbers and increasing corgo benegac carried.	The introduction of PBN is sepacited to deliver benefits by increasing anispace capacity which in turn will lead to more predictable flight paths and leaver delays (buth in the air or on the ground). This is especial to licellithia economic benefit by potentially increasing the flaguency of air transport movements, increasing passenger numbers and increasing cargo tomage created.
General Astation / commercial airlines	Fuel burn	Initial Cations Approisal: Qualitative	The existing BAA procedures for deportures do not enable continuous climb operations. Within Stage 2 of the CP/816 process, these is no requirement for a climb operation of the state of the state of the state of the malegies is used, bacaid on the theory that the shorts the back mileage, the lass greaterous agrees are enabled. In the case of the do inching baseline sciencies, the took length to the common point is 34.88km (18.83km).	This option support continuous clinb operations, nelocing the overall encount of ball burnt. There is no requirement within Stage 2 of the CMP161 process to quantify hall burn, fix will be conducted in Stage 3. The state of the state of the state of the state of the state of the burn of the state of the state of the state of the state of the lange state of the state of the state of the state of the state of the lange state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the lange state of the state of the state of the state of the of the state of the state of the state of the state of the of the state of the state of the state of the of the state of the state of the state of the of the state of the state of the state of the of the state of the state of the state of the of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state state of the state state of	This option supports continuous climb operations, melocing the overall anomat of skal born. There is no requirement within Stage 2 of the CAPT L6 process to quartify kal barn, this will be conducted in Stage 3. Therefore, the process to provide the stage of the stage of the tim (B2 44 cm) long. When compared to the shorthery canones, this region is longer and of the stage, it is attemed the trial be of economic dis-barnet the more fuel will be burnt. More in-depth enables will be control out in Stage 3 the continue.	This option supports continuous climb operations, networing the overall amount of had bornt. There is no requirement within Stogs 2 of the CAV1616 process to quereitly had born, this will be conducted in Stogs 3. The there is a more than the procession of the store of the store of the there is a store of the store of the store of the store of the the store is longer of the store, it is a store of the store of the store is longer on of the store, it is assumed but in will be obtained store is longer on other store, it is assumed but in will be obtained due to the store of the store, it is assumed but in will be obtained due to the store of the store. It is assumed but in the store of the due to the store of the store, it is assumed but will be control due bandt on more fuel will be bornt. More in edgeth melopies will be control out in Stoge 3 to contine.
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	would be practised by crews through existing simulator exercises. It is not proportionate at this stage for EMA to assess potential other costs for commarcial arithmes: three may be acuts associated with immittaining legacy systems to continue things conventional novigation but three are too many variables (e.g. asiar the set effective) cost of the set of the s	nonigation standard across the world. Other costs to commercial unifies may include updates to Flight Mangement Systems (FMS), nonigation doublesses and operating procedures, inclused pilot thire costs versus training at c. It's not proportionate at this stage of the ACP for EMA to assess the table costs to commercial unifies of Hype (FMP procedures.	ensigntion standard across the world. Other costs to communical unifness may include updates to Flight Management Systems (FMS), nonjection addresses and operating procedures, increased pilot have costs venus training act. It is not proportionate at this stage of the ACP to EDM to assess the ther cost to commercial unifnes of thrug FDM procedures.	Inseignition standard across the world. Other costs to commercial advisors may include updates to Flight Management Systems (FMS), norigation database and operating proadures, include advisors of the waves to taking advisor. It is not proportionate at this stage of the ACP for EAN to asses the taker costs to commercial advisors of type RN procedures.
Airport / Air navigation service provider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NER) may become prohibitively expensive should a CAP 781 RNW substitution not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PRN and no additional infrastructure is required as the introduction of PRN reduces the relations on ground infrastructure, in particular ground-based novigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PRN and no additional infrastructure is required as the introduction of PRN reduces for relationce on ground infrastructure, in particular ground-based nonigation aids are no longer needed.
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at ENA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA;	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA;
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air staffic controlling; however, these cannot be identified at this stage of the ACP process.	however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of a in traffic controllers; however, these cannot be identified at this stage of the ACP process.	however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
Safety Assessment	Safety Assessment	Initial Options Approxisal: Qualitative	The for onling scenario assume that current operations at BAA are safe including use of the extent conventional procedures. Following the removel align and based mangatorial situ supporting the example 3D, provide 2017/31 to commoncial agreement to markins the earlier nangatorial and not be implemented, resulting in a possible increase in ATCO workload.	Possible hazeds how been identified, some of which are actort and are currently mitigated through existing ATC procedures. Fand, actored departing on the SDD be locable and may configure the processing of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the source of the departing according to achieve an one interaction from advances in the source of the source of the source of the source of the departing according to achieve an origination of the source of the departing according to achieve an origination of the source of the departing according to achieve an origination of the source of the departing according to achieve and the source of the departicipation of the departing according to achieve a source of the achieved the departing according to achieve achieved achieved the departing according to achieve achieved achieved the departing achieved the source of the achieved the achieved the departing achieved the source of the achieved the achieved to achieve achieved and default of achieved to a source that materials achieved the achieved to achieved achieved achieved achieved achieved achieved achieved the achieved achieved achieved achieved achieved achieved	Possible lacoch love been identified, some of which are exent and are converign mitgated through existing ATC possibles. If Ref., converign mitgated through existing ATC possibles with RM mitgates and the source of the source of the source of the convergence between the source of t	Possible heards how been identified, tome of which are extent and are currently mitigated through existing ATC procedures. Furth, accord departing on the SD to the scale duration of the SD to the SD to the SD to the scale of the SD to the scale of the SD to the scale control to belaver the scale of the SD to the scale of the SD to the SD to the SD to the SD to the SD to the scale of the SD to the SD to SD to the SD to SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD to the SD t
		Summery of Anelysis	The tise nothing' scenario in relation to this ACP is not a visible option on it does not provide a sustainable solution in terms of a drapoca modernisation and an unickle following the removal of the DIY DVDR bascow, which could have a significant impact on capacity and operations to 7.2000, which leads to a good volume values of tab laws, emissions and noise at leave tends, is terms of Transpillip, Biodineshy, General Austain occuss and Sconnic impact, the tab	When compared to the tide nothing scenario, this option performs: Worse in the following areas: - Noise impact up to 7,000th - Counciling age entrations - Air Quality	When compared to the 'do nothing' scenario, this option performs: Work in the following areas: - Nexe impact up to 7,000t - Cosmbourg as mostors - Are Quality	When compared to this dis nothing scenario, this option performs: Worse in the following areas: - Hoise impact up to 7,000 - Coverhous gas emissions - Ar Quality
			anothing baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a sofety perspective. It is assumed that current EMA	Better in the following areas: - Naise impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000tt
			scenario. From a safety perspective, it is assumed that current EMA operations are safe. Following the removal of the DTY DVOR, it is acknowledged that the ATCOs workload is likely to increase due to the enduring requirement for radar vectoring.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
				At this time, it is not possible to fully determine the solety implications of this specific option as this option has been assessed in isolation rather than as and of design options appendix will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	At this time, it is not possible to fully determine the safety implications of this specific option at this option has been assessed in isolation rather than as a set of design options are port of a valer system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.
			IOA Shortlist Assessment	Based on the IOA Shortlist Assessment methodology, Option O15 has been deemed the FAVOURABLE option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option O16 has been deemed the PREFERRED option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option O18 has been deemed the ACCEPTABLE option within the design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	FAVOURABLE	PREFERRED	ACCEPTABLE

	SID Runway 27 Northw	rest	-	SD 27 Northwart           827 D NW 010         827 D NW 013         827 D NW 014							
	·····	DO NOTHING' BASELINE For the northwest design envelope, the 'do nothing' scenario for departures in terms of today's operation is based around the existing	R27 D NW O10 Option 10 proceeds straight ahead after take-off with no offstat and has been created to provide a route that has the maximum avoidance of Derty and Burton upon Trent.	R27 D NW O11 Option 11 has a 15 <sup>th</sup> northerly offset to the runway and has been created to reduce the impact of noise immediately after departure and later in the route by availaing Derby.	R27 D NW 013 Option 13 proceeds straight ahead after take-off with no offset and has been created to avoid overflying Derby. It follows the same initial track as the current TNT SID but turns north west in the final part of the	R27_D_NW_O14 Option 14 has a 15° northerly offset to the runway and has been created as a route that seeks to reduce the impact of noise by avoiding Derby, Burton upon Trent and remaining south of Ashbourne.					
		conventional TRENT SID. The 'do nothing' scenario for departures consists of a modal track that has been derived to provide an accurat representation of what occurs today. In addition to the modal track, a	After departure this follows the runway heading with no offset to a point approximately 6.5nm from the DEP, where the route parter route of Parton and turns onto to a point wart banding. It parter between	The initial 15° offset to the north results in the route passing north of Melbourne and Kings Newton and this route heading is maintained for just over 6.5mm. The first turn is made to the south west of Derby, over the junction of the A38 and A50 which takes it cont a north westerly heading and the route	route to align to the revised network joining point at W89A. On this basis it has been created as the 'do minimum' option to the alternative network joining point if	The initial 15° offset to the north results in the route passing north of Melbourne and Kings Newton and the route continues on this heading to pass between Derby and Burton upon Trent. Around the junction					
		polygon has also been created that represents an area where current operations are dispersed due to radar vectoring and potentially may	Detry and suren upon i rent and overhead nition prior to terminating to the south of Astroburne. Because there is no immediate turn a higher design speed of 250 KIAS can be used which is the CAP77 recommended speed when turning above 3000ft.	over the junction of the AJB dnd AJD which taxes if only a norm westery nearing and the route emminates on the southern side of envelope, south of Adhbourne. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KAS has been opplied to the first turm.	the current TNI replication is discontinued within the DPE or IOA. After departure this follows the runway heading with no offset along the extended runway centreline with a right turn to the north of Melbourne in a north westerly direction routing to the south west of Derby.	of the ASO and AS16 the route turns to a north west heading prior to terminating south west of Ashbourne. The route has a constant climb gradient of 6% terminating at 7,000ft and a speed restriction of 250 KIAS					
		affect people on the ground. The overflight analysis conducted on thi SID was based on the modal track created using Noise and Track Keeping data at altitudes of 4,000ft and 7,000ft with the addition of a		speed of 210 KIAS has been applied to the first turn.	Between the A38 and A516 the route turns to a north by north west heading to pass west of Derby. At Brailsford, the route turns west and terminates over south east Adhourne. The route has a constant climbig gradient of 6%, terminating at 7,000th and the CAP 778 recommended	is applied to the first turn which is the CAP 778 recommended speed when turning above 3000ft on a 10% climb.					
		radar vectoring area where appropriate. The track length has been calculated on the distance from the Departure End of Runway to the e			speed of 210 KIAS has been applied to the first turn.						
		of the modal track plus the distance from the end of the modal track t the common point.	0								
Group In Communities Noise impact quality of life	Impact Level or act on health and Initial Options A fe Qualitative	of Analysis Runway 27 Appraisal:	Runway 27	Runway 27	Runway 27	Runway 27					
·····		For comparison purposes within the IOA, the 'do nothing' scenario wi based upon the existing TRENT SID.	2								
		In terms of potential noise impact, initial quantitative analysis has identified that:	Up to 4,000fr, this option is estimated to overfly approximately 1,100 households with an approximate	Up to 4,000fr, this option is estimated to overfly approximately 1,850 households with an approximate	Up to 4,000ft, this option is estimated to overfly approximately 1,000 households with an approximate	Up to 4.000ft, this option is estimated to overfly approximately 1.800 households with an approximate					
		<ul> <li>Up to 4,000 ft, this 'do nothing' scenario is estimated to overfly approximately 1,800 households with an approximate population of 3,500. Taking account of 2,250 planned</li> </ul>	population of 2,100. Taking account of 450 planned property developments, this option is estimated to overfly and impact a total population of 3,000. The potential noise impact on health and quality of life	population of 3,400. Taking account of 250 planned property developments, this option is estimated to overfly and impact a total population of 3,800. The potential noise impact on health and quality of life	population of 1,800. Taking account of 400 planned property developments, this option is estimated to overfly and impact a total population of 2,500. The potential noise impact on health and audity of life	population of 3,300. Taking account of 250 planned property developments, this option is estimated to overfly and impact a total population of 3,800. The potential noise impact on health and quality of life					
		property developments, this option is estimated to overfly and impact total population of 7,900. - Up to 7,000 ft, filts: Vao nothing' scenario	<sup>3</sup> up to 4,000H is assessed as likely to affect fewer people than the 'do nothing' scenario. <sup>3</sup> Up to 7,000H, this option is estimated to overfly approximately 5,100 households with an approximate population of 9,600. Taking account of 900 planned property developments, this option is estimated to	up to 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 2,600 households with an approximate population of 4,800. Taking account of 250 planned property developments, this potion is estimated to	up to 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 6,050 households with an approximate population of 10,900. Taking account of 2,150 planned property developments, this option is estimated	up to 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 3,850 households with an approximate d population of 7,300. Taking account of 450 planned property developments, this option is estimated to					
		is estimated to overfly approximately 33,750 households with an approximate population of 65,200. Taking account of 10,550 plann	overfly and impact a total population of 11,300. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	overfly and impact a total population of 5,300. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	to overfly and impact a total population of 14,800. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	overfly and impact a total population of 8,200. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.					
		property developments, this option is estimated to overfly and impact- total population of 85,600.	2								
Communities Air Quality	Initial Options A Qualitative	Appraisal:									
		No change to air quality is predicted in maintaining baseline conditio The majority of the extant proceedure involves overflight above 1,000 other than the areas in the immediate vicinity of the Departure End o	i not within the vicinity of a designated AGMA and as per CAP1616, para B/2 a full Air Quality	s Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location i not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality	s Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location i not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality	s Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality					
		Runway. In terms of AQMAs, the existing Runway 27 TRENT SID overflies on	<ul> <li>Assessment is deemed not required.</li> </ul>	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overflies the same number of AQMAs.	Assessment is deemed not required. This option overflies no AQWAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQWAs.					
		AQMA when the aircraft is above 1,000ft.	De Denencial us il overheis lewer Acovas.	De beneliciul da il overnies lewer Accivits.	be equal as it overhies the same number of Actives.	De Denencial as in overlines rever Pagerias.					
Wider Society Greenhouse	se Gas impact Initial Options A Qualitative	Appraisal:									
		Current routes do not enable continuous climb operations. It must b	e								
		noted that the exact track length flown by aircraft may vany slightly du to the nature of radar vectoring, although aircraft do all follow the extant procedures in a broader sense. The existing procedures do n		This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring						
		support optimal aircraft performance and therefore are predicted to have a greater environmental impact compared to proposed option Within Stage 2 of the CAP1616 process, there is no requirement for	may still be required to analoge aircraft separation distances. The track mileage of this option is 40.55 km (21.89 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	Inis option has been designed to support commuous climit operations, while there is a support community option operation and the support option is 38.32 km (20.69 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	may still be required to manage aircraft separation distances. The track mileage of this option is 38.25 km (20.66 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	km (20.65 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore					
		change sponsor to conduct quantitative emissions analysis. This will l covered in Stage 3. In order to make a comparison in Stage 2, trac	expected to result in drifticedse in greenhouse gas emissions compared to the do nothing scenario,	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of areanhouse acase: released.	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gass released.	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenaria, and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact oulows of greenhouse gass released.					
		mileage is used, based on the theory that the shorter the track mileag the less greenhouse gases are emitted. In the case of the 'do nothin baseline scenario, the track length to the common point is 38.05km	e, contirm the exact volumes of greenhouse gases released.	contirm the exact volumes of greenhouse gases released.	contirm the exact volumes of greenhouse gases released.	contrim the exact volumes of greenhouse gases released.					
		(20.55nm).									
Wider Society Capacity and	nd resilience Initial Options A	Annoisel									
Capacity and	nd resilience Initial Options A Qualitative	Appraisal: Maintaining extant procedures would maintain current capacity;									
		however, due to the reliance upon ground-based navigational aids resilience could be significantly affected, following the removal of th		The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fever delays (both in the air and on the ground The reduction of the reliance on outdated ground based novigational diak will significantly increase	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fever delays (both in the air and on the ground) The reduction of the reliance on outdated ground based novigotional diak will significantly increased.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based novigational airs will significantly increase					
		TNT DVOR and the requirement to adopt PBN procedures as part of t FASI-N Programme.	<sup>e</sup> The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The reduction of the reliance on outdated ground based novigational aids will significantly increase operational resilience through the introduction of PBN.	The reduction of the reliance on outdated ground based novigational aids will significantly increase operational resilience through the introduction of PBN.	The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.					
Wider Society Tranquillity	Initial Options A	Appraisal: As per CAP1616, Appendix B, para B76, change sponsors are requir									
	Qualitative	to consider Tranquillity with specific reference to AONBs and Nation Parks only, unless other areas have been identified through commun	au al try This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any					
		engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario overflies no tranquility receptors (AONBs d	identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	I identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	I identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	d identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.					
Wider Society Biodiversity	Initial Options A	National Parks).	·								
, , , , , , , , , , , , , , , , , , , ,	Qualitative	The change sponsor has mapped the designated Sites of Special									
		Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Are of Conservation (SACs) and RAMSAR sites, as identified on the DEFF	as The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special A trotection Areas (SPAs), Special Areas of Conservation (SACs) and RANSAR sites, as identified on the	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAc), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the					
		MAGIC Map. CAP1616, Appendix B, para B74, states that because dispersion and mixing, there is unlikely to be an impact on local ail quality from aircraft above 1,000H, Furthermore, CAP1616, Append	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.000ft. Europermore: CAP1616	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.000ft. Furthermore, CAP1616	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.000ft. Europere CAP1616	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616,					
		B, para B80, states that in general, airspace change proposal will no have an impact on biodiversity as they do not involve ground-based	Appendix B, para BBO, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any obertain limpact to the designated sites around EMA will be assessed in Stage 3 d	Appendix B, para BBO, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor chancevelogies that any potential impact to the designated sites around EAM will be assessed in Stage 3 (	Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor dochowledges that any potential impact to the designated stars around EAM will be assessed in Stoge 3 c	Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor achnowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of					
		infrastructure. However, the change sponsor acknowledges that an potential impact to the designated sites around EMA will be assessed Stage 3 of the ACP process by Subject Matter Experts.	in the ACP process by Subject Matter Experts.	the ACP process by Subject Matter Experts.	the ACP process by Subject Matter Experts.	the ACP process by Subject Matter Experts.					
General Aviation Access	Initial Options A Qualitative	Appraisal:									
		No change to existing airspace arrangements. Any General Aviation	Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewe	Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewe	I Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewee and updated (where acalicable) prior to implementation to ensure their continued validity. Airsopce	I Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual d Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed					
		users of airspace in the vicinity of EMA will maintain their current level access under extant operational arrangements.	of and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.		and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.					
General Aviation / Economic im commercial airlines increased effe	impact from Initial Options A effective capacity Qualitative	Appraisal:									
		No increase to effective capacity anticipated for continued use of extr	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will nt lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the around). This is expected	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected					
		procedures, therefore no economic benefit for GA/airlines.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnoge carried.					
General Aviation / Fuel burn commercial airlines	Initial Options A Qualitative	Appraisal:									
		The existing EMA procedures for departures do not enable continuo	8								
		climb operations. Within Stage 2 of the CAP1616 process, there is no requirement for change sponsor to conduct quantitative fuel burn analysis. This will be		requirement within Stage 2 of the CAP1616 process to guantify fuel burn, this will be conducted in Stage	requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no e requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage					
		covered in Stage 3. In order to make a comparison in Stage 2, trac mileage is used, based on the theory that the shorter the track mileage		s 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less tiel i burnt. With regards to this option, it is 38.32 km (20.69 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as	5 3. Interetore, to enable a comparison, the logic applied is that the shorter the track length, the less tue i burnt. With regards to this option, it is 38.25 km (20.66 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as	scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as					
		the less greenhouse gases are emitted. In the case of the 'do nothing baseline scenario, the track length to the common point is 38.05km (20.55nm).	more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.					
Commercial airlines Training cost	osts Initial Options A	Appraisal:									
	Qualitative	<ul> <li>Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.</li> </ul>	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard ocross the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.					
Commercial airlines Other costs	s Initial Options A Qualitative	Appraisal: It is not proportionate at this stage for EMA to assess potential office costs for commercial airlines - there may be costs associated with	Other costs to commercial annes may include opadies to Fright wanagement systems (FWS), havigato	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigatio	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation					
		maintaining legacy systems to continue flying conventional navigatio but there are too many variables (e.g. aircraft types, on-board system	databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionab at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	<ul> <li>databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.</li> </ul>	<ul> <li>databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.</li> </ul>	<ul> <li>databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.</li> </ul>					
Airport / Air Infrastructure	re costs Initial Options A Qualitative	copability etc.) to consider these effectively.  Approisal:  No additional informations is exceeded to EMA to exceede at the effectively.									
navigation service provider	Qualitative	No additional infrastructure is required at EMA to maintain estant conventional procedures; however, maintaining accessibility to curre ground-based equipment (operated by NERL) may become prohibitiv expensive should a CAP1781 IRNAV substitution not be implemente	nt There are no expected additional infrastructure costs. All options relate to the implementation of PBN sty and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground					
		prior to the proposed removal date.	d infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.					
Airport / Air Operational navigation service	al costs Initial Options A Qualitative	No change to operational costs is attributable to maintaining the extra	nt Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACI	Some operational costs are anticipated with respect to the implementation of new procedures and P training of air traffic controlling staff at EVA; however, these cannot be identified at this stage of the AC	Some operational costs are anticipated with respect to the implementation of new procedures and I training of air traffic controlling staff at EVA; however, these cannot be identified at this stage of the ACI	Some operational costs are anticipated with respect to the implementation of new procedures and P training of air traffic controlling staff at ENA; however, these cannot be identified at this stage of the ACP					
provider Airport / Air Deployment (	nt costs Initial Options A	Appraisal:	process.	process.	process.	process.					
navigation service provider	Qualitative	No deployment costs applicable to estant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.					
Safety Assessment Safety Assess	ssment Initial Options A Qualitative	Approisol:									
		The 'do nothing' scenario assumes that current operations at EMA at safe including use of the extant conventional procedures. Following t	e A possible hazard has been identified with aircraft departing on the SID to the north west that could	A possible hazard has been identified with aircraft departing on the SID to the north west that could	A possible hazard has been identified with aircraft departing on the SID to the north west that could	A possible hazard has been identified with aircraft departing on the SID to the north west that could					
		removal of ground-based navigational aids supporting the existing SI aircraft departing EMA would continuously require radar vectoring	D, conflict with arrivals from the north resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload. This is an extant hazard and ATC would manage	conflict with arrivals from the north resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload. This is an extant hazard and ATC would manage	conflict with arrivals from the north resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload. This is an extant hazard and ATC would manage	conflict with arrivals from the north resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload. This is an extant hazard and ATC would manage					
		(should CAP1781 or a commercial agreement to maintain the existi navigational aid not be implemented), resulting in a possible increase ATCO workload.	g the ATC situation tactically to maintain separation if required. Further assessment will be conducted at In Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	the ATC situation tactically to maintain separation if required. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	the ATC situation tactically to maintain separation if required. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	the ATC situation tactically to maintain separation if required. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.					
	Sum	nmary of Analysis The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation and is unviable following the removal of the TNT DVC	When compared to the 'do nothing' scenario, this option performs: R Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:					
		beacon, which could have a significant impact on capacity and resilience. The existing SID does not enable continuous climb	K Worse in the tollowing areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn					
		operations to 7,000ft, which leads to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquilliny, Biodiversi General Aviation access and Economic impact, the 'do nothing'	y, Better in the following areas: - Noise impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000fr	Better in the following areas: - Noize impact up to 4,000ft	Better in the following areas: - Noise impact up to 4,000ft					
		baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this	- Noise impact up 6 4,000tt - Noise impact up 6 7,000ft - Air Quality	- Noise impact up to 4,000tt - Noise impact up to 7,000ft - Air Quality	- Noise impact up to 7,000ft	- Noise impact up to 4,000H - Noise impact up to 7,000ff - Air Quality					
		scenario. From a safety perspective, it is assumed that the current EW, operations and procedures are safe. Following the removal of the TN DVOR, it is acknowledged that the ATCOs workload is likely to increa	k T E Equal/neutral in terms of the remaining criteria because there is no change when compared to today's	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's					
		due to the enduring requirement for radar vectoring.	operation.	operation.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additiona	operation.					
			analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of	has been assessed in isolation rather than as a set of design options as part of a wider system. Additional f analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of the comparison of the cumulative impact of the comparison of the cumulative impact of the cumulative impa	analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of	f At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1016 process to determine the cumulative impact of					
			this option when compared to all the other options.	this option when compared to all the other options.		this option when compared to all the other options.					
		IOA Shortlist Assessment	Based on the IOA Shortlist Assessment methodology, Option O10 has been deemed the FAVOURABLE option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option 011 has been deemed the ACCEPTABLE option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option O13 has been deemed the REJECTED option within the design environe.	Based on the IOA Shortist Assessment methodology, Option O14 has been deemed the REJECTED option within the design envelope.					
		OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	FAVOURABLE	ACCEPTABLE	REJECTED	RELECTED					

min         min <th></th> <th></th>		
Image: Section of PP invests is sequently and section of PP investigation of the section	uce nd GAS a	the impact of rokes by excluding Detay and Binton upon Tent. It hakes the same initial track as Option 14 the impact of rokes by excluding Detay and Binton upon Tent. It hakes the same initial track as Option 14 the lowed 15 <sup>-4</sup> of the track meth reach, then the next parsing and not Addhorance and Dega Nexton and the roke continues on this heading to pass between Deby and Binton upon Tent. Around the junction of the AS3 and AS1 of the row burst is to a not how the passing water of Deby and Bintoniago such east of Adbhorms and Adbhorms and an and the row burst is to any TEP mercinneding action part of the part of the adbhorms of Deby and Bintoniago and the att and the row burst of the ADP TEP mercinneding action and them timing above 30000 n on a
b) production of LOGS. Taking concerned of globard groups dependence the section of models of the section of		Rutway 27
The update coeffice to ACMAK When compared to Fak on advagments, this update is descended to the trendstation of the coeffice function of the second of the	ate d to life d to life	population of 1,000. Taking account of 0 planned property development, this option is estimated to overly and impact to taking population of 1000. The potentian ionic impact on health and quality of the up to 4,000 fit is assessed as likely to effect fever people than the two nothing 'accentric. Up to 7,0000, fit is point is estimated to overlify approximately 2,000 households with an approximate population of 3,800. Taking account of 1,450 planned property developments, this option is estimated to overlify and impact a total population of 6,400. The potentian line is impact on health and quality of the to overlify and impacts.
3         mpl b encycled to monge since the proceed grances, the total molege of the spectra o	on is d to	Although there is likely to be a charge in aviation emissions by location below 1,000 feet, the location is not which the vicinity of a designment AGMA and as par CAP101, pare 1722 of II Ar Gually Advances and the second second second and the second and the second second and the second
The reduction of the relinear on outback ground back and suggestional calk will significantly increase operational realizes through the introduction of RN.           and         This option coefficient on statuturity degramments and in through the introduction of RN.           and         This option coefficient on statuturity degramments and in through the introduction of RN.           and         The observe sponsor has mapped the designabula Size of Special Scientific Interest (SSM), Special Mark of Coefficient On SAC) and MAAAA states, in definited on the sponsor sponsor has mapped the designabula Size of Special Scientific Interest (SSM), Special Mark of Coefficient On SAC) and MAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	ing 25 e io, to	may still be required to manage aircraft separation distances. The track mileage of this option is 38.73 km (20.91 m). When composed to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in depth analysis will take place at Stage 3 to
advection         Advection         Section	h nd). ie	The reduction of the reliance on outdated ground based navigational aids will significantly increase
<ul> <li>BERN AMGC Nue, CAPIE A Appendix B, pore LAP, states for beaction of dispersion and mainsy the source of the LAP and the source of the LAP and the source of the LAP and the L</li></ul>	ny and	identified through community engagement and is therefore comparable to the 'do nothing' scenario and
More The second secon	l he 19, 516, n 3 of	DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Horthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor
biolitike economic benefit by potentially increasing the frequency of a transport movements, constainty processing recently and increasing the frequency of a transport movements, constainty processing recently and increasing the frequency of a transport movements, constainty processing recently and increasing the overall amount of fuel burnt. There is no movement with the gap 2 of the CAP 161 process to quantify fuel hum, this will be concluded in Supp another that the gap 2 of the CAP 161 process to quantify fuel hum, this will be concluded in Supp another that the gap 2 of the CAP 161 process to quantify fuel hum, this will be concluded in Supp another that the gap 2 of the CAP 161 process to quantify fuel hum, this will be concluded in Supp another that the gap 2 of the CAP 161 process to quantify fuel hum, this will be concluded in Supp 3 to confirm. another that the support of the theory of the Support of the CAP 161 process the Support of th	sual wed je 3	Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3
Bit         These are a requeed califormal information califormation of PRI information of PRI	will	to facilitate economic benefit by potentially increasing the frequency of air transport movements,
procedures or PBM has become a common maignition standard across the world.     procedures or PBM has become a common maignition standard across the vends.     A procedure procedures, transmission of PBM acrossment of the stage of the ACP for DAA to assess the label receive the common and acrossment of an encourse of the across the stage of the ACP for DAA to assess the label receive the common acrossment of a stage of the ACP for DAA to assess the label receive the common acrossment of the stage of the ACP for DAA to assess the label receive the common acrossment of a stage of the ACP for DAA to assess the label receive the common acrossment of a stage of the ACP for DAA to assess the label receive the common acrossment of acrossment of a stage of the ACP for DAA to assess the label receive the common acrossment of the stage of the ACP process.     Some operational costs are anticipated with respect to the implementation of the test stage of the ACP process.     A procedure and the stage of all traditions of the implementation of the stage of the ACP process.     A procedure to active anticipated with respect to the implementation of the stage of the ACP process.     When composed to the label field of the acced material across of the acrossment of a stage of the ACP process.     When composed to the doctoring stagestore, these across the labelfield at the stage of the ACP process.     When composed to the doctoring stagestore, these across the labelfield at the stage of the ACP process.     When composed to the doctoring stagestore, these across the doctoring stagestore in ACP process.     When composed to the doctoring stagestore, these acrossment of the implementation of a material stagestore.     How many of the Maching transmitters in the common acrossment in the ACP process.     How many of the Maching transmitters in the common acrossment in the ACP process.     How many of the Maching transmitters in the transment of the total stagestore in the ACP processment in the ACP processment in the ACP pro	s no tage ing' as	requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is humt. With reparks to this contion, it is 387 37 km (20 91 and Jana) for a fuel of the total of the fuel on thind.
and dubbases and geneticing procedures, increased plat his cost must being at h. It is an proportional with a stage of the ACP for DAA to see the other cost is commercial antimes of highing PRN procedures. N There are no neperind obtained informations involved in the stage of the ACP host of the stage of the ACP in DAA to see the stage of the ACP in DAA to see the stage of the ACP in DAA to see the stage of the ACP in DAA to see the stage of the ACP in the set of the ACP in the ACP in the ACP in the ACP in the set of the ACP in	4	It is anticipated that no extra plat/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common novigation standard across the world.
and         and codditional infrastructure is mayined as the induction of PRI reduces the inflace on ground infrastructure, in protocol procession and are no longer reduct.           dec         Some operational costs are infrainformed with respect to the inglementation of the procession and uning of air table: controlling staff at DAA, however, these control to identified at this stage of the ACP process.           dec         Some deployment costs are infrainformed with respect to the inglementation of the procession and exception of the action of the instructure of the respectation of the rese departure process.           def         A possible brazer for table indices of the instructure of the instructure of the reset departure and instructure of the instructure of the instructure of the instructure of the coefficient of the instructure of appendix instructure of the instructure of instructure of the instructure of all hearts and instructure is defined at the CMP1016 process to colding the exect nature of all hearts and instructures instructure of the instructure of the instructure of the instructure of all hearts and instructure.           When composed to the instructure of the instructure of the instructure of the instructure of the instructure instructure of the instructure of the instructure of the instructure of a process to instructure instructure of the instructure of the instructure of the instructure of a pro	ation nate	databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN
CP binning of air table containing safet of DAA; however, here cannot be identified at this stage of the ACP     process.     A possible housed hor a writegood with respect to the implementation of this one depolative     procedures and training of air table; containing the posterior of the interflied at this stage of the ACP     process.     A possible housed hors been identified with aircraft departing on the SD to the north west that could     accellent with annuals from the north resulting in the posterior of the interflied at this stage of the ACP     process.     A possible housed hors been identified with aircraft departing on the SD to the north west that could     conflict with annuals from the north resulting in the posterior of an aircraft departing     when compared to the 'do northing' scenario, this option performs:     Worse in the IoFouning annu:     - I add on the CAP1616 process to conflim the exect nature of all housed at an aircraft departing     When compared to the 'do northing' scenario, this option performs:     Worse in the IoFouning annu:     - I add on the following annu:     - I add on the following annu:     - I add on the following annu:     - I add on the could near the scenario and the scenario on the compared to today's     - AC couldry     - Couldry     - Couldry     - AC couldry     - AC couldry     - AC couldry     - Couldry	N nd	and no additional infrastructure is required as the introduction of PBN reduces the reliance on around
In procedures and training of air helfic controlling: howers, these control be identified at this strage of the	1 ACP	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP
months with onrived from the north resulting in the genetical card of hostandal or writical separation     between sincing and an increase in ArXeV exolution.     Segme 3 and 4 the CMP1016 process to confirm the exect nature of all facation and an anomal in ArXeV exolution.     When compared to the CMP1016 process to confirm the exect nature of all facation and anomal in an anomal in ArXeV exolution.     When compared to the GMP1016 process to confirm the exect nature of all facation and anomalian in ArXeV exolution.     When compared to the do noting scenario, this option performs:     Worker in the following areas:         Process to confirm the exect nature of all facation and anomalian an	the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
Wone in the following ense:         "••• The following ense:         "•••• The following ense:         "•••• The following ense:         "••••• The following ense:         "•••••• The following ense:         "•••••••• The following ense:         "•••••••••••••••••••••••••••••	d n ge i at s.	conflict with arrivals from the north resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload. This is an extant hazard and ATC would manage the ATC situation tradically to maintain separation if required. Further assessment will be conducted at
Equal/neutral in terms of the remaining criteria because there is no change when compared to today's appendix.     In At this me, it is not possible to fully determine the safety implications of this specific option and the safety implications of this specific agate. Additional of the sheen assessment is induction after three on so and of design optimal. Additional of anotypic will be required in Stage 2 and 4 of the CAP1016 process to determine the cumulative impost of this option when compared to all the order optimal.     Safet are the ICAA Start M Assessment tend to design sensions.		Wasa in 6 folowing creas: Cash hore gas emakans fare in the folowing crease: 1 folowing crease: 1 folowing crease: 1 folowing crease for 2000
Bosed on the IOA Shortfat Assessment methodology, Option O15 has been deemed the PREFERED option within the dissign envelope.		Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
	tion onal ct of	At this time, it is not possible to fully determine the sofety implications of this specific-option as this option has been assessed in isolation rather than as as at of degrap options as part of a wider spatem. Additional analysis will be negative in Stopp 3 and 4 of the CVP1616 process to determine the cumulative impact of this option when compared to all the other options.
	D	Based on the IOA Shortlat Assessment methodology, Option O15 has been deemed the PREFERED option within the design emelope. PREFERED

			MAG EMA ACP - INI	ITIAL OPTIONS APPRAISAL - FULL ANALYSIS TABLE										
Departure En	velope: SID Runwa	ay 27 South							SD 22 SOUTH 127 D 5 Os					
			To the coult design envelope, the 'do nothing' constants for departure for the coult design envelope, the 'do nothing' constants for departure is terms of today's operation is based around the maining conventions DWENTEY SD. The 'do nothing' coencils for departures consists of a	87.0.3.01 ex A re-creation of the current DTY 3N SD using the CVP 778 recommended design otheria. of The fart harn uses a galed of 2100AS and commences an I harn beyond the DTR which is taken than the	H7.D.3.OIA This is a replication of the correct Doversy DTY 2H SD included as a "do minimum" option. Howeve the first turn commences at 0.66m beyond the CER which is exactly aligned to the first turn of the correct according to the first turn of the	BY D 3.09 and Option 2 proceeds arraight alway other tails off with no offint and has been created to previde a sharter and more fuel efficient scare to the mode.	EP D 3 CH. Option 4 proceeds ensight alread other take-off-with no other and has been created to provide the most direct and beliefficient roats to the expected entrook join to the auch.	B27 D 1 C01 e Option 5 hos a 12° southely offset and has been created as a score that specifically seeks to red impact of noise to boilt up amou, while this retaining the bed benefits of Option 4.	as the Diption 6 has a 10° northerly offlast, as an effective to be could Melhouse to the coeffic. It also and reduce the impact of noise on built up areas to the south west.	EX7 D 1 CV Is to Option 7 has a 12" southerly offset to avoid Melbourne while seeling to reduce the impact of no built op areas. It is similar to Option 6 once the room options combine to the north of Ashby-de- Turno	EVEN D 3 COL     Social Control Processing to reduce the impact of both go even. The initial to Option B has a 15° socialed to Option 6 and 7 both reveningers for the east, close to Malloy Part both go even. The initial option for an of 7 both reveningers for the east, close to Malloy Part	toise on Option 9 hor a 15" southerly offset to avoid Malbourne but hor a more direct and fast efficient in c circuit. But reliance is Turnin to passe on built up areas. It is similar to Option 8 but reams to the a	1827 D 3 OH4 Option 10 has a 12 <sup>e</sup> southely offset to avoid Mellourne white seeking to reduce the impact on the boilt up ones. It is similar to Option 7 but the higher initial affect achieves a slightly gree	the set of the se
			EWEPTIKE SET. The do nothing scenario for departures consult of a modal track that has been devined to provide an accurate representation of what accurs today. In addition to the modal track, a scheme device of the set of the se	<ul> <li>current procedure built CMP/18 incommended. An implicated situate it tables a sensed table over provide at the current route to consect to the INATS setucid.</li> <li>After departure this follows the servey backing for Inen with no other balance commencing a list term that the current route to an due to the INATS setucid.</li> </ul>	It is that have commences of 0.000m beyond the LEX which is exactly signed to the held have of the overall procedure. After departure this follows the numery heading for 0.00m with no offset before commencing a left to entry a south each of Melloware than Option 1. It then which a south west heading which takes of butters to the south each of Melloware than Option 1. It then the south each of the south offset to be the south each of Melloware than Option 1. It then the south each of the south offset to be south each of Melloware than Option 1. It then the south each of the south offset to be south each of the south each of the south each of the south each of the south each offset to be south each of the south each of the south each of the south each offset to be south each of the south each	• Open 2 proceeds integrate some same on ten in occess on an automorphism of proceeds in the process of the same of the sam		Lead the initial 15° offset to the shark result in the route paralog south of Mellouries. A left have a rout appendixed by Lots appendixed to ECA was a southeyt predicing to paralog between Adulty de Initia and Coshville, but with eligibly greater distance from Adulty de Initia. South than Option 4. It then a and Coshville, but with eligibly greater distance from Adulty de Initia.	as at the initial (10 offset to the north washs in the roads passing north of helicover and this heading) is continued for opportunitively Janu. At this point a time on a nucl westerly heading is made, fail relationship a second left turn to the west of Hickail to advise a more subderly heading passing between by a second left turn to the west of Hickail to advise a more subderly heading passing between the second second left turn to the west of Hickail to advise a more subderly heading passing between the second second left turn to the west of Hickail to advise a more subderly heading passing between the second second left turn to the west of Hickail to advise a more subderly heading passing between the second second left turn to the west of Hickail to advise a more subderly the second se	a Zooch, our destand a set of the second	<sup>12</sup> This of prime is a feature of the prime of the second sec	c cock. But diff usuals the signal of noise on built up areas. If is similar to Cytoon it but reades to the exhibit the induction of the country of the c	bill be and the second seco	edimense a slightly geneter disregarics from Mellicourse. The distance of the standard stand
			polygion has used been checked that represents an area where correct operations are dispersed due to rador vectoring and potentially may affect people on the ground. The overflight analysis conducted on thi SD use based on the special toxic resents where binas and Tanck	only a both wind hadding just to the both ead of Mathcorea. If then index a become left for which eventiliar Adapted-to-Zouch and it then controlses both to treminate each of Bosell and Edd Zahla to Bosell and Edd Zahla and an experimental section of the section of the Source and Edd Zahla The SDL is designed to terminate or ZODD and the direb gendeer has been set at 6%. The GMP 7 accommended aneal of 200 BHS has been conclude to the first ture	<ul> <li>Instals o accord set how which overhies Amby-de-so-zooch and it has communicate sorth of Bowell and Bot Shihon.</li> <li>The SD is designed to transiste of 7,000% and the clinib gradient has been set of 6%. The CAP 77 ecommended used of 210 UKS has been capital on the first hum.</li> </ul>	The roads too a constant class gradient of the, terminolog at 7,000H and the CAP 778 recommend speed of 210 KMS has been applied to the first turk. The	ded (both possing to the web of testics and terminating inform of Fundation. The north has a constant clinit guidance of 6%, reministrating of 7,000t and the CAP 778 recommis- speed of 210 KIAS has been opplied to the first turn.	and block to be set and twinnate to the north of Number. In our of the set and twinnates to the north of Number. The set has a constant of only gradem of diff, twinnates of 7,000th and the CAP 778 seconds speed of 210 KMS has been applied to the fast two.	Indeditions and Althyroe-to-Courts. A fixed turn onto a southerty direction is index each fisions, a fixed statement in the west of Masket Security. It wannables are 7,000h and the CAP 77B recomme- sand of 201 BMS has been another for the first turn.	and I backing is made where it pairs with the total for Option is to pass between Swattincole and Auto Io-Zeach. A third two more a southerly direction is made near Betterd, and It twininotes to the un elect of Market Boework. The roade has a constant climb gradient of 6%, terminating at 7,000h and the CAP 778 incomm taxed of 20 100 KH to be accounted for the throm.	yeta- tecdarg is index where it justs with the tack too Uption 6 to pair, between Swadnicold and A. Iso Zooch. A third two motion a north-exemply direction is made close to Meadure, and it main tecding terminating to the south east of Mediat Basech. And Das more than construct clinic matter of 6% sentencies or 7 0000 not the CAP 778 second and Das more than a construct clinic matter of 6%.	Boy-be access between to achieve a south each reacting terminology are tain Section. sine this The room has a constraint clinik gradient of 5%, memory of 7,000% and the CAP 778 recomm pend of 210 KAS has been opplied to the first turn.	making a mass where it jurk will the truck for Option 6 to pace between Swatamicate and anded S-2004. A find ther onto a southerly direction is made near Bateck, and it terminates to the end of Market Basevorth. This mass has a constant climb gradient of dBs, terminating at 7,0008 and the CAP 778 mar speed of 210 CMSA has been applied to the Sam turk.	(Addyse) To the world thicked a second turk is made to adverse a more submety heading passing terminent is such. Swelling and Advertised Advertised Advertised and the method of the method of Moder Bannoth, monther a method with the method of the Advertised and the CAP 278 accommended.
			SID was based on the modul took created using holes and Track Keeping data or obtaides of 4,000m and 7,000m with the addition of todar vectoring ones where appropriate. The total length has been takelated on the distance from the Departure End of Renwey to the end of the modul toda plus the distance from the end of the modul toda to the common point.	in an annual sector of the sec	muunimmaan openu sii 2 ku kuru naa seeni oppone oo ne see saa.				spenna su a co norta mas sener spiperes as ere esta sura.	speed of 210 KHS has been applied to the first two.	speed of 210 KKS has been applied to the first two.		queed of 210 KRAS has been opplied to the first turn.	the root root and a demant costs gradient to the first two.
			and of the modul took plus the distance from the end of the modul track to the common point.											
				heres 27						kerne 27	heren 27			
Communities Communities	Noise impact on health and quality of Life	Particel Options Approval: Qualitative	harner 27	Intrin 27	Berris 27	Barren 27	hermin 27	National 27	barris 27	Barran 27	hener 27	heart 22	Darren 27	been 27
			For comparison purposes within the IDA, the 'do nothing' connario w based upon the waizing DAVID/TRY SID. In terms of potential noise impact, initial quantitative analysis has			are Up to 4,0008; this option is estimated to overfly opproximately 1,150 households with an opproxim						Up to 4,000h, this option is estimated to overfly approximately 300 households with an opprox		
			hand quot the sizing DNDRPF SD. In terms of parent line impact, final inquestRation analysis has admitted fact. In the size of parent line interpart in the size of the size of the sectors of the size of the size of the size of the size of the sectors and the size of	The D-G could get an advanced to somely approximation, (AD branching and the star approximation of the star approximation	and population of 9,700. Taking account of 2,150 planned property developments, this option is extense of to overfly and impact a total population of 13,600. The potential noise impact as health and quality of to overfly and impact a total population of 13,600. The potential noise impact as health order quality	alis (parts (2000)), Bits (parts) is a strated to 1 lostly paparameter), (250 hazardota, etc. in a spectral papatistical (22000), Bits (parts) and (2000) papers) finally parts (parts) is a strateging of (2010), and (201	Up to 4,000%, this option is estimated to overfly approximately 200 households with an approxi- population of 500. Taking account of 0 planned properties developments, this option is estimate overfly and impact a total population of 500. The potential noise impact on health and quality.	will be a COMD, the captor is extended to early approximately GD handhalds with an approximately of the captor is a second to approximately approximately in the captor is approximately of the capproximately of the captor is approx	mate Up to 4,0000, this option is instrumed to config approximately 1,250 boundabilits will be approximately 2,500. Tabling accurate of 0 plenned properties of the plenned properties of 0.2500. Tabling accurate of 0 plenned properties of the plenned properties of 0.2500. Tabling accurate the plenned properties of the plenned property development, this region is material of the other plenned property development, the region is matterial to other and the other plenned to the plenned to the plenned property development, this region is matterial to other and the other plenned to the plenned	more 18 pt 4,0008, this option is meterated to everly approximately 1,152 boundability with on appared to a population of 2,200. Tableg account of a planad purposed prediction provide the option is entrance of a planad purposed prediction provide the option of the population of 2,100. The posterior of 2,100 provides and provide the option of the population of 2,100 provides and provide the option of the population of 2,100 provides and provide the option of the population of 2,100 provides and provide the option of the population of 2,100 provides and provide the option of the population of 2,000 provides and provide the option of the population of the population of 2,000 provides and provide the population of 2,000 provides and provide the population of 1,000 provides and provide	and by the (500%), this space is a settimated to coeffic approximately 1,200 households with on space parallelistic a COO. Sinking scores to Coeffic approximately 1,200 househopmore, this dup is a constraint of the coefficient of the coeffi	nementa y in V, Coos, into Spanin nementa gazante el Palante populari des nementas nem separa ante populari estas en el Son. Talega accuner el Palante paperte des nementas nem reporte interna en el Son. Talega accuner el Palante paperte des nementas nementas las estas en el Son. Talega accunera el Palante paperte des nementas nementas las popularismentas en el Son. Talega accunera el Palante paperte des nementas en el Son. Talega accunera el Palante parte parte el Son talega accunera de las popularismentas y seguinas en el Son talega accunera el Palante parte parte el Son talega accunera de las popularismentas y seguinas en el Son talega accunera el Palante parte parte de las popularismentes de las popularismentas y seguinas en el Son talega accunera el Palante parte de las popularismentes de las popularismentes accuneras partes accuneras partes de las popularismentes de las popularismentes accuneras partes accuneras partes partes de las popularismentes de las popularismentes partes partes de las popularismentes de las popularismentes partes partes de las popularismentes partes parte	Alistania Ugo 4 2000; Pice closes in extension the comely segmentation of Lipot Josenski and more and proposition of Lipoto Tailogen accounce of Lipotoma (procepting functions) and the other on a generation of Lipotom Lipotomy and Lipotoma (Lipotomy Alison) and Alison account (Lipotoma (Lipotomy Alison) account (Lipotomy Alison) account (Lipotoma (Lipotomy Alison) account (Lipotomy Alison)	pproximate Up to 4,0000, this option is estimated to overfly approximately 1,350 households with an opportunities dimand to population of 2,500. Taking account of 0 planned property developments, this option is estimated to populy of bits overfly and impact a statul population of 2,500. The partnerful nais impact on health and quality of bits
			property developments, this option is estimated to overfly and impact a total population of 5,000. . Us to 7,000 https://doi.org/isionaria.	Up to 7,0008, this option is estimated to overly approximately 8,000 households with an opposite population of 15,100. Taking account of 2,150 planned property development, this option is astimuted to useful cost incore to test operative or 2000. The option is a settimeted to useful cost incore to test optimized option of the option of the settimeted optimized optimized to test optimized op	III Up to 7,0008, this option is estimated to overfly approximately 7,600 households with an approximate population of 12,900. Taking account of 2,250 planned property development, this option is artistened to anoth control in our of the option of 12,900.	as Up to 7,000%, this option is estimated to overfly approximately 8,950 households with an approxim population of 16,500. Taking account of 1,000 planned property developments, this option is estimated to coefficient or better overflow or 18,400. The coefficient or better and the coefficient of the set	up to 4,000B is assuand as likely to office flewer people than the ido onling connection take tay to 7,000B, this option is estimated to overfly opproximately 1,500 households with an appen- population of 2,900. Taking account of 950 planned property development, this option is estima- population of 2,900. Taking account of 950 planned property development, this option is estima- ted to a state of the sta	up to 4,000% is ossessed on likely to offset fewer people from the 16s retring connexis, simula Up to 7,000%, this option is estimated to condity approximately 1,800 households with an approx ted to population of 2,500. Taking account of 2,400 planead property development, this option is esti-	up to 4,000% is assessed as likely to affect fewer people than the ido rathing assession, instead Up to 7,000%; this option is extineated to overfly approximately 2,200 households with an approxi- mated population of 4,200. Taking account of 200 planned property developments, this option is estima-	up to 4,0000 is assessed as likely to affect fewer people than the 'do nothing' assession instare Up to 7,0000, this option is estimated to overfly approximately 1,900 households with an approx and to oppulation of 3,000. Taking account of 150 planned property developments, this option is estim-	up to 4,0000 is assumed as likely to officit fewer people than the bio nothing' scenario lips to 7,0000; this option is estimated to overfly approximately 4,400 households with an app and to population of 8,2000. Taking account of 6000 planned property developments, this option is esti- al.	realisate matrix to population of 18,000. Taking account of 1,200 planet property developments, this option population of 18,000. Taking account of 1,200 planet property developments, this option propulation of 18,000. Taking account of 1,200 planet property developments, this option property developments are properly account of 1,200 planet property developments, this option property developments are properly account of 1,200 planet property developments, this option properly development of the property development of the properly development of the pr	aimate aimate is is population of 3,500. Taking account of 150 planed property developments, this option is population of 3,500. Taking account of 150 planed property developments, this option is planet.	denotes to population of 22003. Training successful of polymol property downlynesses, the station is interimeter to station of the loss off-quark static station of the stationary station of the static station of the station of quark is a static station of the static static static static static dark static static to construct static static to construct static stati
			is estimated to overfly approximately 9,200 households with an approximate population of 16,900. Taking account of 3,450 planne property development, this option is estimated to overfly and impact a trait acculation of 22,200.	and quality of life up to 7,000t is assessed as likely to affect fewer people than the do nothing d assessio.	and quality of life up to 7,000h is cases and as likely to affect fever people than the 'do nothing' scenario.	and quality of life up to 7,000% is assessed as likely to offect fewer people than the 'do nothing' aceracia.	is welly and impact a total population of 4,700. The potential axias impact on health and quality up to 7,000h is assessed as likely to affect fewer people than the ido nothing connario.	of life to every and impact a statal population of \$200. The parential noise impact on health and que life up to 7,0000 is assessed as likely to affect fever people than the 'do nothing' acenario.	bity of overfly and impact a total population of 4,800. The patential noise impact on health and quality up to 7,000H is assessed as likely to effect ferver people than the 'do nothing' assessio.	and to population of 3,800. Taking account of 150 planned property developments, this option is estim overfly and impact a total population of 3,900. The posterial noise impact on health and quality up to 7,000 is assessed as likely to affect fewer people than the ido nothing scenario.	of life overfly and impact a total population of 9,300. The potential noise impact on health and que up to 7,000h is assessed as likely to affect fever people than the ido nothing scenario	estimated to everify and impact a stati populition of 25,200. The potential noise impact on th and quality of the up to 7,000t is assessed as likely to offect ferver people thas the 'do nothin aservaria.	No overfly and impact a total population of 2,000. The potential noise impact on beach are life up to 7,0000 is cases and as likely to affect fever people than the 'do nothing' area	d quality of two-welly and impact a total population of 4,700. The parametrial noise impact on health and quality of life up to 7,000H is constant on likely to offset lever people than the life nothing scenario.
			a stati population of 22,200											
Communities	Air Quality	hitici Options Approiati: Qualitative												
			No change to air quality is predicted in maintaining baseline conditions. The majority of the estart procedure involves overfight above 1.000t, other than the areas in the immediate vicinity of the	Although there is likely to be a change is aviation emissions by location below 1,000 feet, the locat is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Ar Quality	on Although there is likely to be a change is aviotion emissions by location below 1,000 leer, the locati is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quelity	for Although there is likely to be a change in oriation emission by location below 1,000 feet, the locat is not within the vicinity of a designanted AQMA and as per CAP1616, para 872 a full Air Quality	Although there is likely to be a change in aristicn emissions by location below 1,000 lest, the loc is not within the vicinity of a designated AQ4A and as per CAP1616, para 872 a full Ar Quo is not within the vicinity of a designated AQ4A.	cation Although there is likely to be a change in aviation emissions by location below 1,000 feet, the lo sity is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quo	cation Although there is likely to be a change in aviotion emissions by location below 1,000 liser, the loc ility is not within the vicinity of a designanted AQNA and as per CAP1616, para B72 a full Air Qual	color Hithough them is likely to be a change in aviation emissions by location below 1,000 hert, the lo lity is not within the vicinity of a designated AQ46A and as per CAP1616, para 872 a full Air Quo	tation By Standy Here is likely to be a change in aviation emissions by location below 1,000 feet, the By is not within the sicility of a designated AGMA and as per CAP1616, para 872 a full Air C	location Although there is likely to be a change in aviation emissions by location below 1,000 feet, the lo bally is not within the vicinity of a designated AGMA and as per CAP1616, para 872 a full Air Que	costion Although there is likely to be a change in oriation emissions by location below 1,000 feet, if ality is not within the vicinity of a designated AQAM and as per CAP1616, para 872 a full Air	the location Although them is likely to be a change in aviation emissions by location below 1,000 test, the location is not within the vicinity of a designand AQMA and as per CAP1d16, para 872 a MJ Ar Quality
			conditions. The migriphy of the entert procedure involves overflight above 1,000th, other than the same in the inneredate vicinity of the Departure End of Rutway. In terms of AQMMs, the existing Runway 27 DAVENTRY SD overflight on AQMA.	Attracting there is leasy to be a change or avoided ensuance by location betwort (2000 key) the local is not within the vicinity of a delaygement AGMA and and per CAPTEAN, you BE2's tall Air Quality Assessment is desmed not required. This option overflies and AGMA. When compared to the locality assession, this option is deemed be equal as it confider the same number of AGMAs.	is not within the vicinity of a designment AQMA and as per QAP1616, pars 872 a hII Air Quality Assessment is deemed not required. Its This option overflex to AQMA. When compared to the file option is understanding scenario, this option is deemed be equal as it overflex to make a AQMA.	y is not within the vicinity of a designated AQ644 and as per CAP1616, para 872 a full Air Quality Assessment is deemed not required. 1 to This option overfiles on AQ644, When compared to the Via notifying streamin, this option is deeme be equal as it overfiles the same number of AQ64Ax.	Assessment is devined nor required. and to This option overfiles no ACBAAs. When compared to the tion nothing' consorie, this option is deen be equal as it overfiles the same number of ACBAAs.	Associate is deemed not request. ned to This option overfiles no ACDMA: When compared to the lids nothing scenario, this option is deer be equal as it overfiles the same number of ACDMA.	Advanced is being on the second second and second and second and second and second and second	Assessment is deened not request. ed to This option overfiles no AGMA. When compared the fait notified granular is deen be equal as it overfiles the same number of AGMAs.	Assessment is desired not required. and to This option overfiles no AGRAM. When compared to the Vio nothing scenario, this option is d be equal as it overfiles the same number of AGRAM.	Assession of the second	Another hereading the term is a set of the s	r Quality is not within the vicinity of a designand AQMA and or per CAP1016, para 1872 a MI Air Quality Assument is desmail and sequences desmail to This option overflare on AQMMA. These compared to the Na Anthong assumed, this option is desmail to be equal as it overflare to accument on the second
Wider Society	Greenhouse Gas impact	initial Options Approiated												
		Qualitative	Current routes do not enable continuous climb operations. It must b											
			Cover to made as at makine contractive client protections. The out- and for the space click larget line by a science of the space of the space of the space click larget line by a science of the space click makes proposed with a bandwine stars. The science procedures is a space science of the space click larget line by the space line space science of the space scie	an This option has been designed to support continuous climb operations. As element of radar vector	g This option has been designed to support continuous climb operations. As element of radar vectori	ing This option has been designed to support continuous climb operations. An element of radio vector	ing This option has been designed to support continuous climb operations. An element of radar vec	toring This option has been designed to support continuous climb operations. As element of radio vec	toing This option has been designed to apport continuous climb operations. As element of radar vector	oring This option has been designed to support continuous climbio persistent. An element of radior vec	tring This option has been designed to support continuous climb operations. An element of rador	ectiving This option has been designed to support continuous climb operations. An element of rador vec	String This option has been designed to support continuous climb operations. An element of sola	ar vectoring. This option has been designed to support continuous climb operations. As element of radar vectoring
			have a greater environmental impact compared to proposed option Within Stage 2 of the CAP1616 process, there is no requirement for	This explore has been designed to support continuous clinic spentitions. An element of radiar reaction may will be required to manage alriantly supported address. The track millarge of this option is to be full (19.4% mil). When compared to the bia califing same is, this option is longer and at therefore supported to reach in an increase is greenhouse gas ensistions compared to the bia can filling same is and a disease to be of environment disclowerit. Note in degrit and the late for the stage of the same is the same increase in greenhouse gas ensistions compared to the bia of environment disclowerit. Note in degrit and with the place of Stage 2.2.	ig This option has been designed to support continuous clinib operations. At element of indian vectorial lensy still be required to manage account support control outs of the top of this option is 35. In (19.24 nm), When compared to the bit nativity assession, this option is longer and is therefore expected to reach in an increase in greenburg grammain, this option is the bit nativity assessing expected to reach in an increase in greenburg as enables compared to the bit nativity assessing assessments.	ing This option has been designed to support anthroads and operations. An element of index vectors and may all be explained to manage element support automation distances. The took indexign of this option is 34 is 1(18.55 m), When compared to the Bo nathing scenario, this option is shorter and is therefore supported to reach in a discusse in geneticities gas emissions compared to the Bo nathing access in the second scenario option options in the second scenario option option in the Bo nathing access in the second scenario option option.	(int) This captor has been designed to support continuous climb operations. An element of loads were defined and the sequent to managers sinced separation distances. The stack mellesge of this captors is less [18:45:nm]. When compared to the Vido nothing semantic, this option is shorter and is there is a percent to mesh in a discusse is guestious gas emission compared to the Vido nothing sema- and is deemed to be of environmental hearth. Now in-length malphi(will this place or Tage):	theng The option has been designed to support continuous that operations. An ensemble of relative very local single the project to manage ensemble provide datasets. The tack milling of this option is the (18.25 m), When composed to the Go rathing scenario, this option is shorter and is three expected to result is a decrease is generhours gas emissions compared to the Go rathing scenario of the denominated bandit. Non in-degli complex will have place at Stage.	32.79 may still be required to manage already sequence distances. The track millage of this option is large 21.82 mill. When compared to the ido nothing scenario, this option is larger and is then any expected to small is an increase in greenhouse gas emissions compared to the ido nothing scenario.	40.42 may all be required to manage almost expansion diseasas. The track mileage of this option is law law (25.56 nm). When compared to the 'do nothing scenario, this option is longer and is there append to result is an increase is generalized gas emission compared so the 'do nothing' scenario.	This option has been designed to support continuous climb operations. An element of rador rador may all be required to manage alianch separation distances. The totak mileage of this option law [21.45 nm]. When compared to the 'do nothing' accession, this option is longer and is the non-required to main's non-invested separation accession.	Entring This option has been designed to support continuous climb operations. An element of radior vec is 29:22 may all be required to manage exiscing separation distances. The total message of this option is sentire, in spectra of the sentire is an increase in green to one pair is compared to the bit onthing' scenario, this option is longer and is there remain, in spectra of the sentire is an increase in green to an equipart on the bit onthing is scenario.	25.18 may all be required to monogen aircraft separation distances. The track milesge of this optimizes in the separation of stances, the spatial to make it is a stance in the spatial to make it is an increase in generated to make it is an increase in generated as maked to are increased in generation.	ion is 27.95 may ellible required to manage alroad separation distances. The track millarge of this option is 40.10 therefore km (21.65 ms). When compared to the like nativing acressio, this option is longer and is therefore (accessio, expected to result in an increase in generitouse gos ministices compared to the like nativity accessio,
			covered in Stage 3. In order to make a comparison in Stage 2, trac- mileage is used, based on the theory that the shorter the track mileage. The less eventhouse pases are emitted. In the case of the 's	k and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stope 3 confirm the exact volumes of generalized generalized and a storage 3 do	to and is deemed to be of environmental dia-benefit. More in-depth analysis will take place at 5tage 3 confirm the exact volumes of greenhouse gases released.	to and is deemed to be of environmental benefit. Now in-depth analysis will take place at Stage 3 to confirm the weat volumes of generihouse gases released.	to and is deemed to be of environmental benefit. More in-depth analysis will take place at Stoge 2 confirm the east's volumes of greenhouse gases released.	2 to and is deemed to be of environmental banefit. More in-depth analysis will take place at Stage - confirm the exact volumes of greenhouse gases released.	I to and is deemed to be of environmental diviburedr. Mane in-depth analysis will take place at Stage confirm the exact volumes of greenhouse gases released.	2 to and is deemed to be of environmental dis-baseds. More in-depth analysis will take place at Stag- confirm the weat volumes of greenhouse goans released.	2 to and is deemed to be of environmental disbenefit. More in-depth analysis will take place at St confirm the east volumes of greenhouse gases wheated.	ge 2 to and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stag- confirm the east volumes of greenhouse gases released.	# 2 to and is deemed to be of environmental dis-baselit. More in-depth analysis will take place at confirm the exact volumes of greenhouse goans released.	Stage 2 to and is deemed to be of environmental dio banefit. More in depth analysis will take place at Stage 2 to confirm the exact volumes of generatories process released.
			nothing baseline scenario, the track length to the common point is 34 BBion (18.82nm).											
Wider Society	Capacity and mailwace	nitial Options Approisol												
		Countrative	Maintaining setart procedures would maintain current capacity however, due to the release upon ground-based nonigational adds	The introduction of PBN noutes is expected to deliver benefits by increasing airpace capacity which advectantly leads to more predictable Tight earlie and lever delays both in the nir and on the	The introduction of PBN nuters is expected to deliver benefits by increasing airpaces copacity which addrespendly leads to more pendictable flight earths and fewer delaw flaths in the view one for the pendictable flight earths and fewer delaw flaths.	h The introduction of PBN nutres is expected to deliver benefits by increasing airpace capacity which subsequently leads to many predictable light onthe and fearer deliver both in the nin and not been predictable.	ids The introduction of PRN mome is expected to deliver benefits by increasing aimpace capacity we absequently leads to more predictable flaits outs and ferrer deliver both in Na ni nod on the	hich The introduction of PBN notes is expected to deliver benefits by increasing airspace capacity in the subsequently leads to more perdictable field cafts and fever delaw facts (in Na via and on N	high The introduction of PBN scates is expected to deliver benefits by increasing simplers capacity whe adampantly leads to more predictable flate same and ferent delaw flates both in the simulation of an effe	tich The impolation of PBN routes is expected to deliver benefits by increasing airports capacity as absequently leads to many predictable field caths and fever delays both in the size of one	Ich The introduction of PEN motes is expected to deliver barrelis by increasing airpoor capacit subsequently leads to more predictable flight outs and fewer deliver both in the size and it	which The introduction of REN notes in expected to deliver benefits by increasing airquoce capacity or to the subsequently leads to more predicable field outs and ferrer delaw facts in the via and way	hich The introduction of PBN routes is expected to deliver benefits by increasing airquare coper to be subsequently lacks to more pedictable Balt onthe and lever delives betwine the interview of the set of the	city which The introduction of PBPI motes is superclud to deliver basefils by increasing airpace supacity which advancemently leads to more predictable flight earths and fewer delaw both in the air and on the
			Maintaining whate procedures model maintain current cospecting however, due to the missionary upon ground-based navigational addy nationan could be significantly officand, following the semonal of th DTY DVOR and the requirement to addapt PRoJ procedures on part on the PASI-N Programme.	The introduction of PBN routes is expected to deliver benefits by increasing airquare copacity which absequently loads to more pandicable high parks and lever delays (buth in the air and on the ground). The reduction of the relinear on catalinar ground based merginature addex ill significant increase operational mollence through the introduction of PBN.	ly ground. The reduction of the reliance or contained ground based non-gational axis will significant increase operational resilience through the introduction of RIN.	fy ground). The reductor of the millions on andiated ground based noisignificant increase operational millions through the introduction of PBN.	ch The introduction of PRP nome is expected to deliver benefits by iconvasing airpaper equacity we abaseparity leads to more periliciable filty before and fewer deliver benefits phot in the oil and on t end of the induction of the reliance on contents ground based ravigational aids will signific increase operational reliance through the introduction of PRN.	ground). The induction of the reliance on outdated ground based non-ground all will significations operational molecular through the introductor of PBN.	artly ground). The reduction of the reliances on contained ground based managational with will significate increase operational realistics forces for the introduction of PBN.	<ul> <li>accelepting stack to the photocene region and their starp point in the start of the</li></ul>	Ich The instruction of PRI name is expected to delive benefits by increasing singueor expects subsequently lineafs to many pendictable flights path on a flaw of and a ground). The reduction of the relations on outdoted ground based navigational radius increase operational realisers through the immoduction of PRIN.	n the subsequently leads to more predictable flight parties and fewer delays (both in the air and on ground). The reduction of the reliance on audiated ground based resignational will signific increase operational realisms through the introduction of PBN.	proved). The reduction of the reliance on antidated ground based samplificational skill will a increase operational realisence through the introduction of PEN.	grund) The induction of the reliance on audianial ground based resignational sub-off will significantly increase operational inclinese through the introduction of PBN.
Wider Society	Tranquility	hitist Options Approiati	As per C471016, Appendia B, para 876, charge sponson are required to consider Tenno diffe with specific solutions to 4/1486 or											
		Qualitative	required to consider Tranquility with specific relevance to ACNBs or National Parks only, unless other areas have been identified through community encapament. No additional specific areas were identified	d This spion overfles no structurily identified transpillty receptors (ACNIs or National Parks), nor a dentified through community regagement and is therefore comparable to the lds notifieg' scenario- scenario distributions.	This option ownflies no stantastly identified tranquility receptors (JCHBs or National Parks), nor and identified through community expension and it therefore comparable to the Vio nothing accession command on methol.	ny This option overfles no assanticily identified tranquility inceptors (ACNBs or National Parks), nor o and identified through community engagement and is therefore comparable to the life nothing samania assessed as reutral.	any This option overflees no statutoly identified tranquility receptors (ACNIRs or National Pade), no and identified through community engagement and is therefore comparable to the ido nothing scenar assessed as neutral.	r any This option overfiles no statutorily identified tranquility scaptos (ACMRs or National Parks), no in and identified through community engagement and is therefore comparable to the 'do nothing' compa-	r any This option overfies no statutorily identified transpullity receptors (ACNRs or National Parks), no identified through community regegement and is therefore comparable to the Vio nothing issues cases and os montal.	any This option overfiles no statutarily identified transpullity receptors (ACNIIs or National Parks), no and identified through community engagement and is therefore composable to the tio nothing' scenar assessed as neutral.	any This option overfiles no statutorly identified tranquility receptors (ACNRs or National Paris), identified through community engagement and is therefore comparable to the 'do nothing' sce assessed as neutral.	nor any This option coeffies to statutorly identified tranquility mospton (MDNBs or National Pasks), no area and destified through community segagement and is therefore comparable to the Go noting scenar assessed as neutral.	or any This option overflees no extentionly identified transpallity receptors (HCNBs or Notional Parks in and identified through community engagement and in therefore comparable to the Vio nothing is assessed as restrat.	e), nor say This option owelfies no attactually identified tranquillay ecosystem (ACMEs or National Pack), nor any assaria and identified through community engagement and it therefore comparable to the lab nativity assarias and cancel on environment.
			required to consider Transpallity with specific reference to ACMR on Notional Packs only, unless other annus how been identified through community regogenerat. No additional specific areas were identified by community argument. The ldo noting's accession of the specific areas (ACMRs on National Packs).	or constant.	cossist or neutral.	oasesad os reutal.	ossessed as restral.	io and identified through community engigement and is therefore comparable to the ido nothing science assessed on motival.	causad or southel.	assessed as neutral.	assessed as restrail	assessed as restrail.	omened or restal.	canesad or neurol.
mider Society	licdwelly	hitial Options Approiaal: Qualitative												
			The charge spansor has mapped the designated Sites of Special Scientific Interest (SSSA), Special Protection Areas (SPA), Special Are of Conservation (SAC) and RAMSAR alter, as identified on the DITR MAGIC Map. CAP1016, Appendix B, para 874, states that because	The change sponsor has mapped the designated Stee of Special Scientific Interest (SSSI), Special Potection Areas (SNA). Special Areas of Conservation (SACs) and RAMSAR shes, or identified on t	The charge sponsor has mopped the designated Stee of Special Scientific Interest (SSR), Special Protection Areas (STAL Special Areas of Conservation (SACc) and RMGAR days, or identified on th	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSI), Specia Protection Amou (SNI). Special Amou of Generation (SACI) and RAMSAR sites, or identified on the	The change sponsor hos mapped the designanted Stress of Special Scientific Interest (SSSI), Spe- the Potention Areas (SPA), Special Areas of Conservation SACI) and RAMSAR sites, as identified of	dal The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSI), Special Interest (SSSI), Special Areas of Conservation (SAC) and RANSAR sites, as identified in the Protection Areas (SFA).	tiol The change sponsor has mapped the designated Stess of Special Scientific Innevet (SSSIs), Speci the Protection Areas (SPAI). Seecial Areas of Conversation SAC4 and RM/SAR item, or identified or	The change sponsor has mapped the designated Stee of Special Scientific Intervet (SSSI), Spe Protection Anno (SNI). Social Anno of Conservation (SAC) and RMSAR sites, as identified of	The change sponsor hos mapped the designand Stres of Special Scientific Interest (SSSA), 5 to Protection Areas (SPA), Special Areas of Conservation (SACI) and RAMSAR alter, as identifie	Pecial The change sponsor has mapped the designated Stes of Special Scientific Interest (SSSI), Special in the Protection Away (SPA), Special Away of Conservation (SAC) and RAMSAR also, as identified	tele The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs) on the Potentian Anna (SPAs). Special Anna of Conservation GACs and RAMSAR sites, or identifi	Special The charge sponsor has mopped the designated Stee of Special Scientific Innexet (SSIN), Special Protection Areas (SNN). Special Areas of Conservation (SAC) and RMSAR ators, or identified on the
			Molect, Mag. CHEGG, Appendia B, Jorra K.M., doke Mit Barlander, dispersion and maining, there is withhigh to be an impact on local air quality from sites to book 1,000%. Furthermone, CMF416, Append B, pass BBO, states that in general, actiquate through persponal will in have an impact on biodimetity on thry do not involve ground-base influences. However, the change approach acknowledge that any influences. The second approach acknowledge that any influences and acknowledge that any approach acknowledge that any influences acknowledge that any approach ackno	<sup>40</sup> The drogs sparse his regard fit drogsted Sou of Spacial South (Struct SCO), Space Annual Participation and SCO), Space Annual Community (SCO) and SPARE Annual Ann	In the drops proces his regard the designed Size of Special Science (TSO), Special Procession Areas (SPU), Special Areas Commonicies (SCI) on OMMORE areas, and interfed or if the DTRA AVGCC https: CVP1016, Appendia B, pace 474, more the because of dispersion and minim time is utilitied to be an impact on location during Proceedings and the State of State (State AvgCC) and State (State	In Protection Break (2014), Special Anno of Conservation (SAC) and RMMSR bits, on identified on the CPRN MAGC Map. CVP1016, Appendix B, para B24, mate that because of dispersion and mini- three is unlikely to be an impact on local of equily from anianot habon 1,000C Furthermore, CMP1016, Appendix B, para B80, man that is general, singuce thange proposal will not have the equily the second	The Productor Areas preval, special variant of Conservation (PLC) and DAVARY link, as admitted or ing. DEPR MAGEC Map. CAP1616, Appendix B, para B74, states that because of dispersion and in there is unlikely to be an impact on local or quality from second above 1,000h. Furthermore, on CAP1616, Appendix B, para BBD, states that in general, simpace change proposal will not have a provide the second seco	in the Protection Areas (\$PAs), Special Areas of Conservation (\$AC4) and BANSAR sites, as identified a ning, DETRA MAGIC May, CAP1616, Appendix B, para BC4, attest that because of dispersion and in the suitiliary to be on impact on local in quality from anicouth above 1/2008. Furthermore an CAP1616, Appendix B, para BB0, states that in general, singular change proposal will not have the fully set of the set of t	ining. DIFRA MAGIC Map. CAP1616, Appendix B, poro B74, stores that because of dispension and min these is unlikely to be an impact on local air quality from aircraft above 1,000h. Furthermore on CAP1616, Appendix B, pans B80, values that is general, oispace change proposed will not how.	The Roberton Areas provid, special Areas of Constraintion (public) and Workshork data, on identified of DEPRA MACC Map. CPF1016, Appendix B, passe BP4, attracts that because a dispersion and there is utiliarly to be an impact on local ori quality from sinced tabore 1, 2009. Furthermore CPF1016, Appendix B, passe BB0, attracts that is quared, approach charge proposal will not the CPF1016, Appendix B, passe BB0, attracts that is quared, approach charge proposal will not the CPF1016.	In the Protection Aveing privat, Special Aveing of Conservation (SACL) and BANDARCHINE, as identified into, DEPRA IMAGIC Map. CAPI-616, Appendix B, para B74, states that because of dispersion and them is unlikely to be an impact on local air quality from intrust above 1,000th. Furthere e on CAPI-616, Appendix B, para B80, asses that in general, singucor charge proposal will not 1.	Li an the Promition Anexa (STAN), Special Anexa of Conservation (SAC) and BANSAR sites, as identified a mining. DBTR MAGIC Mag. CAP1616, Appendix B, poro B74, exten that because of dispersion and m the individual beam (Sacharam and an appendix and appendix appe	on the Detection Avens (SPA), Special Avens of Conservation (SAC) and RMARA kins, on identify DBRA MAGE, DAP, CAP1616, Appendix B, para BPA, attack that because of dispersion a them is utilially to be an impact on local in public from aircraft above (SCOR). Further we as CAP1616, Appendix B, para BBD, states that is general, airspace change proposal will no CAP1616, Appendix B, para BBD, states that is general, airspace change proposal will no capacity. Second Science Capacity Science Capacity (SCOR) for the second CAP1616, Appendix B, para BBD, states that is general, airspace change proposal will no capacity (SCOR).	Hall on the Helicola Avera (DPAL), special Avera of Consendation (PAL), Got Montex Leis, or identified all the identified of many, UEFA MAGC May, CPATIST, Appendix B, pars BFA, strain facto because of dispersion and mining, them is unlikely to be an impact an local of updatly from alcost backen 1,000. Furthermone, the loca or OPATIST, Appendix B, pars BBA, strain facto in general, indiguard change proposal will not have an
			R. pass BBD, Battle That is general, compacts change proposal with have an impact on biodivenity as they do not involve ground-bases infrastructure. However, the change spaces acknowledges that any constructure.	<sup>6</sup> Impact or biodiversity as they do not involve ground-based infrastructure. However, the charge upon according to the second biological state of the second biological states and the cell the second biological biological biological biological biological cell the second biological biological biological biological states and the second biological biological biological biological biological states and the second biological biological biological biological biological biological states and the second biological biological biological biological biological biological states and the second biological	no impact on biodiments of they do not involve provid-based infrastructure. However, the change upon a 3 acknowledges that any potential impact to the designated sites accound DMA will be assessed in Stage of the ACS process by Solipit Matter Espent.	user impact on biodiversity as they do not involve ground-based inflationare. However, the charge upo is 2 actionaledges that any potential impact to the designated situs around DMA will be assessed in 2og of the ACP process by Subject Matter Equent.	encor impact on biodeworky on the year of twolve genuind based infrastructure. However, the change up a lakenowledges that any potential impact to the designated sites anound DMA will be assessed in 2 of the ACP process by Subject Nature Espens.	possar impact on bindinenity on they do not involve ground-board infrastructure. However, the change e tage 2 acknowledges that any potential impact to the designment lates around DNA will be assessed in S of the ACP process by Subject Nature Equets.	porare impact on biodimetry on they do not involve ground-based infrastructure. However, the therape up togs 2 acknowledges that any potential impact to the designated sites around DMA will be assessed in 2n of the ACP process by Subject Nature Expens.	come import on biodiversity as they do not involve growth-based infrastructure. However, the charge a coge 2 admontedges that any potential impact to the designated situs accord DNA will be assessed in 5 of the ACP process by Subject Native Expens.	cosor import on biodiventity on they do not involve ground-based influenzuous. However, the change oge 2 acknowledges that any potential impart to the designated alter amound DMA will be cosessed i of the ACP process by Subject Matter Esperts.	e generate import on biodivenity or they do not involve ground-board information. However, the damps of Stage 2 acknowledges that any patential impact to the designanted sites around EMA will be assessed in 5 of the ACP process by Subject Matter Equati.	import on bindivently on they do not involve ground-based influenceme. However, the impe 3 sponsor admoviedges that any potential impact to the designated sites around EMA will be Stage 3 of the ACP process by Subject Nature Expens.	duage impact on biodivenity at they do not involve ground-based infrastructure. However, the change assessed in sponsor admonsfugers that any potential impact to the designated site around DNA will be assessed in Stage 2 of the ACP poscess by Subject Name Expens.
			is Stage 2 of the ACP process by Subject Matter Experts.											
General Aviation	Access	bitis! Options Approiaal: Qualitative												
			No change to winting airspace amongements. Any General Aniaton users of airspace in the vicinity of EMA will maintain their current leve of access under whore operational amongements.	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. A Visual Relevence Points and waiting Letters of Agreement perturbing to General Aviation access will environed and undertail holene confidential order to immemotipate to ensure their confined wild movement.	Impact to General Aviation access is anticipaned to be minimal as a consequence of this ACP. All be Vaual Belsencer Paints and existing Letters of Agreement perturbing to General Aviation access will in reviewed and undated linkers apalitable joint to immersentation to ensure their continued validate	II Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. A be Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will reviewed and undered helmes aparticabili wint to implementation to ensure their continued reddi-	All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. It be Vocal Relevance Paint and existing Letters of Agreement pertaining to General Aviation access with reviewed and undertained helmen apacitable across to implementation to resum their continued and	All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. will be Visual Reference Points and waiting Letters of Agreement pertaining to General Aviation access in the minimal and under a state of the second state of the seco	All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. all be Visual Reference Point and existing Letters of Agreement pertaining to General Aviation access with the minimum of these applicable aircrit to independent on to ensure their continued value.	All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. all be Visual Reference Points and existing Letters of Agreement perturbing to General Aviation access a device and under the constant of the second	All Import to General Aviation access is anticipated to be minimal as a consequence of this All ill be Vocal Relevence Paints and eaking Letters of Agreement pertaining to General Aviation access reviewed and undertained herein acalitable adort to implementation to ensure their continued	P. All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. a will be Visual Reference Points and existing Letters of Agreement pentaining to General Aviation access reliable.	All Impact to General Aviation occess is anticipated to be minimal as a consequence of this i will be Visual Reference Points and existing tentes of Agreement perturing to General Aviation ac- fact, minimentation of the second former and calculate and or to instrumentation.	ACP. All Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All by Vasad Relevence Points and waiting Letters of Agreement perturbing to General Aviation access will be environed and used helper acceluable of or to implementation to ensure their contended validate.
			of access under estant operational amorgements.	Ainpace classification requirements and only additional simpace requirements will be reviewed as p of Stage 3 activities.	be Visual Bolences Points and existing Letters of Agreement perturing to General Aviation access will previewed and updated jelene applicability joints to implementation to more their continued widdly of Arapace classification requirements and any additional dirights requirements will be enviewed as p of Stopp 2 activities.	at Ainpace doublication requirements and any additional ainpace requirements will be reviewed as y of Stage 3 activities.	II he Your Belence Point and maining Letters of Agreement persisting to General Avoidor access a provised and spdated (elsew applicable) prior to implementation to renum their continued and Anapora classification requirements and any additional airpace requirements will be reviewed a all Stage 3 activities.	is part. Airspace classification inquinements and any additional airspace requirements will be reviewed a of Stage 3 activities.	s part. Aimpose dussification requirements and any additional aimpose requirements will be reviewed as al Stage 3 activities.	s part Ainpace classification requirements and any additional sinpace requirements will be reviewed a of Stage 3 activities.	Il be Vocal Belence-Point and waiting tetres of Agreeneer perturing to General Aviation confidence meined and yadated (been applicable) picks to implementation to ensure their contrast Airspace dossilication requirements and any additional airspace requirements will be reviewe of Stage 3 activities.	d as part. Airpace classification requirements and only additional simplex requirements will be reviewed of Stage 3 activities.	as part Ainpace closefication requirements and any additional sinpace requirements will be review of Stage 3 activities.	and as part. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 2 activities.
General Asiation /	Economic impact from	hitel Options Approiati												
			No increase to effective capacity anticipated for continued use of	The impduction of RIN is expected to deliver benefits by increasing airspace capacity which in turn lead to more pedictable fight paths and fewer delive (both in the air or on the ground). This is	•IT The introduction of PBN is expected to deliver benefits by increasing aimpace capacity which in turn v lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is	will The introduction of PBN is expected to deliver benefits by increasing airrpace capacity which in turn lead to more predictable flight paths and fewer delay (both in the air or on the ground). This is	If the introduction of PBN is supected to deliver benefits by increasing simpace capacity which in the is lead to more pedictable fight paths and lever delays (both in the air or on the ground). This	on will. The introduction of PBN is supercled to deliver benefits by increasing airpace supacity which in the is in find to more predictable light paths and fewer delays (both in the air or on the ground). This	m will The introduction of PBN is expected to deliver benefits by increasing airspace copacity which in the is and to more predictable fight paths and ferrer delays (both in the air or on the ground). This	n will. The introduction of PEN is separated to deliver benefits by increasing simpace capacity which in the lead to more predictable flight parts and fewer delays (both in the sir or on the ground). This	n will The introduction of PBN is expected to deliver benefits by increasing airspace capacity which is is load to more pedictable fight paths and fever delays (both is the air or on the ground).	num will The introduction of PBN is expected to deliver benefits by increasing airpace capacity which in th his is lead to more predictable flight paths and fewer delays path in the air or or the ground). This	urs will The introduction of PBN is expected to deliver benefits by increasing airspace capacity which is in the data many predictable flight paths and fever delays (buth in the air or on the ground)	h in turn will. The introduction of PBN is expected to deliver benefits by increasing airquare copacity which in turn will be it to more predictable flight paths and fewer delays (both in the air or on the ground). This is
			atart procedures, therefore no economic baseft for GA/oidines.	expected to facilitate economic benefit by potentially increasing the frequency of air temport movements, increasing passenger numbers and increasing cargo tomoge carried.	expected to facilitate economic benefit by patentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo transpe carried.	espected to facilitate economic baselit by potentially increasing the frequency of air transport movements, increasing possenger numbers and increasing samp tansage context.	is lead to more predicable flight parts and lever delays (both in the air or on the ground). This expected to facilitate economic benefit by potentially increasing the frequency of air transpo- movements, increasing possenger numbers and increasing corpo torrespe carried.	et expected to facilitate economic banefit by potentially increasing the frequency of air transpo- movements, increasing possenger numbers and increasing cargo transpe carried.	e expected to facilitate economic benefit by parterially increasing the bequeray of air transport movements, increasing passenger numbers and increasing argo tanage carried.	<ul> <li>espected to facilitate economic basefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo transpe conied.</li> </ul>	<ul> <li>espected to facilitate accountic bandli by potentially increasing the bequency of air trans movements, increasing possenger numbers and increasing corps toreage carried.</li> </ul>	port expected to facilitate economic benefit by potentially increasing the lengung of air transpo movements, increasing possenger numbers and increasing cargo transpe context.	at supected to facilitate economic baselt by potentially increasing the frequency of air to movement, increasing passenger numbers and increasing cargo tomage careled	seport expected to facilitate economic barrelit by patentially increasing the frequency of air transport increasing passenger numbers and increasing cargo transpe carried.
General Aviation /	Fuel burn	Initial Options Appraisal	-											
			The existing DMA procedures for departures do not enable continuo.											
			climb operations. Within Stage 2 of the CAP1616 process, there is no requirement for change sponer to conduct quantitative fuel burn analysis. This will b	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is requirement within Stage 2 of the CAPTA16 process to quorefly fail burn, this will be conducted is Stage 3. Therefore, the reducing the conduction, the food conduction and the totack length.	no This option supports continuous climb operations, inducing the overall amount of fael burnt. Them is requirement within Stage 2 of the CAPI 616 percent to quantify fael burn, this will be conducted in the Stage 2. Therefore, to exable a connection, the local concilent is that the short the truth length the Stage 2. Therefore, to exable a connection, the local concilent is that the short the truth length the stage 2.	1.00 This option supports continuous climb operations, inducing the overall sursourt of fuel burnt. There is requirement within Stage 2 of the CAP1616 process to quarkly fuel burn, this will be conducted in State 3.7 Develow, to enable a composition, the fuel capital is the the chart the track instant.	is no This option supports continuous climb operations, reducing the owned amount of hel burnt. Then in requirement within Stope 2 of the CMP3616 process to quantify field burnt, this will be concludes the Stope 3. Therefore, the enable o comparison, the fourier control with the three there for the stope for	n is no This option supports continuous climb operations, inducing the overall amount of hell burst. They may invested within Stage 2 of the CAP 1616 process to quarity hell burst, this will be conducted in the State 3. Therefore, to enable a comparison, the local capability of the the do leave the topic limit.	is no This option supports continuous climb operations, reducing the overall amount of fuel burnt. These explorement within Stage 2 of the CAP1616 percents to quantify hall burn, this will be conducted to State 3. Therefore, to realize a comparison, the locic capital of there the shorter the track intend.	is no This option supports continuous climb operations, inducing the overall amount of hell burnt. Then in majorement within Stage 2 of the CAP1616 process to quantify hell burn, this will be conducte the States 2. Therefore, to enable a comparison, the local capability from the the charter the track leads	is no This option supports continuous climb operations, reducing the overall amount of hel burst. The equivament within Stage 2 of the CAPSISTB process to quantify hel burst, this will be conduct to the States 2. Therefore, the enable is comparison, the focult conduct is of that the chart the track the state is a state of the state of the state is a state of the state of the state is a state of the sta	een is no. This option supports continuous clinik operations, inducing the overall amount of het burnt. Then majorement which Stage 2 of the CAP1616 process to quantify het burn, this will be conducts gift, the Stage 2. Therefore, to enable a companion, the logic applied is that the element the trade lengt of the line line is burnt. With requests to the caption, it a. 25.18 km (18.79 km) iong. When companies	m is no This option supports continuous climb operations, inducing the overall amount of hell burn to inspinienter within Stage 2 of the OW1616 process to quantify hell burn, this will be co- to the State 3. Therefore, to enable a composition, the inspin coale cancel at that the shorter the toxic $l$	II. There is This option supports continuous climb operations, reducing the overall amount of hel humt. There is national on measurement within 200go 2 of the OPFIA16 process to quantify fail hum, this will be conducted in learnt. The 200g 3. Therefore, to evable to conservice, the holic condition is that the direct the total learnt. The 200g 3. Therefore, to evable to conservice, the holic condition is that the direct the total learnt. The 200g 3. Therefore, the veable to conservice the total learnt. The 200g 3. Therefore, the veable to conservice the total learnt. The 200g 3. Therefore, the veable to conserve the second learnt the direct the total learnt. The 200g 3. Therefore, the veable total learnt. The 200g 3. Therefore, the total learnt the direct the total learnt. The 200g 3. Therefore, the veable of the 200g 3. Therefore, the total learnt the direct the total learnt. The 200g 3. Therefore, the total learnt the direct the direct the direct the 200g 3. Therefore, the total learnt the direct the direct the direct the 200g 3. Therefore, the total learnt the direct
			The earling DAA procedures for departure do not exable continue, table apparations, including and the second secon	<sup>5</sup> Issue fault is barrer. With regards to this option, it is: 26.10 km (19.4P nm) long. When compared to the onthing' scenario, this option is longer and or this maps, it is assumed that it will be of economic benefit on some faul will be barrer. More in death convolution will be comind out in State 2 to confirm.	on This captor support continuous distrib operations, veducing the consell amount of that barrs. These is requirement write: Stage 2 of the CMO16 for process to yourity fuel hows, they will be conducted in the Stage 2. Therefore, to avail the composition, the logic capital of the that when shows the lasts that is hown. With regards to the logics, it is 152 bits (1924 or 10) cost, Withen compared to did the content of the stage 2 and the stage is a stage of the stage 2 and the stage 2	the liss fuel is burnt. With regards to this option, it is 34.26 km (18.55 nm) long. When compared to dia 'do nothing scenario, this option is shorter and or this stage, it is assumed that it will be of account benefit on law fuel like burnt. How in death catalogies will be control out in Stage 13 to content out the benefit on law fuel like burnt. How in death catalogies will be control out in Stage 13 to content and the benefit out the burnt. How in death catalogies will be control out in Stage 13 to content with the benefit out the burnt. How in death catalogies will be content out in Stage 13 to content and the benefit out the burnt. How in death catalogies will be content out in Stage 13 to content the stage out the stage 14 to content out the stage.	the Stoge 3. Therefore, to enable a comparison, the logic applied is that the shotner the track length free fael is barnt. With respects to this option, it is 24.53 km (18.65 mm) long. When compared mic is onothing scenario, this option is shotne and at this stoge, it is assumed that it will be a feature benefit as less fael will be barnt. Note in-short and any this be control out is Stope 3.15 cm <sup>2</sup> .	b) the Stoge 3. Therefore, to exable a comparison, the logic applied is that the shorter the track length first fuel is burit. With regards to this option, it is 32.79 km (18.25 m) long. When compared somic the option is shorter and at this stoge, it is casewed that it will be to do not may be written as last fast will be burit. When is shorter and at this stoge, it is casewed that it will be to do not may be written as last fast will be burit.	5 the Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the truck length in the last last is burit. With regards to this option, it is 40.42 km (21.82 m) long. When compared to oncir the ondring scenario, this option is longer and at this appa, it is assumed that it will be of econom been the same fast will be burit. More in these that any sum is the scenario of a 50az 31 to combine the scenario of a 50az 31 to combi	, the Stuge 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length less fuel is burnt. With regards to this option, it is 38.07 km (20.56 mm) long. When compared inic die lide nothing scenario, this option is longer and at this stage, it is assumed that it will be of econo benefits are more fuel will be burnt. More in schedul parameters will be carried out in State 2.0 scenario.	, the Stoge 2. Therefore, to enable a comparison, the logic applied is that the shares the track less in the last field is burit. With regards to this option, it is 39:72 km (21.45 nm) long. When compare is die lo earthing approach, this option is longer and at this stoge, it is assumed that it will be of eco more benefit as more field will be burit. Hore in-freedom analysis will be accession of the part of	d to the list had is bornt. With regards to this option, it is . 25.16 km (18.99 nm) long. When composed monic die do nothing scenario, this option is longer and at this stoge, it is assumed that it will be of econo- ation. Desert on more fail will be born. More in-deshir and bis called to call \$2000 23 to can-	d in to requestion within 126gs 2 of the CAP (b) by process to quality set bury, the well be con- figured to the carbon of the carbon of the CAP (b) by process to quality set bury, the well be con- tropic to the field in the carbon of the carbon, the logic operation of the the the carbon incident (do nothing assession), the option is longer and of the range, it is assessed that it will be of do nothing assession, the option is longer and of the range, it is assessed that it will be of do nothing assession.	and to the lease fuel is burnt. With regards to this option, it is 40.10 km (21.45 km) long. When compared to the 'do nothing scenario, this option is longer and at this stopp, it is assumed that it will be of economic to confirm. do benefit or more that will be burnt. More in-death anolptic will be created on it States 2 to confirm.
			24.88km (18.82nm).											
Commercial	Training code	Nitial Options Approiaal	Production in the control to control on the											- Mail biostices data and states and the social states of the social sta
Connectal	Other costs	Qualitative	would be practiced by crews through existing simulator exercises.	It is anticipated that no estra platforms training will be required to enable plats to fly the new PB procedures as PBN has become a common navigation standard across the world.	It is anticipand that no easy pilot/one-training will be required to exable pilot to By the new PBN procedures at PBN has beame a common nonigation standard across the wold.	N It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new RB procedures as PBN has become a common novigation standard across the world.				It is enticipated that no entry plicitone training will be required to enable plicits to fly the new procedures as PBN has became a common novigation standard across the world.	It is anticipated that no entro pilo(tow training will be required to enable pilote to fly the n procedures on PBN has become a common novigation standard across the world.	w PBN It is anticipated that no were plicit/time training will be required to enable plicits to fly the new procedures as PBN has become a common navigation standard across the wold.	procedures as PBN has become a common nongation standard across the world	in a uncapate on a to the process a common neighter that and a cost the world.
aidines		Qualitative	It is not proportionate at this stage for DMA to assess potential othe costs for commercial airfines - there may be costs associated with maintaining legacy systems to continue flying convertional navigation between the property of the cost of the system	<sup>4</sup> Other costs to commercial airlines may include updates to Fight Management Systems (FMS), margination databases and operating procedures, increased piller hier cost vesus training etc. It is in poportiones at this maps of the ACP for DNA to assess the other cost to commercial airlines of fight PRN procedures.	Other costs to commercial airlines may include updates to Flight Nanogement Systems (FMS), envigation databases and operating procedures, increased pilot hire costs remus training etc. It is a ing proportionate at this stage of the ADP for EMA to cause the inter cost to commercial airlines of thy FRI procedures.	Other costs to commercial advises may include updates to Flight Management Systems (FMS), or moligation databases and operating proceederse, increased plate him costs versus training etc. It is ing proportionate at this stage of the ACD for DMA to access the tables cost' to commercial advises of fi DBN procedures.	Other costs to commercial aidness may include updates to Flight Management Systems (FMG net: moigation databases and operating procedures, increased golds hire costs versus training arc. It proportionare at this stage of the ACP to DM to sums the other costs to commercial aidness of PRN procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS is not assigntion databases and operating procedures, increased piller him costs venus training etc. It flying proportionate at this mage of the ACP for DMS assume the other cost to commercial airlines on PRN procedures.	b) Other costs to commercial airlines may include updates to Flight Management Systems (FMS) is not navigation databases and operating procedures, increased gister hier costs versus training est. It is flying proportionate or this mage of the ACP for DM to assume the tabler cost to commercial airlines of PRM procedures.				R) Other costs to commercial address may include updates to Flight Management Systems margination databases and operating procedures, increased plat him casts were straining a Physical Systems of the edge of the ACP for DM to assure the tither cost's to commercial addres PRN proceedures.	(FNZ), Other come to commercial airlines may include updates to Flight Management Systems (FNZ), ex. It is not independent of adabases and operating precedures, increased pilot hire costs sense training etc. It is not even of Brigg propriorates of this range of the ACP to TMA to assess the intere cost to commercial airlines of Brigg
			but there are too many variables (e.g. aircraft types, on-board syste capability etc.) to consider these effectively.	PBN procedure.	PBN proordures.	PBN procedures.	PEN procedure.	PIN priordans.	Rin procedures.	is not inorigation databases and operating procedures, increased pilot him casts versus training etc. It flying proportionate at this stage of the ACP for DNA to assess the latter cost' to commercial origins o PBN procedures.	is not invegation databases and operating procedures, increases the jobs him costs vesus training etc. Bying proportionate at this stage of the ACP for BMA to assess the jobse costs' to commercial outline PBN procedures.	PRN procedures.		PBN peccedures.
Auport / Air novigation service provider	erradructure costs	eventr Options Approiatil Qualitative	No additional infrastructure is required at DMA to maintain enter conventional procedures; however, maintaining accessibility to curre ground-based equipment (operated by NDRL) may become	There are no separated additional inframetures costs. All options relates to the implementation of PEN advances the relation of provide and no additional inframetures in required as the introduction of PEN advance the relation on group inframetures, in particular ground-based nonigation saids are no longer needed.	IN These one no expected additional infrastructure costs. All options where to the implementation of PM and no additional infrastructure is required as the implaction of PMN reduces the relations or group infrastructure, in particular ground-based navigation edds use no langer needed.	BN There are no expected additional infrastructure costs. All options relate to the implementation of P and no additional infrastructure is required on the introduction of PIN reduces the relations or gro- infrastructure, in particular ground-based navigation oxids are no longer mediad.	PBN There are no expected additional infrastructure care. All options relate to the implementation of and as additional infrastructure is required as the introduction of PBN induces the relations on pe- infrastructure, in porticular ground-based rangeption aids are no longer needed.	FRN There are no supercised additional inframentary costs. All options whate to the implementation of and no additional inframentary is required on the introduction of PRN induces the relation on gr	PRV PRV There are no expected additional infrastructure costs. All options relate to the implementation of and no additional infrastructure is required on the implementation of PRV reduces the relative on gr	PBIN There are no expected additional infrastructure costs. All options relate to the implementation of and no additional infrastructure is required as the intraduction of PBN relaces the reliance or groups.	78N Thes are no expected additional infrastructure core:. All options relate to the implementation and no additional infrastructure is required as the introduction of PBN enduces the relaces on infrastructure, in particular ground-based navigation saids are no longer needed.	of PRN. There are no expected additional inflastructure costs. All options relate to the implementation of and no additional inflastructure is required as the introduction of PRN reduces the relation or p inflastructure, in particular ground-based ranigation oids are no longer needed.	I PBN There are no expected additional infrastructure costs. All options relate to the implementation and no additional infrastructure is required as the intraduction of PBN reduces the relinear infrastructure, in particular ground-based rearigation aids use no longer mediad.	tion of PBN. There are no expected additional infrastructure costs. All options relate to the implementation of PBN, on ground, and no additional infrastructure is required on the implaced on of PBN reduces the relation on ground
Algot/Ar	Operational case	Initial Options Appraisal	promitively aspensive should a CAP1701 RNAV substructors not be implemented prior to the proposed sensoral date.	immetractive, in particular ground-based novigation solds are no longer needed.     Some coversfored commons anticipated with prevention the technological sole of an				infrastructure, in particular ground-based non-gation aids can no longer mediad.	information, in particular ground-based non-gation side are no longer medial.	infrastructure, in particular ground-based rearization aids are no longer medial.		infortructure, in particular ground-based navigation sids are no longer needed.	infrastructure, in particular ground-based navigation olds are no longer needed.	infrastructure, in porticular ground-based novigation side are no longer medial.
novigation service provider		Qualitative	No change to operational costs is attributable to maintaining the educt procedures.	training of air traffic controlling staff of DAA, however, these control be identified at this stope of the ACP process.	Some operational care ore entripoted with respect to the implementation of new procedures and a training of air traffic controlling and at DAA, however, these cannot be identified or this stoge of the ACP process.	d Some operational cash are unliqued with respect to the implementation of new procedures on taking of air traffic costrolling and at DNA, however, these convort be identified at this stoge of the ACP process.		the training of or traffic controlling dult or DMA; however, there cannot be identified or this maps or ACP process.	<ul> <li></li></ul>	The survivage of air traffic controlling staff of EMA; however, there cannot be identified at this stage of ACP process.	and Some operational costs are anticipated with respect to the implementation of new procedure to initial of air nulls: cosmoling at all of EMP, however, these conners be identified at this day ACP process.	es and Some operational costs are articipated with respect to the implementation of new procedures training of air traffic controlling and to DMA, however, these control the identified of this maps of ACP process.	the second secon	age of the source of the ACP process.
Aisport / Air novigation service provider	Deployment costs	initial Options Appraisal. Qualitative	No deployment costs applicable to estant procedures.	Some deployment costs are articipated with respect to the implementation of the new departure procedures and training of air totific convolution, however, these cannot be identified of this maps of ACP process.	Some displayment costs are anticipated with respect to the implementation of the new departure the procedures and training of air traffic controllers, however, these cannot be identified at this etage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure the procedures and taining of air staffic controllers, however, these connot be identified or this stage of ACP process.	Some deployment costs are anticipated with respect to the implementation of the new depart. If the procedures and training of air traffic controllers; however, these cannot be identified or this stope ACP process.	Some deployment com an anticipant with respect to the implementation of the new depart of the procedures and training of air traffic controlline, however, these control be identified at this stage ACP access.	Is Some displayment costs are anticipated with respect to the implementation of the new departure of the procedures and training of air traffic costrolline, however, these cannot be identified at this dage ACP monets.	e Some deployment costs are anticipated with respect to the implementation of the new depart of the procedures and training of air tallic costrulies; however, these cannot be identified or this stage ACP ensures.	In Some deployment costs are anticipated with respect to the implementation of the new dep procedures and training of air traffic controllers; however, these control he identified or this ato ACP process.	stee Some deployment costs can anticipated with respect to the implementation of the new depart ge of the procedures and training of air traffic controllers, however, these cannot be identified at this stop ACP process.		spanues suge of the procedures and training of air toffic controlling, however, these cannot be identified at this stage of the ACP control.
Solety Assessment	Safety Assessment	ential Options Approiaal. Qualitative		, a promotion	. C. Baranan	in process:	, and processes	- tona generative	. the protocol	- cos present	the process	t the process		· • because
			The 'do nothing' scenario assumes that current operations at EWA or	A hazard mitating to an aircoaft departing on the SID to the South was identified where an aircoaft as a conflict with departures from BPK resulting in the potential for loss of lateral and/or vertical second	A black of the second sec	A lazard eloting to an aircraft departing on the SID to the South was identified where as aircraft or conflict with departures from BPD multing in the parential for load of lateral and/or vertical second	A housed where he makes the state of the sta	could. A hazerd relating to an aircost departing on the SD to the South was identified where an aircost conflict with department from BPC resulting in the potential for loss of lateral and/or vertical seaso	could. A hazard relating to an aircraft departing on the SID to the South was identified where an aircraft ratio conflict with departures from BYC reading in the patiential for loss of lateral and/or vertical assor	could A hazand relating to an aircraft departing on the SID to the South was identified where an aircraft or conflict with departures from BPC resulting in the potential for loss of lateral and/or vertical erap	and a hazard relating to an aircraft departing on the SD to the South was identified where as airc and a collict with departures from BHX modifies in the potential for loss of laneal and/or vertical as	off could A housed where a nicrost departing on the SID to the South was identified where an aircost portice coeffict with departure from BPC multing in the parential for loss of latenti and/or vertical and	t could A hazard mitoling to an aircraft departing on the SID to the South was identified where an air antion – conflict with departures from BPD multing in the parential for loss of lateral and/or vertical	icolt could. A hazard witaing to an aircaft departing on the SD to the South was identified where an aircaft could apparation _cantific with departures from BHC reading in the patiential for loss of lateral and/or vertical execution
			sale including use of the estant conventional procedures. Following th removal of ground-based navigational aids supporting the existing SID, aircraft deposing EMA would continuously require radar vectorie	he between almost. ATC immension or UPP design parameters may be required to be applied to milgare this potenting activat based. The durage sponse is missisticing close likinov with both UPK and NRE through	All A hannel relation is no since A spranting on the SD to be South was identified when an aircraft on aircraft with dependence from RFM analysis (in the parameted for a landow of conversion) appeared and the since and the second second second second second second second sector based. The designs second in containing data failuares that the RFM and RFM second sector based and the forther second second second second second second second conduction of the designs for an air containing data failuare in the difference of the RFM second second second second conduction of the designs for an air containing approximation of the second s	between clicraft. al ATC intervention or IPP design parameters may be equived to be applied to mitigate this potenti- exten hazed. The change spanar is maintaining does linken with both BPC and NESs through	Alard A National Analysis to an actional dispaceting on the 20th the 26th result diserted and are as a simulational and analysis of the protected for the conducted set of the simulation of the protected for the conducted set of the simulation of the simulation of the conducted set of the simulation of the simulati	control confict with departures toos BRC multiling is the potential for loss of lanesis and/or working approximation of the departure of th	defa	control conflict with departments from RRP multing in the promoted for lines of larmed conflict workshold any between an end of the structure of the structu	between aircruit. tail ATC intervention or IPP design parameter any be required to be applied to mitigate this p and the back BHC and NRS th and the second back and the second secon	a constraint of the second	control configuration of the second secon	I epocose unifier et dispose tone RFM canadigs et le potential for las el laraest and/or venical epocetante lastense sizore. Al la consention ou PFM canadigs paramettes na plas majoret da las anglande das indigenes potential estimates al lastense en la consentie das lastense en la consentie da la consente en la consentie da estimates en la consentie da la consentie das lastense en la consentie da la consente en la lastense al lasten consenties das lastense en la consentie da la consentie en la lassesta ont en en el las las consenties das lastense en la consentie en la lassesta ont en el las las consenties en la consentie da la consentie en la lassesta ont en la consentie en la consentie en la consentie en la lassesta ont en la consentie en la consentie en la consentie en la consentie en la lassesta ont en la consentie en la lassesta ont en la consentie en
			The lab calling' assession on-same that covert operations at DMA or walk including, and if he ators increminating produces. Following its 200, since the operation DMA model containing regime models (bould C4971R1) are a conserved to appeare the monitor the walk manipational aid not be implemented, making in a possible increase in ATCD workhood.	g) statemar meetings to insure that noticals connectivity equivements are meet row and for the future. This happen will be future be mitigrand through the design percess and a further consonert will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the ward nature of all happens.	transmit meaning to ensure that network connectivity requirements are net new and for the future. This housed will be future be mitigated brough the design process not a future assessment will be conducted or Stoger 3 and 4 of the CAP1616 process to confirm the watch nature of all hazards are	<ul> <li>Training meetings to ensure that network connectivity requirements are net non-and for the fulsion This housed will be known be mitigrated through the design process and a further assument will be conducted at Stoges 3 and 4 of the CAP1616 process to confirm the ward notice of all houseds in</li> </ul>	e. Intrateur memory to ensure that network concertibly requirements are net now and for the M. This handwidt als between her mitigated through the design process and a further examinent wi and conducted or Stoges 2 and 4 of the CAP1616 process to confirm the exact nature of all hazards	un. Statement meetings to ensure that instructs connectivity requirements are most row and for the 1/h II by This hansel will be harden be mitigored through the design process and a further consensent with a and conducted at Stages 3 and 4 of the CAP1616 process to confirm the east nature of all hozards	w. Wathers meetings to ensure that network connectivity requirements are men now and for the fun- lite. This housed will be derive be mitigared though the design process and a further assessment will and conducted at \$tages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazands.	net transies meetings to ensure that network connectivity requirements are met non- and for the IA ID This based will be during there be mitigated through the design process and a further team interaction and conducted at Stoges 3 and 4 of the CAP1616 process to canfirm the wart notice of all hazards	enal A house mining to a size of height on the SD the Soft was identified where as a size control or higher where he MB mining and the protocol for the soft herein adjust where the latences involve. The soft herein a size of the soft herein adjust where the protocol size of the soft herein adjust and the soft herein adjust where the protocol size of the soft herein adjust and the soft herein adjust where the protocol size of the soft herein adjust and conducted ad Stages 2 and 4 of the CMF164 presents to confirm the weak nature of oil hour minipations.	Instance meetings to ensure that network connectivity requirements are net now and for the fat will be This bacand will be Kahrba be mitigated through the design process and a further assument wi do and conducted at Stages 2 and 4 of the CAP1616 process to confirm the exact nature of all hozand	transmission meetings to ensure that introduction consolidary requirements are met non- and for H is by historic distribution of a further be mitigrand through the discips process and a further beam interest of all has an and a state of all has a second and the second state of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second states of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of all has a second state of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 process to confirm the second states of the CAP1616 proces to	In these, Statesce meetings to encore that encode concervity requirements are next new and for the function will be rear will be conducted or Stager 3 and 4 of the CAP1616 pacess to confirm the exact networ oil based and conducted or Stager 3 and 4 of the CAP1616 pacess to confirm the exact networ of all hazards and
				melgation.	miligation.	mitgetions.	miligation.	mitgation.	niligation.	mitigations.	mitgation.	mitgation.	mitgation.	migation.
	_	Summery of Analy	The 'do nothing' scenario in relation to this ACP is not a visible option as it does not provide a sustainable solution in terms of airspace	<ul> <li>When compared to the 'do nothing' containo, this option performs.</li> </ul>	When compared to the Ida nothing' science, the option performs	When compared to the ido nothing acenado, this option performs.	These compared to the 'do notiving' acenania, this option performs.	When compared to the 'do nothing szenania, this option performs.	When compared to the ido nothing' science, this option performs	Then compared to the Ido nothing scenario, this option performs	When compared to the like national science, this option performs	When compared to the 'do nothing' acesseria, this option performs	When composed to the 'do nothing' scenario, this option performs:	these compared to the talo authorg acessato, this option performs:
			indervisation and is unvisible following the removal of the DTF DDF basecon, which could have a significant impact on oppacity and melliness. The waiting SD does not reable continuous time operations to 7,0000, which leads to a greater volume of faulthum, emissions and noise at Source Iseals, in terms of Transpilling Environment, Cassend Assimous program and Transpilling	en moure en eur officient gantale - Noise impact y to 4,000h - Generhouse gan enviaione - End hour	Wome in the following amon • Noise impact up to 4,000th • Generalizate gas emissions • Fuel bars	Batter in the following amon • Noise impact up to 4,000t • Noise impact up to 7,000t • Generationan gas emission	Better in the following cense: - Noise import up to 4,000t - Noise import up to 7,000t - Generatione gat emissione	Better is the following areas: - Nisian impact up to 4,000th - Nisian impact up to 7,000th - Generationer gas estimations - Ford hom-	Wase in the following amou - Greenhouse gas emissions - Fuel bars	Works in the following orans: - Greenburg gas emissions - Fuel buer	Warw in the failowing areas. - Greenbauw gas emissions - Fuel barn	Wone is the following areas: Generations gas emissions - Fuel lawn	Wane in the following amount General-wave gas emissions - Fuel burn	Where is the following areas - Generalized gas emissions - Fiel bare
			enissions and noise at lower levels. In terms of Tranquilling, Briddrenshy, General Avarian access and Economic impact, the ida	- Fool burn Better in the following sense - Noise impact up to 7,000h	Remarking the following series:	Fuel burn	- Food barn	- Fuel barn	Better in the following sense: - Noise impact up to 4,000t dayk - Noise impact up to 7,000t	Batter in the following canon: - Noise impact up to 4,000t - Noise impact up to 7,000t	Better in the following areas: - Naise impact up to 4,000t - Naise impact up to 7,000t	Better is the following oreas: - Noise impact up to 4,000t - Noise impact up to 7,000t	Better in the fullowing areas - Noise impact up to 4,0008 - Noise impact up to 7,0008	Better in the following canon: + Noise impact up to 4,0000 + Noise impact up to 5,0000
			serving sources provides minimativo change to todayle operations. Furthermare, then are very limited casts incared or a result of this consolo. From a safety perspective, it is assumed that current DMA presentations are note. Editorized the service and that the PMP framework is in the presentation of the service and the PMP framework in the service are note.	* resume sequels up to //DDB1 Equal/sected in terms of the remaining otheria because there is no change when compared to today execution.	<ul> <li>reason repairs up or / DDB1</li> <li>Equil/reacted in terms of the remaining otheria because them is no change when compared to today reasoning.</li> </ul>	representation in served of the remaining ordered because there is no change when compared to today operation. At the server operation is not nouslike to fully determine the antise involved op 4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1	representation or write of the memory criteria because there is no charge when compared to to periodic on the second s	reprocessments or write of the restancing criteria because there is no charge when compared to to operation. Big with these it is not nonlike to fully determine the other intelligation of the second second second second	renow response up to //0028 Equal/second in terms of the remaining offeria because there is no change when compared to tod populations of the remaining offeria because there is no change when	communication of the communication of the remaining oriteria because there is no change when compared to to research.	<ul> <li>revenue repeats up to 7,0000</li> <li>Equal/neutral in terms of the remaining otheris because there is no change when compared to reamform</li> </ul>	result regard up to //DUM Equal/buttel in terms of the remaining offerin because them is no change when compared to to constrain	days, generation of the FORM	to todayk Equal/secution in terms of the remaining criteria because there is no change when compared to todayk
			acknowledged that the ATCOs workload is likely to increase due to the enduring requirement for rodar vectoring.	he At this time, it is not possible to fully determine the safety implications of this specific option. Possible satisfics with some nume operated by other numericandra airconts have been identified. For the num-	At this time, it is not possible to fully determine the solety implications of this specific option. Possible is solition with some routes operated by other noutes/mathe airconts have been identified. For this work	coefficts with some nome operated by other nomenhandly support have been identified, but the scale nomen of these coefficies is undeer at this stope. Further conjust and engagement is required in Stop and 4 of the CVP1016 process to determine this. Furthermore, this cation has been meaned on in-	act coefficts with some stones operated by other numerically signate have beginned to the operation of the source	soci- conflicts with some noise operated by other noise/ready-points have been destributed, but the rage 2 source of these conflicts is unclear or this tages. Further analysis and suggestment is required in 52 and 4 of the CAPTIAS process to determine this. Furthermum, this continue has been	and gg 2 bit fits time, it is not possible to fully determine the unlew implications of this specific option. Possible to office with some routes operated by other notes baseby except have been identified for the or	.     At this time, it is not possible to fully determine the softey implications of this specific option. Poss     conflicts with some numes operated by other numerical such time been (dentified, for the	In the second	while the first, it is not possible to fully determine the softey implications of this specific option. Poss # most conflicts with some soutes operated by other numericeably airconts have been planetical to the	while Ar this rest, it is not possible to fully determine the addry implications of this specific option, each coefficient with some motes operated by other resteationable almost have base identified to a	Possible Arthis time, it is not possible to fully determine the solity implications of this specific option. Possible to the east: Configuration of the solity of the notes insolution for the solity of the notes in the no
				At this time, it is not possible to May determine the soling implications of this specific sprine. Feasible inefficient with scores experimed by other scores/search projects have been identified, but the ana statum of these coefficies is unlice at this tagge. Further coefficies and engigement is required a 5 specific and 4 of the COP1616 process to determine this. Furthermore, this equipts have been includes on other have as an at determine projection on part of unlike specific house been counted on its millicities.	2 Instans of these coefficts is unclear or this stops. Further analysis and engagement is required in Stops and 4 of the CMP1616 process to determine this, Pathemane, this option has been casesaid or in adultation refer than one a set of a white option has been casesaid or in adultation refer than one a set of a white option has been pair. Additional pairs and the set of the pathemane.	a 2 looketon rather than as a set of design options as part of a wide system/survey pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to the other option.	addition rather than as a set of design options as port of a vider spheric/humway pair. Additional a all analysis is required in Stage 3 to determine the cumulative impact of this option when companed the other options.	abilition rather than on a set of design options on part of a vider system/neway pair. Additional to all enables is required in Stage 3 to determine the curulative impact of this option when compared the other options.	Instance of these coefficts is undersort this stoge. Further analysis and engagement is required in Sta- to all and 4 of the CAP1116 process to determine this. Furthermore, this optical has been causand as in exclution rather than one are of design optications are part of an ulder system/runney andi-Additional	ope 2 intrue of these coefficts is unclear at this stage. Further coulysis and suggement is required in 2 is and 4 of the CAF1616 process to determine this. Furtherness, this option has been counsed of a solution when ther than on a set of design professor as part of a wider system/turney pair. Additional	age 2 nature of these conflicts is unclear or this stugs. Further calability and engagement is required in and 4 of the CAP1016 process to determine this. Porthermon, this option has been causead of addition other than as as and of design options as port of a wider splethyllowine value. Addition	Baula Statistics for some holms borther up there is unlike a first include a provide some some some some some some some som	toge 2 statue of these conflicts is undear or this stage. Further analysis and equipment is required in each 4 of the CMP1616 process to determine this. Furthermore, this option has been assured adapted in other than on a set of design options on port of a wider speken/unwar calls. Addition adapted in other than on a set of design options on port of a wider speken/unwar calls.	In Stops 2 nature of these coefficts is unclear at this stops. Further coulysis and engagement is required in Stops 2 and 4 of the CAP1616 process to determine this. Furthermone, this option has been counsed on in and another other than to a set of design options on part of a uniter system/shrwes pair. Additional
				analysis is required in Stage 3 to determine the cumulative impact of this option when compared to the other options.	all analysis is required in Stage 2 to determine the cumulative impact of this option when compared to o the ather options.	di			analysis is equired in Stage 2 to determine the cumulative impact of this option when compared t the other options.	to all analysis is required in Stage 3 to determine the cumulative impact of this option when compared the other options.	to all bealysis is required in Stage 3 to determine the cumulative import of this option when compar- the other options.	d to all lonalysis is required in Stage 2 to determine the cumulative impact of this option when compared the other options.	to all dealysis is required in Stage 2 to determine the cumulative impact of this option when comp the other options.	ared to all analysis is required in Stage 3 to determine the comulative impact of this option when compared to all the other options.
			IOA Shortlist Assessment	Based on the IDA Startiet Assessment methodology, Option O1 has been deemed the REECTED	Second on the ICA Standard Assessment resthoolings, Cyclos D1A has been deemed the RECTOR	Based on the IDA Startic Assessment methodology, Option CD has been deeved the RECORD	D Board on the ICA Shortfel Assessment methodology, Cytion CA has been deemed the PREFER	Band on the ICA Standar Assessment methodology, Outline CS has been desced the RECO	ED Board on the IOA Startist Assessment methodology. Quiter D& has been deemed the RECO	Di Boost on the ICA Shortist Assessment methodology, Option O7 hos been deemed the ACCEPT action and the ACCEPT	Based on the TOA Double Assessment methodings, Option OR has been deemed the ED	CED Book on the ICA Ducked Assessment methodology, Option OP has been deemed the REEC	TTD Based on the IDA Shortful Assessment methodology, Option O10 has been deemed the FA	OURAL: Read as To EDA Storie Assessment restoldings, Cyton D11 has been desired the REPORT
			OPTICK SHORTUST CLASSIFICATION FOR STADE 3			Recto	option which the disciple anomalopa.			option within the design envelope.	eption within the design moviliper.	epitet e des tre despitet envelope	option within the design arrentope.	
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Departure Env	relope: SID Runway :	27 Southwest	For the scatthread tags making which scattering iscretis for dependence in terms of today's operation is based around the satisfue convertional AVXFIFTS SD. the onlinely cancello to departure, accurstice of model track that has been derived as provide on accurate systematicity been control that requests in a single strategies of the strategies of the provide. The oneight requestor is only the strategies of the strategies of the provide the strategies of the strategies of the strategies of the strategies of the strategies of the strategies of the 4,0000 nm df 2000b with the addition of a radie vectoring area when the strategies of the strategies of the strategies of the strategies of the strategies. The strategies of the strategies of the sources that the strategies of the strategies of the strategies of the sources that the strategies. The strategies of the strategies of the sources that the strategies of the strategies of the strategies of the sources the strategies.	EIT D SW 4 Chylen 4 Hars a 10° rearbady efflert to world Miklaners and Ina Lean created to e-acid Akbly de lo Zaoch and Tamovoh. The 10° obter reachs in the novel pessing output want of Makbares and 1 Miklaners and 1 Miklaners and 1 Miklaners of Akbly_de lo Zaoch pice to turing slight/more to The south to Killow The Line of the MA2 and turnindes. The roads has a cancel child and the follow the Line of the MA2 and turnindes the roads has a cancel child and the follow the Line of the MA2 and turnindes and 210 KIAS has been applied to the first turn.	EXP 0 SM 0A Clocker 9 No a 19 scalarly differ to invold Mallocine and Manna to invold both Sendthistate and Alabyde 5-2ach. The 19 offint results in the node parsing goals and of Mallocine. <i>M</i> 2mm layered the ER the node turn lift to a source with the locating, mating a social lift turn to para belows: Sendthicate and Alabyde 5- the node has a control with the locating and the locating and the locating and the locating and the locating the node has a control with locating mating and the locating and 7.0000 and the CAP 778 recommended of al 210 MAS has been applied to the first turn.
<u>Group</u> Communites	Impoct Noise impoct on health and quality of life	Level of Analysis India Optons Apensial: Ouclifative	Lummy 27 For comparison purposes within the ICA, the 'do nothing' scenario was based upon the eliting DAVENTS SID. In human of patiential local impact, initial quantitative analysis less in the statement to overlap graninarially 2,255 households with an approximate population of 5,000. Taking account of B planned property is astimuted to overlap community 2,255 households with an approximate population of 5,000. Taking account of B planned property is astimuted to overlap community 2,200 households with an approximate population of 15,000. Taking account of 3,450 planned property development, this cyclicity account of 3,450 planned property development, this cyclicity is account of 3,450 planned total population of 23,300.	Namery 27 Up to 4,000t, this option is estimated to overfy opproximately 2,200 households with an approximate population of 4,100. Taking account of 150 planned property developments, this option is estimated to averity and impact is total population of 4,400. The potential noise impact on health and quarkly of like up to Up to 7,000t, the potent is settinded to overfy approximately 1,150 households with an approximate population of 22,700. Taking account of 3,050 planned property developments, this option is estimated to overfy and impact of the population of 24,000. The potential noise impact on health and quarkly of like up to 7,000t is assessed as likely to affect more people from the ido nothing icontentio.	Runney 27 Up to 4,000th, this option is estimated to overify approximately 2,750 households with an approxim peopledian of 3,00. Taking account of 50 planned property development, this option is estimated to and impact a total population of 5,400. The patiential noise instant and aquity of this pot- log to 2000, the patient is estimated and the property development, this option is estimated to by to 7000, the approximation of 2,600 planned property development, this option is estimated overly and impact a potential of 2,000 planned property development, this option is estimated overly and impact and tab population of 17,000 his potential naise and on his day and integration to 7,000 his assessed as likely to difficat fever people from the do nothing scenaria.
Communifies	Air Quality	Initial Options Appraisal:			
		Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extra procedure involves overlight actions 1,000K, of the fluct has easy in a limitadian study of the Departure End of In terms of AGMAs, the existing Rumay 27 DAVENTRY SID overfiles no AGMAs.	Although them is liably to be a change in inviction entixione by location balow 1,000 fast, the location in not writin the vicinity of a designent ADMA and a per CAP1016, poors 827 a bill Air Quality Assessment is deemed not required. This option overflies no AQMAs, When composed to the do nothing's scenario, this option is deemed to be equal as it overflies the same number of AQMAs.	Although them is likely to be a drange in evictors emissione by location below 1,000 leat, the location entities the vicinity of a designeted ACMM and as per CAP1916 a, point B72 a full Air Quality Assessme demand and required. This option overflex no ACMMs. When compared to the 40 northing caeraria, this option is deemed to equal as it overflex the continue of AQMMs.
Wider Society	Greenhouse Gas impact	laitial Optors Appraisal: Qualitative	Current notes do not evolve continuous climb operations. It must be noted that the asset track-length flows by siread non-y-any alight due to the nature of index vectoring, although aircraft do all follow the aster- pocalawis in to broader areas. The adapting procedures do not support optimal aircraft preformance and floweline use pacificated to know a gained Writis Stage 2 of the CAP116 (process, has in an engineement for a change sponsor to conduct quantitative emission analysis). This sills covered in Stage 2.1 in order to make a composition in Stage 2, shad, millage is used, based on the flowery flow the shorts the took millage, the scored in Stage 2.1 in order to make a composition in Stage 2, shad, millage is used, based on the flowery flow the shorts the took millage, the scored in Stage 1.0 order to make a composition in Stage 2.1 mod.	This option has been designed to support continuous climb operations. An element of noder vectoring may all be required to manage aircraft expension distance. The suck integer of the caption is 3.407 lm (18.40 or a decrease in greation ago semisticon company to the distance of company company and alement to be of environment) bandit. More in-depth analysis will have place at Stage 3 to confirm the each volumes of greenhouse gass relations:	This option has been designed to support continuous climb operations. An element of radar vectoring all bar registed to manage arised the spanntion distance. It has read millinge of the approx is 37.97 km is an increase in greation agree maintain compand to the di contraligi carrors, and it denotes agree environmental dis-benefit. More in-depth analysis will bise place at Step 3 to confirm the eased volum greenhouse pass relations.
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Maintaining eatont procedures would maintain current capacity; however, due to the relators upon ground-based nexigational adds, realizence acade be significantly adlexeds, following the removal of the DTP DVCR and the requirement to adopt PDN procedures so part of the FACH Programme.	The introduction of PBN notes is expected to deliver benefits by increasing aimpace capacity which subsequently leads to mare predicable light parts and lever delays (both in the air and on the ground). The reduction of the reliance on outside ground board annipricational aids will significantly increase operational realistical through the implication of PBN.	The introduction of PBN notes is expected to deliver benefits by increasing airspace expocity whit subsequently loads to more predictable flight parties and here delarp (both in the air and an the groun reduction of the reliance on added ground based margingthania dash will significantly increase oper realistical thready the implication of PBN.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1016, Appendie B, pom B76, change sponson are required to consider Tranquillity with specific relevance to ADNBs and National Ports only unleas other areas hore been identified through community erapgement. You additional specific areas were identified by community The Vo nothing score/correspondence were identified by community the Vo nothing score/correspondence in the specific and the specific and hot and Parala.	This option overflas no statutority identified tranquility receptors (AONBs or National Parks), nor any identified through community ergagement and is therefore comparable to the 'do nothing' scenaria and assessed as extral.	This option overflier no statutorily identified tranquility receptors (ACNBs or National Parks), nor identified through community engagement and is therefore companies to the 'do nothing' scenario assessed as neutral.
Wider Society	Bodivenity	inital Options Appraisal: Qualitative	The charge sponser has mapped the designated Site of Special Scientific Interest (SSB), Special Protection Areas (SPA), Special Areas of Contervation (SAC) and MACKR site, as identified on the DEPA MACC Map. (SIG) Appendix B, para DF, attass for Intervation Bon, starts find a special B, parager B, parager B, attass and a from circuit alone 1.0006. Intervention, CAP1616, Appendix B, para Bon, starts find areand, circuitac attass proposal will not have an impact on isolarisetty as they do not include ground based inframicular. The designated tables counted EMA will be assessed in Stage 3 of the ACP the designated tables counted EMA will be assessed in Stage 3 of the ACP process by Subject Matter Espents.	The change sponsor has mapped the designated Site of Special Scientific Interest (SSIs), Special Protection Areas (SPA), Special Areas of Conservation (SAC) and PAACA4 text, as identified on the CEPIN IAAGC an impact on local sing quality from discret flavor 1.200F. Furthermon, CAP1016, Appendix B, parse BMO, states that in general, classes change proposal will not have a migract to local sing the dy and model ground-based informatics. However, the change sponsor acknowledges that are powerful integrate the designated sine areas of DAA will be caused in Stage 3 of the ACP process by Solycel Marker Equins.	The change sponsor has mapped the designated Stea of Special Scientific Interest (SSN), Special Private SPA, Special Annu al Consurvation (SAC) and PANSAR task, as identified on the CPPA is an impact on local air quality from accent above 1.000F. Furthermore, CAP1016, Agencelik a, pur- tables from languages, clinique change proposal will not have an impact on balancemistry as they almost an explored accent and the second balance of the cases and in Stage 3 of the ACP process by Subject Name 2.
General Aviation	Access	Initial Options Appraisal: Qualitative	No dange to widthy sirgnos annopement, An Convert Aviation suer of singuos in the vicety of EMA all maintein their current lead of access under extrat operational annopement.	Impact to General Aviation access is anticipated to be intrimal as a consequence of this ACP. All Yaudi Reference Prosts and earting latter, of Agreement proteining is General Aviation access will be reviewed and applicable (alwee applicable prior to implementation is assume final considerable) applicable and access and access and requirements and any additional increases requirements will be reviewed and access access and access and access and access access and access access and access	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Reference Points and earling Littler of Agreement pertaining to General Aviation access will be neiva- algobal (share agricultural growth and access and access and access and access and access and access and access requirements and any additional anspace requirements will be reviewed as part of Serge 3 activi-
Seneral Aviation / commercial airlines	Economic impact from increased effective capacity	inital Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extent procedures, therefore no economic bandit for GA/arlines.	The introduction of PBN is equated to deliver bandin by increasing asrpara capacity which in horn will lead to more predicable light partia and flower delays (both in the air or on the ground). This is expected to facilitate economic learned by potentially increasing the leaguing or air transport movements, increasing passinger numbers and increasing cargo tomoge control.	The innoduction of PRN is expected to deliver benefits by increasing asrpace capacity which in hern to more predictable light parties and liever delays (both in the air or or the ground). This is expect facilitate economic leneal by potentially increasing the leaguing or of instagor the revenues, increa
Seneral Aviation /	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for departures do not enable continuous clinb operations. Writen Bage 2 of the CMA (16 process, these is no requirement for a control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the loss greenhous gas one entited. In the case of the two chings be accounted in Stops can entitled in the cont the two chings beam provided to the control of the control of the control of the theory beam of the control of the second of the two control of the control of the control of the two control of the control of the control of the two control of the control of the control of the control of the control of the control of the control of the control of control of the control of the control of the control of the control of control control control control control control control contro	This option supports continuous climb operations, inducing the overall amount of keel burnt. There is no majoritement within Bage 2 of the CMV 618 process to quarkly keel burn, this will be concluded in Bage 3. With regards to the topological state of the 18.0 and 100 gW means compared to the six onlined sciences, this option is shorter and of this stage, it is assumed that it will be closeconic benefits can set will be burnt. More in deglin analysis will be contraid out in Sage 3 to continue.	This option supports continuous climb operations, reducing the overall amount of kell burnt. There impairment within Stage 2 of the CAM IGB process to quarkly kell burn, this will be concluded to 3 burnt. With regards to the stopps, 1 is 3.79 km (2020 and ) long. When compared to the kin onlined is a this option is longer and at this stopp, 1 is assumed that this will be of economic dis-barelite in more face burnt. More in deglin analysis will be consider out in Stope 3 to contine.
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crev training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new Pi procedures as PBN has become a common novigation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue living conventional navigation but there are too many variables (e.g. aircarth types, or-board system copability atc.) to consider these effectively.	Other costs to commercial arities may include updates to Flight Management Systems (FMG), nonigation diabates and generating procedures, increased pilot has costs versus training etc. Ih is not proportionals of this stage of the ACP to EMH to asses the other costs' to commercial asites of lipog VBH procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMG), novi disblasses and operating procedures, increased pilot him costs versus training etc. It is not proportio its range of the ACP for EMA to cause the other cost* to commercial admise of liping YBM process
irport / Air avigation service rovider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain estant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NER) may become prohibitively expensive should a CAPITBI RWX substrution no to the to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is negatived as the introduction of PBN induces the relativas are grownal infrastructure, in particular grownal barrar nongative and are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN additional infrastructure is negatived as the introduction of PBN reduces the reference on ground infra in particular ground based nongation and are no longer needed.
irport / Air avigation service rovider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and tro air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP pro
avigation service rovider afety Assessment	Deployment costs Safety Assessment	Initial Options Appraisal: Qualitative Initial Options Appraisal: Qualitative	No deployment costs applicable to estant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure pro- and training of air traffic controllers; however, these cannot be identified at this stage of the ACP pr
			The tion online's cosmoto assumes that current operations at EMA ore safe including use of the estant convertional procedures. Following the mmond of ground-based analysis and the same provide the esting BDA count of appoint BA would continuously require indar vectoring (bhold CMP 178) for a commercial agreement is maintain the eating nonlystowil and not be accounted agreement is maintain the eating nonlystowil and not be accounted agreement is maintain the eating nonlystowil and not be accounted agreement is maintain the eating nonlystowil and not be accounted agreement is maintain to a possible increases in ATCC workload.	Possible hazards have been identified, once of which are extent and are currently mitigated through ATC produces. Firstly, aircard departing on the 2D to the scoth wet caudal confilts with BH departmently flag tHUVLM SO. This could lead the bapednited for local characterial and/or with an aircard and are another Secondly, confilt with BHY extends y annulated and the topolate label water and the scott and and/or wet and are particular ble cauda and and the scott and the department for local schedular barands. The scale and an aircard and an aircard and an aircard and an aircard and and and/or wet and a sequentits between aircard and an increase in ATCD voltad. ATC sciental intervention or EF design parameters may be required to be opplied to mitigate these paterells barands. These locateds will be latter be mitigated through the design process and a further causement will be conducted at Staget 3 and 4 of the CVP1016 process to continue of all hazards entigations.	Possible harands have been identified, owne of which are start and are currently mitigated fragma- produces. Prafty, aircraft department of the barands and configuration of the BM department flying the LS. D. This could been be posterial for local and barands and/or start also posterion between aircraft Sociolity, conflict with BMP estately arrived, could occur that could face to the posterial for local of and/or and/or and/or and/or and/or and/or and/or and/or and/or and/or ACC barand intervention or IFF design porameters may be required to be applied to militage these barands. These lazards will be lumber be mitigated through the design process and E unbreak and and and and/or and/or and/or and/or and/or and/or and/or and/or and/or and/or conducted at Stage 3 and 4 of the CAPID 6 process to column the eard nature of all barands mitigations.
		Summary of Analy	The bid contrary according to the the ACT is and a value option at a does not provide a substrately hardward terms of airpace modernation and is uncidel following the semoal of the DP DOR hardwards. The the set application and contained and the airpaces, which could bere a significant major on applicity and the about the set application and a set of the application and noise a black hardward to regardly. Biddensky, Beard Avidan costs and the hist the angle and the set application and noise a the which hardward to regardly. Biddensky, Beard Avidan costs and to be highly capations. Furthermore, there are very limited costs incorder a to control fits according for a set of the born and the content EAA operations are sets. Following the sensed of the DDP DOR and EAA operations are sets. Following the sensed of the DDP DOR and and the according requirement for nodar vectoring.	other compared to the billioning scenario, this option performs: Vinces in the billioning areas: - Floats impact pay to 2008 Barter in the following areas: - Floats impact pay to 2008 - Float billioning areas: - Float billioning ar	When compared to the 5th softward scenario, this option performs: Wrone in the following areas: 1- I beam impact to 0, 4000 the softward scenario and the softward scenario and the softward scenario 7- Rail beam is the following areas: 1- Noise Inter to the following areas: 1- Noise Inter the softward scenario and the scenario and the scenario and the softward scenario and the scenario and t
			IOA Shortlist Assessment	determine the cumulative impact of this option when compared to all the other options.  Based on the IOA Shortlat Assessment methodology, Option O4 has been deemed the PREFERRED option within the design envelope.	determine the cumulative impact of this option when compared to all the other options. Based on the IOA Shortist Assessment methodology, Option O9 has been deemed the FAVOURABL within the design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	PREFERRED	FAYOURABLE

 IOA Shortlist Assessment
 event of the Da Da data for the Data for the

eparture Er	velope: SID Runw	ay 27 West	DO NOTHING' BASELINE	127 D W Q3	SID 22	r west	127 D W O6
			For the west design envelope, the 'do nothing' scenario for departures in terms of today's operation is based around the existing conventional	R2 D W Q3 Option 3 has a 15° northerly offset to avoid Malbourne and has been created to avoid both Darby and Burton upon Trant. The 15° offset results in the route passing north of Malbourne and it continues on this heading for	<u>R27 D W Q4</u> Option 4 has a 10° northerly offset and has a track that is a hybrid of Options 1 and 3 avoiding Burton upon Trent. This 10° northerly offset results in the roote possion anoth of Melbourne and it continues on this heading	Option 5 is similar to Option 3 but deviates slight further north west and is the most northerly option in this envelope.	This option is the same as Option 4 until north west of Burton upon Trent where it turns south by south west to provide an alternative initiana point.
			TRENT SID. The 'do nothing' scenario for departures consists of a modal track that has been derived to provide an accurate representation of what occurs today. In addition to the modal track, a	The 15° offset results in the route passing north of Melbourne and if continues on this heading for approximately 7.5mm until a point north of Willington and close to Darby acrodrome. A left turn is made to head west, passing north of Burton upon Trent and terminating north east of Abbots Bromley and south	e until south of Willington where it makes a turn left to head west, routing just north of Burton upon Trent h terminating north east of Abbots Bromley.	A50 and terminating just south of Uttoweter.	The 10° northerly effect results in the route passing north of Melbourne and it continues on this heading until south of Willington where it makes a turn left to head west, routing just north of Burton upon Tren the route turns south by south west and terminates to the south
			polygon has also been created that represents an area where current aperations are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this	cit Uttowater. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	The route has a constant climb gradient of 6%, terminating at 7,000H and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	The route has a constant climb gradient of 6%, terminating at 7,000H and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	east of Abbots Bromley. The route has a constant climb gradient of 6%, terminating at 7,000H and the CAP 77B recommende speed of 210 KLS has been opplied to the first turn.
			SID was based on the modal track created using Noise and Track Keeping data at altitudes of 4,000ft and 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been				
			calculated on the distance from the Departure End of Runway to the end of the modal track plus the distance from the end of the modal track to the common point.				
Group	Impact Noise impact on health or	Level of Analysis ad Initial Options Appraisal:	Runway 27	Runway 27	Rutway 27	Runway 27	Rutwey 27
	quality of life	Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario was				
			based upon the existing TRENT SID. In terms of potential noise impact, initial quantitative analysis has identified that:	Up to 4,000ft, this option is estimated to overfly approximately 2,900 households with an approximate	Up to 4,000ft, this option is estimated to overfly approximately 2,400 households with an approximate	Up to 4,000ft, this option is estimated to overfly approximately 2,550 households with an approximate	Up to 4,000ft, this option is estimated to overfly approximately 2,400 households with an approxima
			<ul> <li>Up to 4,000 ft, this 'do nothing' scenario is estimated to overfly approximately 1,800 households with an approximate population of 3,500. Taking account of 2,250 planned</li> </ul>	Op 24 years, this operation is summariant to other yoppertuninantly 2,700 insolutions and in our population of 5,500. Taking account of 800 planned property developments, this option is estimated to overly and impact a total population of 7,000. The potential noise impact on health and quality of life up to 4,000 its assessed as likely to offsch fewer population on onthing scenario.	population of 4,600. Taking account of 400 planned property developments, this option is estimated to worth and impact a total account of 5,300. The optimized point impact as hardful and wolling of life	op an 4,000k, introduction as an intervention of a strain paper barries and a strain an approximate population of 4/200. Taking account of 300 planned property development, this option is estimated to overfly and impact a total population of 5,200. The potential noise impact on health and quality of life up to 4,000h is assessed as likely to affect fewer people than the tota nothing scenario.	population of 4,600. Taking account of 400 planned property developments, this option is estimated overfly and impact a total population of 5 300. The optential noise impact on health and quality of li
			property developments, this option is estimated to overfly and impact a total population of 7,900. - Up to 7,000 ft, this 'do nothing' scenario	Up to 7,000%, this option is advanted as skew you office working ways to poly within the out indiving insension. Up to 7,000%, this option is advantated to overfly approximately 7,200 households with an approximate population of 14,200. Taking account of 1,150 planned property developments, this option is astimated to overfly and impact to take population of 16,500. The potential noise impact on health and quality of	Using the impact of the population of the population of the population impact on the impact on the second of the population of the popu	Up to 7,000ft, this option is estimated to overfly approximately 5,500 households with an approximate population of 11,300. Taking account of 700 planned property developments, this option is estimated	up to 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scanario. Up to 7,000ft, this option is estimated to overly approximately 4,000 households with an approximate population of 8,800. Taking account of 950 planned property developments, this option is estimated overly and impact a total population of 10,000. The potential noise impact on health and quality of 1
			is estimated to overfly approximately 33,750 households with an approximate population of 65,200. Taking account of 10,550 planned property developments, this option is estimated to overfly and	life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.
			impact a total population of 85,600.				
mmunities	Air Quality	Initial Options Appraisal:					
		Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight	Athough there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAPI 616, para B72 a full Air Quality	s Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CMP1616, para B72 a full Ar Quality	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQNA and as per CAP1616, para B72 a full Air Quality	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality
			above 1,000ft, other than the areas in the immediate vicinity of the Departure End of Runway. In terms of AQMAs, the existing Runway 27 TRENT SID overflies one	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed
			AQMA when the aircraft is above 1,000ft.	be beneficial as it overflies fewer AQMAs.	be beneficial as it overfilies fewer AQMAs.	be beneficial as it overflies fewer AGMAs.	be beneficial as ≥ overfilies fewer AQMAs.
der Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative					
			Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by aircraft may vary slightly due				
			to the nature of radar vectoring, although aircraft do all follow the extant procedures in a broader sense. The existing procedures do not support optimal aircraft performance and therefore are predicted to	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39:56	This option has been designed to support continuous climb operations. An element of radar vectoring may still be annuared to measure aircraft second and attacce. The tack milenee of this action is 39.59	This option has been designed to support continuous climb operations. An element of rador vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39.61	This option has been designed to support continuous climb operations. An element of radar vectorin may still be required to measure algorith approximate distances. The tank milesee of this option is 43 (
			have a greater environmental impact compared to proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative emissions analysis. This will be	km (21.36 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. Nore in-depth nonlysis will take place at Stage 3 to confirm	km (21.38 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	km (21.39 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemat to be of emircomental dis-beamt. More in degin randysis will back place at Stage 3 to	may still be required to manage aircraft separation distances. The track mileage of this option is 43, km (23.24 nm). When compared to the 40 nothing scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 40 nothing scenari and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 31
			covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do	the exact volumes of greenhouse gases released.	confirm the exact volumes of greenhouse gases released.	confirm the exact volumes of greenhouse gases released.	confirm the exact volumes of greenhouse gases released.
			nothing' baseline scenario, the track length to the common point is 38.05km (20.55nm).				
ider Society	Capacity and resilience	Initial Options Appraisal:					
		Qualitative	Maintaining estant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which
			nowever, due to the retrience upon ground-based novigational cass, resilience could be significantly affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures as part of the FASI-N Programme.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based nonigational aids will significantly increase operational resilience through the introduction of PBN.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PRN.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	subsequently leads to more predictable flight paths and Sever delays (both in the air and on the ground). The reduction of the reliance on oundated ground based novigational aids will significant increase operational resilience through the introduction of PBN.
			IIIIE FASI-IN Programme.				
'ider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This action overflies no statutorily identified tranauility receptors (AQNBs or National Parka), nor any	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor ar
			community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario overflies no tranquility receptors (AONBs or	identified through community engagement and is threatener comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the identified through community engagement and is therefore comparable to the identified through community engagement assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario and ossessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario o assessed as neutral.
ider Society	Biodiversity	Initial Options Appraisal:	The 'do nothing scenario overtiles no tranquility receptors (NUNes or National Parks).				
,	,	Qualitative	The change sponsor has mapped the designated Sites of Special				
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of	<sup>5</sup> The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SAC2) and RANSAR sites, as identified on the DEFRA MACIC (Map. CAP) (16), Appendix B, para BP4, states that because of dispersion and mixing,	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MACIC (Map. CAP1 616, Appendix B, para B74, status that because of dispersion and mixing,	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPA), Special Areas of Conservation (SAC3) and RAMSAR sites, as identified on the DEFRA MAGC Map. CAP1616, Appendit B, pore BY4, states that because of dispersion and mixing,	The change sponsor has mapped the designated Sites of Spacial Scientific Interest (SSSIs), Spacial Protection Areas (SPA), Spacial Areas of Conservation (SACs) and RANSAR sites, as identified on the DEFRA MARSC Map. CAP1616, Appendix B, para 874, states that because of dispersion and mixing
			dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix 8. para 880, states that in general, airspace change proposal will not	there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on	, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an	there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para BBO, states that in general, airspace change proposal will not have an	there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an
			have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in	biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EAA will be assessed in Stage 3 of the ACP process by Subject Matter Expens.	Impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponso I acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Expens.	Impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponso acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	impact on biodiversity as they do not involve ground-based infrastructure. However, the change spon acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage of the ACP process by Subject Matter Expens.
			Stoge 3 of the ACP process by Subject Matter Experts.				
eral Aviation	Access	Initial Options Appraisal: Qualitative					
			No change to existing airspace arrangements. Any General Aviation	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed	I Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Latters of Agreement pertaining to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visua Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Vis Reference Points and existing Letters of Agreement pertaining to General Aviation access will be
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity Arspace classification requirements and any additional airspace requirements will be reviewed as pr of Stoge 3 activities.
					-	-	-
meral Aviation / mmercial airlines	Economic impact from increased effective capacit	Initial Options Appraisal: Qualitative					
			No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in trum will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will and to more predictable flight paths and Sever delays (both in the air or on the ground). This is expected to facilitate economic benefit by cohentially increasing the frequency of air transport	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more practicable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate acconcric benefit by potentially increasing the frequency of air transport	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport
				increasing passenger numbers and increasing cargo tannage carried.	movements, increasing passenger numbers and increasing cargo tonnage carried.	movements, increasing passenger numbers and increasing cargo tonnage carried.	movements, increasing passenger numbers and increasing cargo tannage carried.
eral Aviation / mercial airlines	Fuel burn	Initial Options Appraisal: Qualitative					
			The existing EMA procedures for departures do not enable continuous				
			climb operations. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track	This option supports continuous climb operations, reducing the overall amount of feel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic capital is that the shorter the track length, the less fuel is	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no experiment within Stage 2 of the CAP1616 process to quantify fuel burnt, this will be conducted in Stage 3. Theorems to appear by a comparison the local combined in the theorem the tortic models in the three the process local and the comparison of the local the	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to expende a compression the load and/or leaf better the totack method.	requirement within Stone 2 of the CAPIAIA process to quantify fuel hum, this will be conducted in
			mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do	3. Institution, or under to compare the string single support and the string	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 39:59 km (21.38 nm) long. When compared to the do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis bundt from one fuel will be burnt. More in-depth analysis will be corried out in Stage 3 to confirm.	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less heal is burnt. With regards to this option, it is 39-61 km (21.39 nm) long. When compared to the do nothing' scenario, this aption is longer and at this stage, it is assumed that it will be of economic dis bandit as more heal will be burnt. More in-depth rankysis will be carried out in Stage 3 to confirm.	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length it less fuel is burnt. With regards to this option, it is 43.04 km (23.24 nm) long. When compared to t do nothing scenario, this option is longer and at this stage, it is assumed that it will be of economic bandh or more faul will be how to those 1 and the activity will be correct out to force 1 to contend
			nothing' baseline scenario, the track length to the common point is 38.05km (20.55nm).	плак нее ин ок оон, таке прократопария ин ок салка сол и злуус о ю салит.	centen de more teer en de donn, mere in-depris endyse en de contres de la ange o ro commit.	General da more nelle min de donn, more in-depar disayaa mis de canted donn ange o no commit.	benen da mere ten vin de benn, mere melegin delargas vin de carnea del municipi o ro commi
	Turteton	land O -					
mmercial airline	s Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
mmercial airline	s Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation	Differ costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),
			costs for commercial airlines - mere may be costs associated wim maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	<ul> <li>novigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the lother costs to commercial airlines of flying PBN procedures.</li> </ul>	novigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBIN procedures.	novigation databases and operating procedures, increased pilot hire costs versus training etc. It is n proportionate at this stage of the ACP for EMA to assess the 'ather costs' to commercial airlines of thy PBN procedures.
port / Air rigation service	Infrastructure costs	Initial Options Appraisal: Qualitative	No ord/Biosol infrastructure is required at FMA to maintain extent				
wider			conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based norigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based novigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relates to the implementation of PE and no additional infrastructure is required as the introduction of PBN reduces the reliance on grou infrastructure, in particular ground-based novigation aids are no longer needed.
port / Air	Operational costs	Initial Options Appraisal:	implemented prior to the proposed removal date.	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational casts are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and
vigation service ovider		Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EAK; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the impermentation of new procedures and training of air traffic controlling staff at EMA, however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff of EMA; however, these connot be identified at this stage of the ACP process.
oort / Air igotion service vider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the departure of the second seco	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of to departure the stage of
ety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		ACP process. For this new envelope, possible hazards have been identified, some of which are estant and are currently	ACP process.	ACP process. For this new envelope, possible hazards have been identified, some of which are estant and are	ACP process. For this new envelope, possible hazards have been identified, some of which are estant and are
				For this new envelope, possible hazards have been identified, some of which are extant and are currently mitigated through ATC procedures. Firstly, aircraft departing on the SID to the west could conflict with BHX departures flying the existing published LUVUM SID. This could lead to the potential for loss of horizontal and/or vertical separation	For this new envelope, possible hazards have been identified, some of which are extant and are currently mitigated through ATC procedures. Firstly, aircraft departing on the SID to the west could conflict with BHX departures thying the existing published UVUM SID. This could lead to the potential for loss of horizontal and/or ventical separation	For this new envelope, possible hazards have been identified, some of which are extant and are currently mitigated through ATC procedures. Firstly, aircraft departing on the SID to the west could conflict with BHX departures Bying the existing published LUVLW SID. This could lead to the potential for lass of horizontal and/or vertical separation	For this new envelope, possible hazards have been identified, some of which are estant and are currently mitigated through ATC procedures. Firstly, aircraft departing on the SID to the west could conflict with BMX departures flying the existin published LUVUM SID. This could lead to the potential for loss of horizontal and/or vertical separat
			The 'do nothing' scenario assumes that current operations at EMA are	permitting of the set	pointime control sub- batives introduced to the pointime of and TCO workload that pointime restored region to between incredite and on increases and TCO workload, potential for loss of horizontal and/or vertical secontation between anicraft and an increases in ATCO workload.	because a constraint of the participation of the CO workshow the participation of the partipation of the participation of the participation of the	permission content and the matching potential for the potential for loss of horizontal and/or vertical second to between directed and an increase in ATCO workload.
			safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids supporting the existing SID aircraft departing EMA would continuously require radar vectoring	Instantial analy or ventical substantian servere an ortical unit at instaatias in Ri-Co-Mickaud. ATC toctical intervention or IPP design parameters may be required to be applied to mitigate these potential hazards. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000ff). This	Including any of wared sparsition owneed an early and a final ware in NCO workshold. ATC backs linestvention of P6 daign parameters may be required to be applied to mitigate these potential hazards. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000ft). This	Transmits insury venical separations nerveen an cubic and a microbia in ACC workshop ACC tocical intervention or IPP design parameters may be required to be applied to mitigate these potential hazards. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000ff). This	ATC tactical intervention or IFP design parameters may be required to be applied to mitigate these potential hazards. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000ff). Ti
			(should CAP178) or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	could result in an increase in ATCO workload to ensure that horizontal and/or vertical separation is	could result in an increase in ATCO workload to ensure that horizontal and/or vertical separation is maintained and avoid actential loss of reportion between aircraft	could result in an increase in ATCO workload to ensure that horizontal and/or vertical separation is	Finally, index Cook to unknown to the materialism possibility with the material (ke, above 1, 2000); in cook of the cook of
				As well as AFC tocical intervention to mitigate the advow hazards, the change sponsor in maintaining close liaison with both BHX and NRL through trilateral meetings to ensure that network connectivity requirements are met now and for the future. These benefit will be further between the datase necessaria of without excentent will be	As well as ATC tocical intervention to mitigate the downe hazards, the downe hazards, before the downe hazards and the downe hazards and the downe hazards. I close liaison with both BHX and NERL through trilateral meetings to ensure that network connectivity requirements are met now and for the future. These horazeds will be further be mitigated through the dotte network and for the future.	As well as AFC totical intervention to mitigate the down hazards, the change sponsor is maintaining close licison with both BHX and NERL through trilateral meetings to ensure that network connectivity requirements are met now and for the future.	close liaison with both BHX and NERL through trilateral meetings to ensure that network connectivi requirements are met now and for the future.
				These hazards will be further be mitigated through the design process and a further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	These hazards will be further be mitigated through the design process and a further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	These hazards will be further be mitigated through the design process and a further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	These haands will be further be mitigated through the design process and a further assessment will conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards or mitigations.
		Summary of Analy	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace	When compared to the ido nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the ido nothing scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
			modernisation and is unviable following the removal of the TNT DVOR beacon, which could have a significant impact on capacity and resilience. The existing SID does not enable continuous climb	Wasse in the following areas: - Greenhouse gas emissions - Fuel burn	Warse in the following areas: - Greenhouse gas emissions - Fael burn	Warse in the following areas: - Greenhouse gas emissions - Foel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			operations to 7,000ft, which leads to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquility, Biodiversity, General Aviation access and Economic impact, the 'do	Batter in the following areas: - Noise impact up to 4,000t	Better in the following areas: - Noise impact up to 4,000th	Better in the following areas: - Noise impact up to 4,000th	Better in the following areas: - Noise impact up to 4,000ft
			nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this	- Noise impact up to 7,000th Air Quality	- Noise impact up to 7,000th - Noise impact up to 7,000th - Air Quality	- Noise impact up to 7,000th - Noise impact up to 7,000th - Air Quality	- Noise impact up to 7,000ft - Noise impact up to 7,000ft - Air Quality
			scenario. From a safety perspective, it is assumed that the current EMA operations and procedures are safe. Following the removal of the TNT DVOR, it is acknowledged that the ATCOs workload is likely to account to be the safety perspective perspective statistics.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today operation.
			increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible conflicts with some routes operated by other routes/nearby airports have been identified, but the exact	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible conflicts with some routes operated by other routes/nearby airports have been identified, but the exact	At this time, it is not possible to fully determine the safety implications of this specific option. Possible conflicts with some routes operated by other routes/nearby airports have been identified, but the exact	At this time, it is not possible to fully determine the sofest implications of this specific option. Possible conflicts with some routes operated by other routes/nearby airports have been identified, but the eas
				nature of these conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 at the CAP1616 process to determine this. Furthermore, this option has been assessed as in confinementation of the start of design and the subday start of the model and the start of the sta	nature of these coefficts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in isolation orther than as a set of design activity and the orthogram and intermology and the stage of the set of the	nature of these conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in	nature of these conflicts is unclear at this stage. Further analysis and engagement is required in Stag and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in
				toomsky dans the set of the set o	analysis is required in Stage 3 to determine the cumulative impact of this option when compared to all the other options.	isolation rather than as a set of design options as part of a wider system/runway pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to all the other options.	isolation rather than as a set of design options as part of a wider system/runway pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to the other options.
			IOA Shortlist Assessment	process of the ROA bitomic values wat adding, Option O3 has been deemed the REFECTED option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option O4 has been deemed the FAVOURABLE option within the design envelope.	eases on the KOA Shortist Assessment methodology, Option OS has been deemed the PREFERRED option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option O6 has been deemed the ACCEPTABL option within the design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	REJECTED	FAVOURABLE	PREFERRED	ACCEPTABLE

Departure Envelope: SID Runway 09 North	<b>'DO NOTHING' BASELINE</b> For the north design envelope, the 'do nothing' scenario for departures	R09_D.N_O1	R09_D_N_01A	M8 D N 02	R09_D_N_O3	M8 D N O/	809 D N O6	
		s Option 1 is a re-creation of the content POC 3D based on C/P776 recommended form chiend and		This option follows the extended runway centreline initially, with no offset, with a left turn at 1 nm from	This option follows the extended runway centreline initially with no offset, with a left turn at 1nm from	This option is similar to the replicated Option 1 but the route straightens up, after the initial left turn to end on the east side of the design envelope. After departure it follows the extended rurway centreline	This option has an initial offset by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid Conserve The metric target by 5° to the south of the extended runway centreline seeking to avoid the target by 5° to the south of the extended runway centreline seeking to avoid the target by 5° to the tar	ROP D N OG This option has an initial affset of 15° to this south of the extended runway centreline which is the maximum permissible under PANS-OPS rules. The route turns left at 1nm from the DER which is as
	modal track that has been derived to provide an accurate	Il speeds. It has an initial offset of 10° to the south followed by a left turn to the north. The rate of turn of is dictated by following the design speed recommended within CAP778 and the design uses fly-by	It has an initial offset of 10° to the south followed by a left turn to the north. However, the commencement of the first turn is the same as the current POL SID, i.e. 1.5nm beyond the DER. By commencing the turn at this point a higher speed of 2200s is required. At the opes of the initial sum	the DER which is as close as allowed according to CAP 778. It then routes north taking a slightly shorter route to the termination point, whilst seeking to follow the railway line between Long Eaton and likeaton.	the DER which is as close as allowed according to CAP 778. The route overflies the southern edge of Kegworth, before passing close to the Ratcliffe on Soar power station, Long Eaton and the Toton rail depart. It routes west of likeston before terminating close to	with no offset, with a left turn at 1 nm from the DER which is as close as allowed according to CAP 778. The route overflies the southern edge of Kegworth, before turning north passing between the Ratcliffe or	The initial 5° offset to the south results in the route, passing just south of Kegworth and it then turns	close as allowed according to CAP 778. The initial 15° offset to the south results in the route, passing south of Kegworth and this greater offset
	representation of what occurs today. In addition to the modal track, a polygon has also been created that represents an area where current operations are dispersed due to radar vectoring and potentially may	As a replicated route it follows a similar track over the ground as the current POL SID routing to the eas of Long Eaton and west of Hucknall to connect to the NATS network.	Option 1A is approximately 200m north west of Option 1. If The design uses Hy-by waypoints to create an approximate replication of the existing conventional departure.	The route overflies the southern edge of Kegworth, before passing close to the Rotcliffe on Soar power station, Long Eaton and the Toton rail depot. It routes east of likeston before terminating close to Hilcote.	Attractor. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommender speed of 210 KIAS has been applied to the first turn.	I terminates close to the M1 Junction 28 at South Normanton. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended	north passing between the Ratcliffe on Soar power station and Clifton, passing between Long Eaton an Beeston before making a second left turn north west. It routes between Ilkeston and Gilfbrock before turning north and seminating between Alfreton and South Normanton.	the Ratcliffe on Soar power station and Clifton. It passes between Long Eaton and Beeston before making a second left turn north west between Ilkeston and Giltbrook before turning north and
	affect people on the ground. The overflight analysis conducted on this SID was based on the modal track created using Noise and Track Keeping data at altitudes of 4,000th and 7,000th with the addition of a	s The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	As a replicated SID it then follows a similar track over the ground as the current POL routing to the east of Long Eaton and west of Hucknall to connect to the NATS network.	The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommender speed of 210 KIAS has been applied to the first turn.	8	speed of 210 KUAS has been applied to the first turn.	The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	terministing between Alferten and South Normanton. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KMS has been applied to the first turn.
	radar vectoring area where appropriate. The track length has been calculated on the distance from the Departure End of Runway to the end of the modal track plus the distance from the end of the modal							
	track to the common point.							
Group Import Level of Analysis	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09	Runwey 09	Runway 09	Runway 09
quality of life Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario wa	8						
	based upon the existing POLE HILL SID. In terms of potential noise impact, initial quantitative analysis has identified that: - Up to 4,000 ft, this 'do nothing' scenario	Up to 4,000ft, this option is estimated to overfly approximately 11,950 households with an approximat	e Up to 4,000ft, this option is estimated to overfly approximately 12,050 households with an approximate	Up to 4,000fr, this option is estimated to overfly approximately 14,200 households with an approxima	te Up to 4,000th, this option is estimated to overfly approximately 14,250 households with an approxima	e Up to 4,000th, this option is estimated to overfly approximately 11,600 households with an approximate	Up to 4,000t, this option is estimated to overfly approximately 10,150 households with an approximat	Up to 4,000ft, this option is estimated to overfly approximately 11,450 households with an approximate
	<ul> <li>cp is 4,000 m, ma do normal scenario is estimated to overfly approximately 950 households with an approximate population of 2,100. Taking account of 350 planned property developments, this aption is estimated to overfly and impact of</li> </ul>	population of 22,700. Taking account of 2,150 planned property developments, this option is estimated to overfly and impact a total population of 26,800. The potential noise impact on health and quality of the up to 4,000 his assessed as takely to affect more people than the 'do nothing' scenaria.	population of 22,900. Taking account of 1,000 planned property developments, this option is d estimated to overity and impact a total population of 24,800. The potential noise impact on health and quality of like up to 4,000 is assessed as likely to affect more people than the 'do nothing' scenaria.	quality of life up to 4.000ft is assessed as likely to affect more people than the 'do nothing' scenario.	population of 25,700. Taking account of 5,900 planned property developments, this option is d estimated to overfly and impact a total population of 36,300. The potential noise impact on health an auality of life up to 4,000t is assessed as likely to affect more people than the tid onthing' scenario.	oppulation of 21,600. Taking account of 1,450 planned property developments, this option is a stimated to overfit) and impact a total population of 24,300. The potential noise impact on health and available of life up to 4,0000 is assessed as likely to affect more people than the 'do nothing' scenario.	auality of life up to 4.000th is assessed as likely to affect more people than the 'do nothing' scenario.	guality of life up to 4.000ft is assessed as likely to affect more people than the 'do nothing' scenario.
	<ul> <li>Up to 7,000 ft, this 'do nothing' scenario</li> <li>satimated to overfly approximately 56,250 households with an</li> </ul>	population of 59,000. Taking account of 1,000 planned property developments, this option is estimated to overfly and impact a total population of 60,900. The potential noise impact on health and	d estimated to overfly and impact a total population of 60,600. The potential noise impact on health and	population of 75,700. Taking account of 800 planned property developments, this option is estimate to overfly and impact a total population of 77,200. The potential noise impact on health and quality	d population of 70,800. Taking account of 3,350 planned property developments, this option is estimated to overfly and impact a total population of 77,000. The potential noise impact on health an	e Up to 7,000ft, this option is estimated to overfly approximately 23,450 households with an approximate population of 44,200. Taking account of 1,050 planned property developments, this option is d estimated to overfly and impact a total population of 46,100. The potential noise impact on health and	population of 56,300. Taking account of 1,100 planned property developments, this option is estimated to overfly and impact a total population of 58,300. The potential noise impact on health and	population of 58,600. Taking account of 2,150 planned property developments, this option is d estimated to overfly and impact a total population of 62,600. The potential noise impact on health and
	approximate population of 104,100. Taking account of 6,100 planned property developments, this option is estimated to overfly and impact a total population of 115,400.	quality of life up to 7,000th is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.	life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenaria.	quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.
	mpact a loss population of 110,400.							
Communities Air Quality Initial Options Appraisal Qualitative								
	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity of the	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQIMA and as per CAP1016, para 872 a full Air Quality Assessment is desmed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is desmed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quality Assessment is deemed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the locatio is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is desmal and or required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1016, para 872 a full Air Quality Assessment is desmed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1016, para B72 a full Air Quality Assessment is deemed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, pare B72 a full Air Quality Assessment is deemaid not required.
	Departure End of Runway. In terms of AQMAs, the existing Runway 09 POLE HILL SID overflies two AQMAs when the aircraft is above 1,000ft.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	<ul> <li>This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.</li> </ul>	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	<ul> <li>This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.</li> </ul>	<ul> <li>This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.</li> </ul>	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overfiles one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer AQMAs.
Wider Society Greenhouse Gas impact Initial Options Appraisal								
Qualitative	Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by aircraft may your slightly du	a						
	to the nature of radar vectoring, although aircraft do all follow the extant procedures in a broader sense. The existing procedures do not		This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring	This option has been designed to support continuous climb operations. An element of radar vectoring
	support optimal aircraft performance and therefore are predicted to have a greater environmental impact compared to proposed options. Within Stage 2 of the CAPI 61 6 process, there is no requirement for channe scores to conduct quantitative emissions condust. This will b	may still be required to manage aircraft separation distances. The track mileage of this option is 40.65 a km (21.97 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario.	Imay still be required to manage aircraft separation distances. The track mileage of this option is 40.42 km (21.82 nm). When compared to the 'do nothing' scanario, this option is longer and is therefore expected to result in an increase in arrenhouse as emissions compared to the 'do nothing' scanario.	may still be required to manage aircraft separation distances. The track mileage of this option is 38.4 km (20.76 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario.	5 may still be required to manage aircraft separation distances. The track mileage of this option is 37.6 km (20.33 nm). When compared to the tilo nothing scenario, this option is shorter and is therefore expected to result in a decrease in grean-house gas emissions compared to the 'do nothing' scenario."	5 may still be required to manage aircraft separation distances. The track mileage of this option is 40.71 km (21.98 mm). When compared to the 'do nothing' scanario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scanario.	km (21.70 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario,	km (22.41 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario,
	covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track	and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of enviromental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.
	mileage, the less greenhouse gases are emitted. In the case of the 'd nothing' baseline scenario, the track length to the common point is 40.26km (21.74nm).	0						
Wider Society Capacity and resilience Initial Options Appraisal								
Qualitative	Maintaining estant procedures would maintain current capacity;	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which
	however, due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the POL DVOR and the requirement to adopt PBN procedures as part of	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase particular lessibiliance through the introduction of PBN.	subsequently leads to more predictable flight paths and fewer delays (bath in the air and on the ground). The reduction of the relations on outdated ground based novigational aids will significantly increase percentional resilience through the introduction of PBN.	subsequently leads to more predictable flight paths and fever delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	subsequently leads to more predictable flight paths and Sever delays (both in the air and on the ground). The reduction of the reliance on audiated ground based novigational aids will significantly increase operational resilience through the introduction of PBN.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on audiated ground based navigational dia will significantly increase operational estiliance through the introduction of PBN.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance an outdated ground based navigational aids will significantly increase operational realilence through the introduction of PBN.	subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational realience through the introduction of PBN.
	the FASI-N Programme.							
Wider Society Tranquillity Initial Options Appraisal Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through	d This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any
		d identified through community engagement and is therefore comparable to the 'do nothing' scenario an assessed as neutral.	d identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario ar assessed as neutral.	d identified through community engagement and is therefore comparable to the 'do nothing' scenario ar assessed as neutral.	d identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	identified through community engagement and is therefore comparable to the 'do nothing' scenario an assessed as neutral.	d identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.
Wider Society Biodiversity Initial Options Appraisal	National Parks).							
Countaine	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Area	s. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Spacial Scientific Interest (SSSIs), Spacial	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSId), Special	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special
	of Conservation (SACs) and RAMSAR sites, as identified on the DEFR/ MAGIC Map. CAP1616, Appendix B, para B74, states that because o dispersion and mixing, there is unlikely to be an impact on local air	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, the institution is the activate in band bit and the factor of the mark is the state.	The change sportfoot not mapped mid designated asso to Special Solutifuit memory (SSIB), Special Production Areas (SPA), Special Areas of Conservation (SSI) and RAVSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local or quality from aircraft above 1.000th, Furthermore,	The charge spectrace has mapped into delignated since of special scientific, interest (25:34), special Protection Area (SPA), Special Areas of Conservation (SAC), and RAMSAR skies, os identified on the DEFRA MAGIC Map. CAPI 61 6, Appendix B, para B74, states that because of dispersion and mixing there is unlikely to be an impact on local or quality from anicraf above 1) 000ft. Furthermore,	The change splitter has mapping and designates along to appendix splittering, interes (2523), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites (2523), Special DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local ori quality from aircraft above 1),000ft. Furthermore,		The change sporteer has morphic and disrignment and or special sections. There is a special section of the sect	The change splitted has morphic line datagranted share of splexical schematic meters (SSM), splexial Protection Areas (SPAs), Special Areas of Conservation (SACa) and RMASR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, pare B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above. 10,00ft. Furthermore,
	quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendi B, para B80, states that in general, airspace change proposal will no have an impact on biodiversity as they do not involve ground-based	CAP1616, Appendix B, para BBD, states that in general, airspace change proposal will not have an     impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsa	CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sporso	CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change spans	CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponse	CAP1616, Appendix B, para BBO, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponso	CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sporso	There is demany to be an impact, ion loca an equiting train ancient and point points in the proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor o acknowledges that any operating impact to the designated sites around EAA will be assessed in Stage 3.
	infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed i Stage 3 of the ACP process by Subject Matter Experts.	acknowledges that any potential impact to the designated sites around EMV will be assessed in stage a of the ACP process by Subject Matter Experts.	<ul> <li>a acknowledges that any potential impact to the designated sites around EMA will be assessed in stage 3 of the ACP process by Subject Matter Experts.</li> </ul>	acknowledges that any potential impact to the designated sites around EMA will be assessed in stage of the ACP process by Subject Matter Experts.	a acknowledges that any potential impact to the aesignated sites around DAV will be assessed in Stage of the ACP process by Subject Matter Experts.	a acknowledges that any potential impact to the designated sites around EMA will be assessed in stage 3 of the ACP process by Subject Matter Experts.	actionowleages that any potential impact to the designative sites around EMA will be assessed in Stage - of the ACP process by Subject Matter Experts.	<ul> <li>a acknowledges that any potential impact to the designated alles around EMA will be assessed in stage 3 of the ACP process by Subject Matter Experts.</li> </ul>
Council Matter Association								
Qualitative		Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual	I mont to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visu	Imment to General Aviation access is anticipated to be minimal as a conservence of this ACP. All Visio	Il Import to General Aviation across is anticipated to be minimal as a consenuence of this ACP. All Visual	al Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visuo	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All
	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current leve of access under extant operational arrangements.		implicit to central interaction total and the provided interaction of the maintain to a comparison of the second s	Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity.	Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	mindle to control or transfer doctand or transference or transference or consequences or transference or transferee or transference or transfe	Reference Soften and existing Letters of Agreement perioding to General Avation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Arrapoac lassification requirements and any additional airspace requirements will be reviewed as part	Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be
		of Stage 3 activities.	of Stage 3 activities.	of Stoge 3 activities.	of Stage 3 activities.	of Stoge 3 activities.	of Stage 3 activities.	of Stoge 3 octivities.
General Aviation / Economic impact from Initial Options Appraisal commercial airlines increased effective capacity Qualitative								
	No increase to effective capacity anticipated for continued use of	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn wil lead to mare predictable flight paths and fewer delays (both in the air or on the ground). This is	lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is	lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is	lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is	II The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to mare predictable flight paths and fewer delays (both in the air or on the ground). This is	lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is	lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is
	extant procedures, therefore no economic benefit for GA/airlines.	expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tannage carried.	expected to facilitate economic benefit by patentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	expected to facilitate economic banefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing corgo tonnage carried.	expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing possenger numbers and increasing cargo tonnage carried.	expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.
General Aviation / Fuel burn Initial Options Appraisal								
commercial airlines Qualitative	The existing EMA procedures for departures do not enable continuou							
	climb operations.	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is n requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the	o This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is n requirement within Stage 2 of the CAP1616 process to quantify fuel burnt, this will be conducted in	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	o This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is a requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	o This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is m requirement within Stage 2 of the CAP1616 process to quantify fuel burnt, this will be conducted in	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is n requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the	o This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in
	covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'de	<sup>c</sup> less fuel is burnt. With regards to this option, it is 40.69 km (21.97 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis	Less fuel is burnt. With regards to this option, it is 40.42 km (21.82 nm) long. When compared to the do nothing scenario, this option is longer and at this stage, it is assumed that it will be of economic dis	less fuel is burnt. With regards to this option, it is 38.45 km (20.76 nm) long. When compared to the 'do nothing'scenario, this option is shorter and at this stage, it is assumed that it will be of economic	less fuel is burnt. With regards to this option, it is 37.65 km (20.33 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic	less fuel is burnt. With regards to this option, it is 40.71 km (21.98 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis	less fuel is burnt. With regards to this option, it is 40.18 km (21.70 nm) long. When compared to the 'do nothing'scenario, this option is shorter and at this stage, it is assumed that it will be of economic	Isss fuel is burnt. With regards to this option, it is 41.51 km (22.41 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-
	nothing' baseline scenario, the track length to the common point is 40.26km (21.74nm).		benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
Commercial airlines Training costs Initial Options Appraisal Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no estra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no estra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
Commercial airlines Other costs Initial Options Appraisal Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),	Other costs to commercial airlines may include updates to Flight Management Systems (FMS),
	maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	n propertionate and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EAA to assess the 'other costs' to commercial airlines of flying PBN procedures.	novigation databases and operating procedures, increased pills thire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PIN procedures.	nonsportion databases and operating procedures, increased pilot hire costs versus training etc. It is no proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of thir PBN procedures.	novigation databases and operating procedures, increased pilot hire costs versus training etc. It is no g proportionate at this stage of the ACP for EMA to assess the lother costs' to commercial airlines of thim PBN procedures.	navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EAA to assess the 'other costs' to commercial airlines of flying PBN procedures.	novigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of Bying PBN procedures.	norrigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PPN procedures.
Airport / Air Infrastructure costs Initial Options Appraisal navigation service Qualitative	No additional infrastructure is required at FMA to mointain extant							
provider	conventional procedures; however, maintaining accessibility to curren ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the relance on ground infrastructure, in particular ground-based novigotion aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based norigitation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBH and no additional infrastructure is required as the introduction of PBH reduces the relations on groun- infrastructure, in particular ground-based novigation adds are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on groun infrastructure, in particular ground-based nonigation aids are no fonger needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based novigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN readuces the reliance on ground infrastructure, in particular ground-based nonrigator aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based analgration aids are no longer needed.
Airport / Air Operational casts Initial Options Appraisal	implemented prior to the proposed removal date.	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and	Some operational costs are anticipated with respect to the implementation of new procedures and
navigation service provider	No change to operational costs is attributable to maintaining the extant procedures.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.
Airport / Air Deployment casts Initial Options Appraisal navigation service provider	No deployment costs applicable to estant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure a procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of th ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure e procedures and training of air traffic controllers; however, these cannot be identified at this stage of th ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure e procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure proceedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure a procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
Safety Assessment Safety Assessment Initial Options Appraisal Qualitative		Possible hazards have been identified, some of which are extant and are currently mitigated through	Possible hazards have been identified, some of which are extant and are currently milligated through	Possible hazards have been identified, some of which are extant and are currently mitigated through	Possible hazards have been identified, some of which are extant and are currently milligated through	Possible hazards have been identified, some of which are extant and are currently miligated through	Possible hazards have been identified, some of which are extant and are currently milligated through	Possible hazards have been identified, some of which are extant and are currently miligated through
		existing ATC procedures. Firstly, aircraft departing on the SID myleave CAS, leading to a potential conflict with military and or GA aircraft Including Langur parachutes) in Class G airspace. This is an extant hazard and can be miligated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID may leave CAS, leading to a potential conflict with military and or GA aircraft (Including Langar prachukes) in Class G airspace. This is an extent heard and can be mitigated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID may leave CAS, leading to a potential conflict with military and a GA aircraft (including Langar procedures) in Class G airspace. This is an estant hazard and can be mitigated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID pay leave CAS, leading to a potential conflict with military and a GA aircraft (including Langur parachutes) in Class G airspace. This is an extant heard and can be mitigated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID my leave CAS, leading to a patential conflict with military and or GA aircraft (Including Langar parachutes) in Class G airspace. This is an extant hazard and can be mitigated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID may leave CAS, leading to a potential conflict with military and or GA aircraft (including Langar parachutes) in Class G airspace. This is an extant hazard and can be mitigated through the design process and potential additional CAS requirements that are being	existing ATC procedures. Firstly, aircraft departing on the SID may know CAS, leading to a potential conflict with military and or GA aircraft (Including Longer parachutes) in Class G airspace. This is an extent hazard and can be militgated through the design process and potential additional CAS requirements that are being
	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the estant conventional procedures. Following th	investigated by NERL. a Secondly, there could be unknown or no interaction possible between the departing gircraft, the ATC.	investigated by NERL. Secondly, there could be unknown or no interaction possible between the departing gircraft, the ATC	investigated by NERL. Secondly, there could be unknown or no interaction possible between the departing aircraft, the ATC notwork and the controlling authority is a shows 7 000fft as it may involve flight in Class G	investigated by NERL. Secondly, there could be unknown or no interaction possible between the departing gircraft, the ATC	investigated by NERL. Secondly, there could be unknown or no interaction possible between the departing aircraft, the ATC network and the controlling authority (i.e., above 7.000ft) as it may involve flight in Class G	investigated by NERL. Secondly, there could be unknown or no interaction possible between the departing aircraft, the ATC	investigated by NERL Secondly, there could be unknown or no interaction possible between the departing aircraft, the ATC network and the controlling authority (i.e., above 7.000th as it may involve flight in Class G
	removal of ground-based navigational oids supporting the existing SIE aircraft departing EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	<ol> <li>'uncontrolled' airspace. This may result in the potential loss of horizontal and/or vertical separation between aircraft, that in turn could result in an increase in ATCO worklaad.</li> </ol>	network and the controlling authority (i.e., above 7,000H) as it may involve flight in Class G 'uncontrolled' airspace. This may result in the potential loss of horizontal and/or vertical separation between aircraft, that in turn could result in an incrases in ATCO workdow. In addition, if the position of the existing airborne hold (ROKUP) within the ATC network (i.e. above	memodix daria mic controlling durineting (x, ucover , Joon) is in may inverte und ingre in Tio Cuas O funcantrolled arisprace. This may result in this potential loss of horizontal and green in Cuas O between aircraft, that in turn could result in an increase in ATCO workload. In addition, if the position of the existing aircraft cone hold (ROKUP) within the ATC network (x, e, above	network and the controlling authority (i.e., above 7,000tt) as it may involve flight in Class G (uncontrolled' airspace. This may result in the potential loss of horizontal and/or vertical separation wherean aircraft, that in turn could result in an increase in ATCO workload. In addition, if the position of the existing airborne hold (ROKUP) within the ATC network (i.e. above	metwork that me confidence confidence to the streng shows the strength move might in Cleas G 'uncentrollegi' airspace. This may result in this potential loss of horizontal and/or vertical separation between aircraft, that in turn could result in an increase in ATCO workload. In addition, if the position of the existing aircraft cone hold (ROKUP) within the ATC network (e.e. above	natwork and the controlling outhority (i.e., above 7,000H) as it may involve flight in Class G 'uncontrolled' airspace. This may result in the potential loss of horizontal and/or vertical separation between aircord, that in turn could result in an increase in ATCO workdow. In addition, if the position of the existing airborne hold (ROKUP) within the ATC network (i.e. above	mendels data are controlling durinetry (i.e., abover 2, docum) da mendels data are controlling durinetry (i.e., abover 2, docum) data are presented in the postential lass of hartizental and/or vertical separation between aviendit, that in turn could result in an increase in ATCO workload, in addition, if the position of the asisting arithmene hald (Routze) within the ATCO newhork (i.e. above
	navigational aid not be implemented), resulting in a possible increase in ATCO workload.	<ul> <li>P,000ff were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workfood</li> </ul>	g 7,000ft) were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload.	7,000th were to be moved by NERL, this may introduce a potential conflict with this envelope resultin in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload.	g 7,000th were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload	g 7,000ft) were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload	7,000H) were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload.	7,000ft) were to be moved by NERL, this may introduce a potential conflict with this envelope resulting in the potential loss of horizontal or vertical separation between aircraft and an increase in ATCO workload
		The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensure that network connectivity and additional airspace requirements are met to ensure network connectivity is possible.	e The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensure is that network connectivity and additional airspace requirements are met to ensure network connectivity is ossible.	The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensu that network connectivity and additional airspace requirements are met to ensure network connectivity possible.	e The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensu is that network connectivity and additional airspace requirements are met to ensure network connectivity possible.	e The spansor would be required to maintain close liaison with NERL through bilateral meetings to ensure is that network connectivity and additional airspace requirements are met to ensure network connectivity in possible.	The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensur that network connectivity and additional airspace requirements are met to ensure network connectivity obsibile.	e The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensure s that network connectivity and additional airspace requirements are met to ensure network connectivity is possible.
		Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exoc nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.
Summary of	atysts The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation and is unviable following the removal of the POLDVO	When compared to the 'do nothing' scenario, this option performs: R Worse in the following areas:	When compared to the ido nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the ido nothing scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:
	modernisation and is univable totowing the removal of the POL DVO beacon, which would have a significant impact on capacity and resilience. The existing SID does not enable continuous climb operations to 7,000ft, which leads to a greater volume of fuel burn,	<ul> <li>Noise impact up to 4,000tt</li> <li>Greenhouse gas emissions</li> </ul>	Worse in the bolowing areas - Noise impact up to 4,000th - Greenhouse gas emissions - Fuel born	Works in the totowing dridd: - Noise impact up to 4,000th Better in the following areas:	Worse in the bolowing areas: - Noise imposite up to 4,000ft Better in the following areas:	Works in the following debat: - Noise importup to 4,000th - Greenhouse gas emissions - Fuel burn	Works in the bollowing areas: - Noise impact up to 4,000H Better in the following areas:	Worse an the totlowing article: - Noise impact up to 4,000th - Greenhouse gas emissions - Fuel burn
	emissions to / Jouutt, which leads to a greater volume of tual burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minima/no change to today's operations.	Better in the following areas:	- ruel burn Better in the following areas: - Noise impact up to 7,000t	Bether in the totlowing orlida: - Noise importup to 7,000th - Greenhouse gas emissions - Fuel burn	Beller in the following ordes: - Noise import up to 7,000ft - Greanhouse gas emissions - Fuel born	- ruel burn Better in the following areas: - Noise impact up to 7,000tt	Jaimar in The tollowing oreas: - Noise impochype to 7,000H - Greenhouse gas emissions - Fuel burn	- rueir ian the following areas: Noise impact up to 7,000t
	nothing baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current ENA operations are safe. Following the removal of the POL DVOR, it is	- Noise impact up to 7,000tt - Air Quality	- Noise impact up to 7,000th - Air Quality	- Fuel burn - Air Quality	- Fuel born - Air Quality	- Noise impact up to 7,000tt - Air Quality	- Fusi burn - Air Quolity	- Noise impact up to 7,000tt - Air Quality
	operations are safe. I following the removal of the POL DVCR, it is acknowledged that the ATCOs workload is likely to increase due to th enduring requirement for radar vectoring.	e Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to todays operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
		At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP16 16 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation orther than as as at of design options as part of a wider system. Additional analysis will be required in Stoge 3 and 4 of the CAP1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stoge 3 and 4 of the CAPT 1616 process to determine the	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAPY for process to determine the
		reconciliation a decays with be required in sugge a data + by the CAP to reproceed to determine me cumulative impact of this option when compared to all the other options.	Paralitoria dragos with se regioned in single s and 4 of the CP for the process to determine the cumulative impact of this option when compared to all the other options.	Padationa analyse will be required in sage 5 bits 4 to the CPr to to process to averning the consultative impact of this option when compared to all the other options.	Autaritoria anarysis with be required in stage 3 and 4 for the OPF to to process to beermine me cumulative impact of this option when compared to all the other options.	Additional discipling with be required in Sugge 5 and 4 to the CPP for the process to be emitting the comulative impact of this option when compared to all the other options.	cumulative impact of this option when compared to all the other options.	reactions analysis will be required in sarge's arise 4 to the CP+ to to process to betermine me cumulative impact of this option when compared to all the other options.
	IOA Shortlist Assessment	Board de the IOA Stortist Association methodology, Option O1 has been deemed the REIECTED option within the design envelope.	Based on the IQA Shortlist Assessment mathodology, Option O1A has been deemed the FAVOURABLE option within the design envelope.	base of the TOA Short of Association methodology, Ophan Q2 has been doemed the REECTED option within the design envelope.	Eases do the ICA Shortlet Assessment methodology, Option OB has been deemed the REJECTED option within the design envelope	Based on the IOA Shortist Assessment methodology, Option OA has been deemed the PREFERRED option within the design envelope.	Based on the IOA Shortlist Assessment methodology, Option OS has been deemed the ACCEPTABLE option within the design envelope.	Based of the KUA Shortful Assessment in ethodology, Option Oc has been deemed the REJECTED option within the design envelope.
	OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	REJECTED	FAVOURABLE	REJECTED	REJECTED	PREFERRED	ACCEPTABLE	REJECTED

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	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tomage carried.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tornage carried.	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tornage carried.	s, to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tormage carried.	is, to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tornage carried.	<ul> <li>to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.</li> </ul>	to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tormage carried.	<ul> <li>expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.</li> </ul>	expected to facilitate economic benefit by potentially increasing the frequen movements, increasing passenger numbers and increasing cargo ton
dures for departures do not enable continuo:									
climb operations. AP1616 process, there is no requirement for a	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is requirement within Server 2 of the CAPIAIA program to support is full burnt this will be producted in	no This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is n requirement within Strate 2 of the CAPIA1A represents assorbly had burnt this will be creducted in	no This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is requirement within String 2 of the CAP161A provems to support fuel hums this will be producted	is no This option supports continuous climb operations, reducing the overall amount of fuel burnt. There annunement within Stone 2 of the CAPI 61A records to currently final burn, this will be conducted	e is no This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is an an approximate within Stone 2 of the CAP1616 recovers to sworth fuel hum, this will be conducted in the conducted	is no This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no climment within Strate 2 of the CAPIA16 process to currently fuel hurn, this will be produced in	no This option supports continuous climb operations, reducing the overall amount of fuel burnt. These requirement within Stone 2 of the C4P1A16 resonant to currently fuel burnt this will be conducted	is no. This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no in manuferment within Stone 2 of the C4P1616 process to support for all burn. This will be conducted in	This option supports continuous climb operations, reducing the overall amount of neuroimment within Stores 2 of the CAPI A1A process to currently field hum this
order to make a comparison in Stage 2, track	be Stope 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, if less fuel is burnt. With regards to this option, it is 39.16 km (21.15 nm) long. When compared to	Stope 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 38.44 km (20.76 nm) long. When compared to the	Stope 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 38.27 km (20.67 nm) long. When compared to	the Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, to the less fuel is burnt. With regards to this option, it is 39.25 km (21.19 nm) long. When compared to	, the Stoge 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, to to the less fuel is burnt. With regards to this option, it is 39.59 km (21.38 nm) long. When compared to	he Stoge 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 39,92 km (21.55 nm) long. When compared to the	Stoge 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is .43.61 km (23.55 nm) long. When compared to	the Stoge 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the the less fuel is burnt. With regards to this option, it is 40.12 km (21.66 nm) long. When compared to the	Stope 3. Therefore, to enable a comparison, the logic applied is that the short less fuel is burnt. With regards to this option, it is 40.44 km (21.84 nm) long.
on the mean man the sharer the track musicipy, area are emitted. In the case of the 'do nothing' track length to the common point is 37.37km (20.18nm).	(P) do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm m	is "do nothing" acenario, this option is longer and at this stage, it is assumed that it will be of economic dis benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	In- do nothing' acenario, this option is longer and at this stage, it is assumed that it will be of economic benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm	ic dia- dia nothing scenario, this option is langer and at this stage, it is assumed that it will be of economic m. besefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm	tic dia- do nothing' acenatio, this option is longer and at this stage, it is assumed that it will be of economic rm. benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm	dia- do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	dia- ida nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm	a manufacture supports continuous distric generations, aducting the somell's proved of deal lawer. These is to enclosed in magnetizeness the Stages of the CCF 164 process to expecting the lawer, five which the source of the stages of the CCF 164 process to expecting the lawer, five which is the stage of the CCF 164 process to expecting the lawer five most expec	do nothing' scenario, this option is longer and at this stage, it is assumed that it benefit as more fuel will be burnt. More in-depth analysis will be carried out i
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d be applicable for esisting procedures which	h It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBI procedures as PBN has become a common naviantion standard across the world.	It is anticipated that no estra pilot/crew training will be required to enable pilots to By the new PBN procedures as PBN has become a common novigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PB1 procedures as PBN has become a common navigation standard across the world.	BN It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PB procedures as PBN has become a common prejustion standard across the world.	BN It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PBI proceedures as PBN has become a common novigation standard across the wold.	N It is anticipated that no extra pilot/arev training will be required to enable pilots to fly the new PBP procedures as PBN has become a common novigation standard across the world.	I It is anticipated that no extra pilot/crew training will be required to enable pilots to By the new PB procedures as PBN has become a common navigation standard across the world.	N It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common novigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilot procedures of PIN has become a common orthopic of the pilot
at this stope for EMA to assess potential other									
and around the result of the second s	Uther costs to commercial airlines may include updates to Hight Management Systems (MS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), anyigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), an mylgation databases and operating procedures, increased pilot hire costs versus training etc. It is			not novigation databases and operating procedures, increased pilot hire costs versus training etc. It is n	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), or novigation databases and operating procedures, increased pilot hire costs vesus training etc. It is	not navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Manager navigation databases and operating procedures, increased pilot hire costs vers
erra to controle hying conventional havigation ( variables (e.g. aircraft types, on-board system ( etc.) to consider these effectively.	on proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of By PBN procedures.	proportionate at this stage of the ACP for EMA to assess the "ofter casts" to commercial airlines of three PBN procedures.	g proportionate of the ACP for BAK to assass the offer costs' to commercial alfines of the PBN procedures.	nort provigation databases and operating procedures, increased pilot hire cosh venus training wit. It is proportionate at this stage of the ACP for ENA to assess the 'other cosh' to commercial airlines of it PBN procedures.	Bying propertionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of B PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of By PBN procedures.	of nonjpation databases and operating procedures, increased pilot hire costs versus tabling etc. It is ing proportionate at this stage of the ACP for ENA to assess the inter costs' to commercial airlines of if PBN procedures.	ying proportionate at this stage of the ACP for EMA to assess the 'other casts' to commercial airlines of three PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to com PBN procedures.
ructure is required at EMA to maintain estant		-							
e; however, maintaining accessibility to current ulpment (operated by NERL) may become should a CAP1781 RNAV substitution not be prior to the proposed removal date.	ent These one no expected additional infrastructure cante. All options relates to the implementation of PP and no additional infrastructure is nequired as the introduction of PDN neduces the relations on group and infrastructure, is particular ground-based nonigation citis are no longer needed.	N These one no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the miliance on ground infrastructure, is particular ground-based ravigation asks on an longer needed.	N These are no expected additional infrastructure costs. All options relate to the implementation of PF data no additional infrastructure is required as the introduction of PSN reduces the reliance on group infrastructure, in particular ground-based noningetion risks are no longer needed.	PBN Them are no especiela dalitional infrastructure cash. All options relate to the implementation of PSN and no additional infrastructure is required as the infraduction of PSN reduces the reliance on ground infrastructure, in particular ground-based non/gation side are no longer needed.	FPN There are no expected additional infrastructure cash. All options relate to the implementation of Po and no additional infrastructure is required as the infraduction of PBN reduces the milianea on grou- infrastructure, in particular ground-based novigation add are no longer needed.	RN Them are no expected additional infrantructure cante. All options relate to the implementation of PB madures for an additional infrantructure is required as the introduction of PBN reduces for relations or growing infrantructure, in particular growing-based nonlogation side are no longer needed.	N There are no expected additional infrantructure carke. All options whate to fin implementation of P and no additional infrantructure is required as the introduction of PBN reduces the relaces on group infrastructure, in particular ground-based novigation aids are no longer needed.	1941 These are no expected additional infrastructure casts. All options relates to the implementation of PBM and no additional infrastructure is required an the introduction of PBM reduces the milance on ground infrastructure, is particular ground-based rardigation cids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the i and no additional infrastructure is required as the introduction of PBN reduces infrastructure, in particular ground-based novigation aids are no lon
prior to the proposed removal date.									
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t costs applicable to estant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllen; however, these cornot be identified at this stage of ACP process.	Some deployment costs are anticipated with neaped to the implementation of the new departure procedures and training of air traffic controllen; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllent, however, these cannot be identified at this stage of ACP process.			Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic costrollers; however, these cannot be identified at this stage of t ACP process.			Some deployment costs are anticipated with respect to the implementation or procedures and training of air traffic controllers; however, these cannot be ident ACP process.
			promotion					· · · · · · · · · · · · · · · · · · ·	(\$55,000.
	Possible bazards have been identified, some of which are extant and are currently mitigated throug	Possible hazards have been identified, some of which are estant and are currently mitigated through	Possible hazards have been identified, some of which are estant and are currently mitigated throug	gh Possible hazards have been identified, some of which are extent and are currently mitigated through	Possible hazards have been identified, some of which are extent and are currently mitigated through	gh Passible hazards have been identified, some of which are extent and are currently mitigated throug	h Possible hazards have been identified, some of which are extent and are currently mitigated through the second s	gh Possible hazards have been identified, some of which are extant and are currently mitigated through	Possible bazands have been identified, some of which are estant and are curre
to assumes that current operations at EMA are e extant conventional procedures. Following the	ATC procedures. Finally, aircraft departing from EMA on the SID may coeffici with arrivals to Runway 09 routing vice the RCIKUP resulting in a potential lass of horizontal or versional separation between elected and an incre-	ATC procedures. Finally, alreadt departing from EMA on the SID may conflict with antivals to Runway 09 routing via as ROKUP resulting in a potential loss of hosticontal or vertical separation between electedt and an increase			ATC procedures. via Finstly, aircraft departing from EMA on the SID may conflict with antivals to Runway 09 routing via reases ROKUP resulting in a potential loss of horizontal or vertical separation between aircraft and an incr	age ROKUP resulting in a potential loss of horizontal or vertical separation between aircraft and an increa	ATC procedures. Finally, aircraft departing from BMA on the SID may coeffici with antivals to Runway 09 routing vir are ROXUP resulting in a potential loss of horizontal or versical separation between aircraft and an incr	ATC procedures. Finally, aircraft departing from EMA on the SID may conflict with arrivals to Runway 09 routing via ease ROKUP resulting in a potential loss of horizontial or vertical separation between aircraft and an increase	Firstly, aircraft departing from EMA on the SID may conflict with anivals to R. ROKUP resulting in a potential loss of horizontal or vertical separation between
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- Art.J W080008.	revent mean dat wer be turner be matgared mough the design process and a turther assessment will conducted at Stages 3 and 4 of the CAP1616 process to contirm the exact nature of all hazards a mitiatrices.	<ul> <li>These bacerds will be further be mitgated through the design process and a further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitgation.</li> </ul>	<ul> <li>These hazards will be further be mitigated through the design process and a further assessment will conducted at Stages 3 and 4 of the CAPI 61 6 process to confirm the exact nature of all hazards as mitigations.</li> </ul>	<ul> <li>we wave the process and a buffer assessment will and conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards a mislations.</li> </ul>	and conducted of Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards a millional.	be These bazands will be further be mitigated focush the design process and a further assessment will nd conducted at Stoges 3 and 4 of the CAP1616 process to confirm the exact nature of all hazands an mitigations.	<ul> <li>mere maar de verte per la terrer pe megania mough the design process and a terter assessment will         conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards a         mitisotions.</li> </ul>	I be These heareds will be further be mitigated through the design process and a further assessment will be and conducted at Stages 3 and 4 of the CAP1616 process to continm the exact nature of all hearends and mitigations.	These hazards will be further be mitigated through the design process and a fun conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nat mitigations.
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in relation to this ACP is not a viable option sustainable solution in terms of airspace	Bites compared to the life indexing sensation, this options parliames.     Bit Torus is the following sensitive of the life indexing the sensitive of the life indexing sensitive of	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' acenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
vable tollowing the removal of the TNT DVOP ve a significant impact on capacity and	UK Worse in the following oness: - Noise impact up to 4,0008 Conselutions are existing	Wone in the following amax: • Generhouse gas emissions • Fuel barn	Worse in the following areas: - Noise impact up to 4,000H Grandware are entitient	Worse in the following areas: • Noise impact up to 4,000H Constitutions are experimented	Wanue in the following areas: - Greenhouse gas emissione - Fuel burn	Worse in fre following aneas: - Greenhouse gas emissions - Fuel burn	Wone in the following anexa: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions Even low	Wonse in the following areas: - Greenhouse gas emissions - Fuel burn
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ry limited costs incurred as a result of this perspective, it is assumed that current EMA	- Air Quality	- Air Quality	- Noise impact up to 7,000H - Air Quality	- Nolas impact up to 7,000t - Air Quality	- Air Quality	- Air Quality	Equal/neutral in terms of the remaining criteria because there is no change when compared to today	- Air Quality	- Air Quality
ATCOs workload is likely to increase due to the	Equal/neutral in terms of the remaining criteria because there is no change when compared to today the operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no charge when compared to today operation.	ry's Equal/neutral in terms of the remaining ariteria because there is no change when compared to toda operation.	lay's Equal/neutral in terms of the remaining criteria because there is no change when compared to today operation.	/s Equal/neutral in terms of the remaining citeria because there is no change when compared to today' operation.	operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when operation.
r radar vectoring.	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible coefficient with some inbound mates and the MAP branchem identified, but the avoid returns of these	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible coefficient with some informed matter and the MAP inno been identified, but the error protons of these	At this time, it is not possible to fully determine the solety implications of this specific option. Possible coefficient with some information of the MAP break base identified, but the sense retries of fease.	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible coefficient with some informal ocutes and the MAP have been identified, but the server orthogo of these	<ul> <li>At this time, it is not possible to fully determine the sofety implications of this specific option. Possible coefficient with some inhoused motes and the MAP how have identified, but the event active of these</li> </ul>	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible conflicts with some inbound notices and the MAP have been identified, but the exact nature of the conflicts undersort this stress. Further product and another interview is the source of	At this time, it is not possible to fully determine the sofety implications of this specific option. Possible an available with some inheard matter and the MAP immediate but the descent as a set of the MAP.	At this time, it is not possible to fully determine the sofety implications of this spe- coefficies with some inhoused mates and the MAP know been intentified, but the av-
		conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAPIAIA provide the endermine this Furthermore the analysis and engagement is required in Stage 3 and 4 of the	conflicts is unclear of this tage. Further analysis and ergagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this action has been casesed as in industry website	be conflicts is unclear at this stoge. Further analysis and engagement is required in Stoge 3 and 4 of the CAP1616 process to determine this. Furthermore, this cation has been assessed or in industrial relations who is a cation or industrial relations who is a cation of the relation or industrial relation or industrial relations who is a cation of the relation of the relation or industrial relation or industrial relations who is a cation of the relation or industrial	the conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAPI 616 process to determine this. Furthermore, this action has been assessed as in industries when	<ul> <li>conflicts is under at this stope. Further analysis and engogement is required in Stope 3 and 4 of the CAP1616 process to determine this. Furthermore, this carlian has been assessed as in indexine network.</li> </ul>	CAP1616 process to determine this. Furthermore, this option has been assessed as in isolation raths than as a set of design options as part of a wider swtern/runway pair. Additional option is service	<ul> <li>conflicts is unclean at this stope. Further analysis and engagement is required in Stope 3 and 4 of the d in CAP1616 process to determine this. Furthermore, this action has been assessed as is inclusion writer.</li> </ul>	conflicts with some inbound routes and the MAP have been identified, but the ex- conflicts is unclear at this stoge. Further analysis and engagement is required in CAP1616 process to determine this. Furthermore, this option has been assessed
	conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in isolation rather		CVP1 010 process to determine this, runnermore, this option has been assessed as in isocontrol tarter from as a set of design options as part of a wider system/(unway part), Additional analysis is required Stoge 3 to determine the cumulative impact of this option when compared to all the other options.	ad in than as a set of design options as part of a wider system/unway pair. Additional analysis is required Stage 3 to determine the cumulative impact of this option when compared to all the other actions.	her to to pocess to determine this, runnermore, this option has been assessed as in sociation terms ed in than as a set of design options as part of a vider system/runvay pair, Additional analysis is required. Stage 3 to determine the currulative impact of this option when compared to all the other options.	d in than as a set of design options as part of a wider system/runway pair. Additional enabylis is required Stage 3 to determine the cumulative impact of this option when compared to all the other options.	in Stage 3 to determine the cumulative impact of this option when compared to all the other option.	a in Unit to proceed to determine this interferences, this option has been assessed as in abaction in the financial as set of denign options as port of or wider system/nervey pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to all the other options.	CAP to to process to determine this, purnemore, this option has been diseased from as a set of design options as part of a vider system/nurway pair. Additional Stage 3 to determine the cumulative impact of this option when compared to all
	conflicts with some indicated marks and the MAP bare been identified, but the east nature of these conflicts is unclear of this stops, In-thiere markshing and engegement in required in Stoge 3 and 4 of the CAP1616 process to determine this. Furtherman, this option has been assessed as in isolation rather than as a set of design options as part of a wider sphere/normap part. Additional analysis is required Stoge 3 to determine the consolidation impact of this option when composed to all the other options.	CAP1016 process to determine this. Furthermore, this option has been assessed as in isolation onther than as a set of design options as part of a wider system/nurway pair. Additional analysis is required in Stoge 3 to determine the cumulative impact of this option when compared to all the other options.							
ortlist Assessment	conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in isolation rather than as a set of design actions as part of a wider nathermore yours. Additional analysis is required			ED Based on the IOA Shorflat Assessment methodology, Option O4 has been deemed the REECTE	Based on the IOA Shorflat Assessment methodology, Option OS has been deemed the ACCEPTAE option within the design envelope.	BLE Based on the IDA Shortist Assessment methodology, Option O6 has been deemed the VEJECTED option within the dusign envelope.	Based on the IOA Shortlat Assessment methodology, Option OB has been deemed the REJECTE option within the design envelope	Based on the IDA Shortlat Assessment methodology, Option O9 has been deemed the FAVOURABLE option within the design envelope.	Based on the IOA Shorfist Assessment methodology, Option O10 has been a option within the design envelope.
LIST CLASSIFICATION FOR STAGE 3	conflicts is unclear at this stopp. Further analysis and engagement is required in Stopp 3 and 4 of the CAPIO 16 process of adversion thes. Literatures, this captors that have narrowed and there as a set of design options as port of a videor system/non-eq pair. Additional analysis is required Stopp 3 to deservice the cumulative impact of this option when composed to all the other options.		Based on the IOA Shorfist Assessment methodology, Option O3 has been deemed the REECTED option within the dataon envelope.	option within the design envelope.					BUECTED
ortlist Assess		conflicts with some inbound routes and the MAP have been identified, but the east nature of these	conflict with some indexed movies and the MMP true have identified, but the acct return of thema conflict with some indexed movies and the MMP true have identified, but the acct returns of thema conflict with some indexed movies and the movies and the movies and the movies indexed movies and the MMP have have identified, but the some true of thema conflict with some identified the movies and the movies and the movies indexed movies and the movies indexed movies and the movies indexed CMP1616 process to determine this. Forthermore, this caption has been assumed as is indexing on the first or a set of device another and of a with anthermore and its Addition of the movies indexed movies indexed movies in a set of device anotherm are original devices and the movies in a set of devices anotherm and its indexed in the first or a set of devices anotherm and the devices and the movies in the movies in a set of devices anotherm and the devices and the movies in the device of the movies and the devices and the movies and the devices and the movies and the device and the devices and the movies and the devices and the device and the devices and	northe with own income frank our fain to We have insertioned in the stand and and a first sector in the stand into and the stand	Indits with some isload many tord fit table to see indexed many tord fit table to see	which with some should nearly have been derived with the base base based on the out of the VV base have based match is post of	$ \begin{tabular}{l l l l l l l l l l l l l l l l l l l $	ment 3 and a standard a standar	methers beam beam beam beam beam beam beam beam

Key Control	Departure Envelo	ope: SID Runway 09 West	IG EMA ACP - INITIAL OPTIONS APPRAISA			SID 01	WEST	
No.No			For the weak dauge annelses, the two conting scenarios for departure are term of only on popuration is loaded and the available generation model track that has been derived to provide an account. Include track that has been derived to provide an account of the start of the start of the start of the start of the only of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the SD are based on the model track or exceed using the start of the SD are based on the model track or exceed using the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start of the start and the start of the start of the start of the start of the model.	Option 1 proceeds straight ahead after take-off with no offset and then turns north then west. The route overlass the southern endge of Kegworth, before making any 900-turn to the north at 14 ann past the DER, passing between the Ractoffse on Saar power station and Clifton. If then turns left as tighting any permitted by CAP T2R, notation areal Long Toton and the Taton and Lifeants to nchises are waterin hending holy any permitted by CAP.	southerly route. The route overfiles the southern edge of Kegworth, before making a 90o turn to the north at 1.4m past the DER, passing between the Ratcliffe on Soar power station and Cliffon. If then turns left as turble, no nermitable or CAP 278, possion over Loon Fator and the Toton mill clanet.	(a) Option 3 proceeds anoght abade dhar table-off with or other and then tures north them werk, is insidiar to Option 1 until creasing the MI just south of Junction 25 from where it takes a no northerly route. The nouto verifies the southern edge of Kaguorth, Jubors making of 90 km to the north of 1. Juben part to DR, passing between the Rotifie no Sour power station and Clinkon. It then to mix lish to sight a particip between the Rotifies or to another other and table to accounted by Lom Marker and the Clinkon. The source list table of the particip between the Rotifies particip between the Rotifies of the Clinkon. It then to write the Stight a particip between the Rotifies of the Clinkon. It then to account the Linkon Interference AI clickon.	Notion 5 has a 1° is subthey dette but with an earlier and tighter fast turn than Cypton 1 which is mits to change factors. The initial 0° starts to long factor. The initial 0° starts to long factors in the local factors with the local factors of the local fac	The initial 10° offset to the south results in the roote, possing south of Kagner contri at I na Mayori the DOR. It posses balances that Resultifies on Soar power commencing a second left turn before Long Exton and a third shortly after to direction. The roote terminates between Willington and Repton to the south ASB and ASO. The initial two turns have been limited to 1900AS to enable the tightest turn PMNS-DPS compliant, but should it become a preference ofton them it is root.
No.       N	Group Communities Noo qual	In production and a second sec	based upon the earting TRENT SD. It is tream of particle roles impact, simal quantitative analysis has also a base the state of the state of the state of the state of the state also also also also also also also also	4/ 20,000 Taking account of 5,400 planned property development, this option is attimated to overly and impose total population of 30,700. The potential nois impost on health and quality of 164 up to 4,0000 is casesed as likely to diet more people franch sido nothing (cannot). to po 17,0000, fisca is estimated to overly approximately 39,750 households with an approximate population of 73,800. Taking account of 0 planned property development, this option is estimated to overly and impost and population of 38,800. The potentian loss impact on health and quality of 164 up to 7,0001s casesed as and population of 38,800. The potentian loss impact on health and quality of 164 up to 7,0001s casesed as a first option of the site of th	epton is estimated to overly and impact a total population of 30:000. The potential noise impact has been been been been been been been bee	la genoremise population of 1.6,000. Taking account of 2,950 planned property developments, their option is instrument to overly and impact of total population of 2500. The potential mode impact on bachth and quality of the up to 4,000 H is assessed as liably to diffect more popula- fican har la do nothing accounts. Up to 7,0000, this option is estimated to overly approximately 48,000 household with an opportennia population of 91,400. Taking account of 0 planned propusal headened to the total overly and impact a total population of 91,400. The potential noise impact on head hard acquired plant bit and the population of 91,400. The potential noise impact on head hard acquired plant bit and population of 91,400. The potential noise impact on head hard acquired plant bit and population of 91,400. The potential noise	this option is estimated to overly and impact a total population of 22,000. The potential noises proper on halohan of quality of file up to ACOM in causased and this? to Other more people than the do-initiary accuracy. Because and the second option of the second option option of the second option of the opprements population of 45,000. Tailous could and approximately 35,600 however halo the option of the population of 45,000. Tailous could and approximately approximately approximate population of 45,000. Tailous could and approximately approximately approximate population of 45,000. Tailous could approximately approximately approximate population of 45,000. Tailous could approximately	population of 21,200. Taking account of 5,400 planned property deve estimated to overly and impact a total population of 30,800. The potential quality of life up to 4,0000 it is assessed as likely to offect more people from Up to 5,0000 its is option is attituated to overly gonorimotely 25,450 hour population of 47,100. Taking account of 0 planned property development overly and impact to teld population of 47,100. The potential noise impact
Normal Normal	Communities Air C	Initial Options Approisal Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extent procedure involves overlight above 1,000th, other than the areas in the immediate vicinity of the Departure End of Romory. In terms of AQMute, the extensing Romory of PERMT 3D overliss one	the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be equal	location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full A Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is	In location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a fui Air Qualty Assessment is deemed not required. This option overflies one AQMA. When compared to the ido nathing scenario, this option is	I location is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quality Assessment is deemed not required. This option overflies two AQMAs. When compared to the ido nothing iscenario, this option is	is not within the vicinity of a designated AQMA and as per CAP1616, po Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scena
No.No	Wider Society Gree	enhous Ges import Qualitative Qualitative	noted that the each tack length flows by acroad mining way alightly due to the nature of index rectining, alightly and a libilities the earthy procedures in a bootbar since. This earthing procedures do not have a signate the index of the since and the si	<ul> <li>required to manage aircraft separation distances. The track mileage of this option is 38.53 km (20.80 nm). When command to the 'do nothing' common this option is beneficiene emerted to result to an increase in</li> </ul>	ectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39.18 km (21.15 nm). When compared to the ido nothing scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the ido nothing scenario, and is deemad to be of environmental dis-benefit. More in-depth	vectoring may still be required to manage aircraft separation distances. The track millage of this option is 38,93 km (21.02 nm). When compared to the 'do nothing' scanario, this option longer and is therefore appacted to result in an increase in greenhouse gas emissions compared to the 'do nothing' scanario, and is deemed to be of emiritormental dis-benefit. More in-depth analysis will take place at Stoge 3 to confirm the east volumes of greenhouse gas and the store of the st	vectoring may still be required to manage aircraft separation distances. The track mileage of thi option is 39.96 km (21.58 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental dis-benefit. More in-degth	s may still be required to manage aircraft separation distances. The track mill km (21.97 nm). When compared to the 'do nothing' scenario, this option expected to result in an increase in greenhouse gas emissions compared t and is deemed to be of environmental dis-benefit. More in-depth analysis v
No.       No. Markamenta and any	Wider Society Cop	actly and resilience Initial Options Appraisal Qualitative	however, due to the reliance upon ground-based navigational aids, resilience could be significantly affected following the removal of the	leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the	which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the around). The reduction of the reliance on outdated around based naviaational aids will	which subsequently leads to more predictable flight paths and fewer delays (both in the air an on the around). The reduction of the reliance on outfinded around based anyingtional airs wi	d which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the around). The reduction of the reliance on outdated around based naviaational aids will	around). The reduction of the reliance on outdated around based naviag
Image: state s			required to consider Transpullity with specific reference to AONBs an National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario overflies no transpullity receptors (AONBs on National Parks).	d This option oweffice no attratorily identified hanguility receptor (ACNBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutro	any identified through community engagement and is therefore comparable to the 'do nothing'	nor any identified through community engagement and is therefore comparable to the 'do	any identified through community engagement and is therefore comparable to the 'do nothing'	identified through community engagement and is therefore comparable to
الا الساب         السابة	Wider Society Biod	Initial Option Aproxid Qualitative	The change sponsor has mapped the despirated Site of Spaced Scientific Interest SSSB, Spaced Protection Areas (PMA, Spaced Pare of Constructions (SCA) and AMARAS them, as destinded on the DEFY dispersion and meson, have is unlikely to be an impact on local or quality from circle albeau (Suary Science Science), and the function of meson, have is unlikely to be an impact on local or period from the space of the space of the space of the space of the space BBD, attack the in general, aregues a local general have an equivalent on a local-mixing the day of and real equivaluation for an an equivalent of the space of the space of the space of the have an equivalent on a local-mixing the day of and real equivaluation of the space of the space of the space of the space of the space of the space of the space of the space of the space of the space o	Af [SPAI], Special Areas of Conservation (SACs) and RAVSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, prace ST4, states that because of dispersion and maintig, there is unlikely to be an impact a local air quality from aircraft above 1,000f. Furthermore, CAP1616, Appendix B, para BB0, states that in general aircraft achane munoreal will on those an immach to his/abure/sty of the air Appendix B.	Protection Aveas (FAN), Special Aveas of Conservation (SAC) and PAMASA stars, as identified on the DEPRA MAGE (Map, CAP 161, Appendix B, para BZ, that share share bacasa of dependion an mining, fivera is unlikely to be an impact on local air quality from aircraft above 1,000F. Turharmore, CAP 161, Appendix B, para BB), state that im general, airpace change proposa will not have an impact to biodiversity as they do not involve ground-based infrastructure. However, the change suppose achievables that any perturbation impact to the dispirated share and an advection of the share and the share that the share that the share that the share that the share the share that the share the share that the share th	Special Protection Areas (SPA), Special Areas of Consumetion (SAC) and BMOSR Bats, and adentified on the DERA MAGIC May, CHO (16) A special field, and the baccure of departion and maining, them is unlikely to be on impact on local any quality from accent theous change proposed and all on the own impacts and the department of the process the subsystem of the other and the special constrained and the out model ground bases infrastructures. However, the change sponsor acharonicelysis that are potential impact to the designation attender and BAM with the analysis of the Department of the Special Special Mark Mark Special Constraints and the special special special special special special special special special special special special s	Special Protection Areas (SPA), Special Areas of Conservation (SAC) and BAXSA sites, on destitida on the DEPA MAGC (MAX, DAVIA) 6, Appendix B, porto EA, states that because of dispession and mixing, there is unlikely to be an impact on local or questly from accord those proposal mixing. The set unlikely to be an impact on local or questly from accord those proposal mixing. The set of the s	Protection Aveas (SPAI), Special Aveas of Conservation (SACC) and RAMAS DEFRA MAGE (Ang. CAP1616, Appendite B, para B74, states that bacaus there is unlikely to be an impact on local air quality from aircraft about CAP1616, Appendite B, para BBO, states that in general, airpace change impact on biodiversity as they do not involve ground-based infrastructure. It achnowledges that any potential impact to the designed sites around EM
NUMNUMNUMNumerican descriptionNumerican descriptionN	General Aviation Acce	ess Initial Options Appraisal Gualitative	users of airspace in the vicinity of EMA will maintain their current leve	Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (whe applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and ar	<sup>28</sup> Visual Reference Points and existing Latters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued volidity. Arspace classification requirements and any additional airspace requirement	All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where opticable) prior to implementation to ensure the continued validity. Airsopace classification requirements and any additional airsopace	All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation r access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Arispace classification recuirements and any additional airspace	Reference Points and existing Letters of Agreement pertaining to Gener reviewed and updated (where applicable) prior to implementation to ens Airspace classification requirements and any additional airspace requirem
No. <t< td=""><td></td><td></td><td>No increase to effective copacity anticipated for continued use of extent procedures, therefore no economic banefit for GW/artines.</td><td>economic benefit by potentially increasing the frequency of air transport movements, increasing passenger number</td><td>rs This is expected to facilitate economic benefit by potentially increasing the frequency of air</td><td>turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequence</td><td>around). This is expected to facilitate economic benefit by potentially increasing the frequency of</td><td>The introduction of PBI is assessed to deliver learning to proceeding all space leads to more predictable fight paths and feer delays (both in the ar- equated to localitate economic benefit by potentially increasing field is movements, increasing passenger numbers and increasing cog</td></t<>			No increase to effective copacity anticipated for continued use of extent procedures, therefore no economic banefit for GW/artines.	economic benefit by potentially increasing the frequency of air transport movements, increasing passenger number	rs This is expected to facilitate economic benefit by potentially increasing the frequency of air	turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequence	around). This is expected to facilitate economic benefit by potentially increasing the frequency of	The introduction of PBI is assessed to deliver learning to proceeding all space leads to more predictable fight paths and feer delays (both in the ar- equated to localitate economic benefit by potentially increasing field is movements, increasing passenger numbers and increasing cog
No.     N	General Aviation / Fuel	fundi Option Approixi Gualitative	climb operations. Within Stage 2 of the CPH 64 for process, here is no requirement for change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track- mileage is used, based on the favory that the instruct the texture mileage, the less greenhous gass are emitted. In the case of the k6 moting baseline scannich, the taxk length the common point is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less that is burnt. Whi regards to this option, it is 38.53 km (20.80 nm) long. When compared to the 'do nothing' scenario, this option longer and at this stage, it is assured that it will be deconomic dis-benefit as more fuel will be burnt. More in-	There is no requirement within Stoge 2 of the CAP1616 process to quantify hall burn, this will be be conducted in Stoge 3. Therefore, to enable a comparison, the logic applied is that the short the th track length, the less had is burnt. With regards to this option, it is 39.18 km (21.15 m) long. When compared to the 40 nothing scenario, this option is longer and at this stoge, it is assume that will be accountic dis-benefit a more failed will be burnt. More in-depth analysis will be that will be accountic dis-benefit as more failed will be burnt. More in-depth analysis will be that will be accountic dis-benefit as more failed be accounted with the short benefit as the store of the short benefit as th	a There is no requirement within Stogs 2 of the CAPI 61.6 process to quantify fuel burn, this will be conducted in Stogs 3. Therefore, to enable a comparison, the logic applied is that the shorter the tack length, the less fuel is burnt. With regards to this caption, it is 38.93 and 2 (21.02, nm) long. When compared to the 64 on othing scenario, this option is longer and at th stoge, it is assumed that it will be acconnet dis-barefit a more fael will be burnt. More in the processing of the store of the s	There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the leas fuel is burnt. With regards to this option, it is 39.96 km (21.58 nm) leng. When compared to the via ordinary comparison this soften is lowner and or this stress it is	Stage 3. Therefore, to enable a comparison, the logic applied is that the less fuel is burnt. With regards to this option, it is 40.69 km (21.97 nm) k
Normal         Production         Productio	Commercial airlines Trair Commercial airlines Othe	Qualitative	would be practised by crews through existing simulator exercises. It is not proportionate at this stage for EMA to assess potential other costs for commercial autilines. There may be cast associated with maintaining legacy systems to contraw Bring conventional neighbor but there are too many variables (e.g. actrard types, on-board system	PBN has become a common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation	PBN procedures as PBN has become a common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs worus training etc. Th or proportioned are this stage of the X2P to EMA to assess the other cost to commercial airline	PBN procedures as PBN has become a common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Managament Systems (FMS) n navigation databases and operating procedures, increased pilot hire costs versus training dur. is not propriorate at this stage of the ACP for EMA to access the trither cost to commercial	PBN procedures as PBN has become a common nevigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FNS), h novigation database and operating procedures, increased pilot hire costs versus training etc. Its is not proportionate at his stage of the ACP for EMA to asses the utility cast's commercial	procedures as PBN has become a common novigation standard Other costs to commercial airlines may include updates to Flight Man novigation databases and operating procedures, increased pilot hirs cost proportionate this stage of the CP for FM to asses the 'afther cost' to
Normal         Article         <	navigation service provider	Qualitative	conventional procedures; however, maintaining accessibility to currer grand-based equipment (operated by NERL) may become prohibilinely expansive should a CAP1281 RAVI substitution not be implemented prior to the proposed removel date.	additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in	PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance	of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer	PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance	<sup>4</sup> There are no expected additional infrastructure costs. All options relate to and no additional infrastructure is required as the introduction of PBN red infrastructure, in particular ground-based novigation aids are n
Normal	navigation service provider	Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage o the ACP process.	f and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	training of air traffic controlling staff at EMA; however, these cannot be is ACP process.
In the section of a wanted balance in the state of a section of a wanted balance in the state of a section of a wanted balance in the sectin of a wanted balance in the section of a wanted balance	posipidan sanica posipidan Sofidy Assaurant Sofid	Qualitative	No deployment costs applicable to extent procedures.	tearing of air hells: controllers; however, these control hes identified at this steps of the ACP process. Possible houses howe been identified, some of which are extent and are correctly instgated through ACC procedures. Firstly, accord, depending on the DO is in Vice could control with the interview of the area of the interview of the inte	procedures and training of air turble, controllers, however, these counts be identified at this alog af the ACP process. Practical branch hore been identified, goes of elicitic are experimental and the acro- mental process of the across the across the across the across the across meeting in the potential loss of horizontal or vertical segmentations between aircraft and on increase in controller works. This is an earth and ward count of the across the ACP branch meeting in the potential loss of horizontal or vertical segments between aircraft and on increase in controller works. This is an earth and across the across the across the across the across the across the across the across the across the across the across the second are across an increation and across the across	<ul> <li>procedures and transing of air tells: controllers, however, here control to identified of this stage of the ACP process.</li> <li>Peaklah boards how bean identified, cons of which are extent and are currently mitigated finances of the area of the ACP process.</li> <li>Peaklah boards how bean identified, cons of which are extent and are currently mitigated finances of the ACP process.</li> <li>Peaklah boards how bean identified, cons of which are extent and are currently mitigated finances in controller workload. This is an extent housed and ACP worders.</li> <li>Second, confliction with an area for how area to a currently mitigated finances in controller workload. This is an extent housed and ACP worder how and the area of the ACP worder.</li> <li>Second, manage the ACP cuberies to a structure in control and the current how area of a ACP worder.</li> <li>Second an encourse in controller workload. This is an earth housed and ACP worder distances area on the area of the ACP worder.</li> <li>Second an encourse in controller workload. This are not throad of a ACP worder distance are increased in controll exceeding an entore in a specific of an earth area and ACP worder.</li> <li>Second an area area in control and the vorkload. This is an earth house of ACP worder distance area areas and the the increase in a control and the area with a non-theorem of the Ace of ACP worder.</li> <li>The act and also be unknown or not increase.</li> <li>The act and area be pointed for the increase of a specific and and the pointed and area of the active and the area of the active and the increase of a specific and the increase in a control and the increase of a specific and the increased in an earth and and an ACP more and the increase of a specific and the increase of a specific and the increased and and the active and the increase of a specific and the increased and the increase of a specific and the increase of a specific and the increased and the acontrease of a specific and th</li></ul>	procedures and trusting of air wells; controllers, however, here control to identified at this step of the ACP process. Possible house been binklinkly, asses of helds the sector's and an example, miligited <i>Braity</i> , acroal departing on the SDD be betwork and the sector than and process in controller works. The sector sector sector and an example, miligited mores and incontrol works. The sector sector sector and an example, and process in controller works. The sector sector sector and an incomparison of the sector sector sector sector sector and process in controller works. The sector sector sector sector sector and how the sector sector sector sector sector sector sector sector sector and how the sector sector sector sector sector sector sector sector sector sector between encode an increase in controller workshold. This is an exten haused or ATC has change good control and an increase in controller workshold. This is an exten haused or ATC has change good and in sectors and conducting an intervent Approach Procession (ARL House), influence between incred and an increase in controller workshold. This is an exten haused work pARL MRL House), influence has change good control and the procession with bin Hirt And MRL House), influence that works from the theory of the sector sector sector and the sector sector of the sector of the sector of the sector of the sector sector and the sector sector of the more that work in an increase in ACCO workload. The procession barreness and the more hard works increase in an increase in ACCO workload. 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IDCA         Short previous         FAVOLINALE captor within the design envelops.         ELECTED aption within the design envelops.         option within the design envelops.		' Sunnary of	en it does not provide a sustainable solution in terms of airpace modernization and is unvidela following for encould of the INT DVO baccan, which would have a significant import on capacity and interaction. The airpace of the second solution is a significant interaction of encounter. The airpace of the second solution is an experiment encounter of the second solution is an experiment of the encounter of the second solution is an experiment. The modernized solution is an experiment of the second solution is an experiment of the second solution is an experiment in the second solution is an experiment of the second solution is an experiment of the second solution is an experiment of the second solution is an experiment of the second solution is an experiment of the the XCCS workshold of the IND DVOR is no experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the the XCCS workshold is lably to increase due to the experiment of the XCCS workshold is lably to increase due to the experiment of the XCCS workshold is lably to increase due to the increase due to the XCS workshold is lably to increase due to the increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the XCS workshold is lably to increase due to the	Writers in the following sense Althous types imposed sold Althous types imposed sold Althous types imposed Testablowing are emissions - Testablowing Battue in the following sense - Nations imposed up to 2000H Equil/Instead in times of the remaining arthorize bacetuse there is no change when compared to today's operations of this times, it is not possible to fully distermine the udels y implementation of this querk control with the output of the compared by their model readers of the specific operation. Parable conflicts with mean modes querked by their model readers and engineers in aquind in Stage 3 and 4 and 500 FG (5 possible and due of the stage, Further analysis and angugeness in aquind in Stage 3 and 4 and 500 FG (5 possible and due of the stage further analysis and angugeness in aquind in Stage 3 and 4 and 500 FG (5 possible and due of the stage further analysis and angugeness in aquind in Stage 3 and 4 and 500 FG (5 possible and due of the stage further analysis and angugeness in aquind in Stage 3 and 4 and 500 FG (5 possible and due of the stage further analysis and angugeness in aquind in Stage 3 and 4 and 500 FG (5 possible).	Works in the following proce: 1. Gene imposing type 4,000 1. Gene imposing type 4,000 1. Gene imposing type 5,000 1. Following type 7,000 1. Gene imposing type 7,000 1. Gene imposing type 7,000 1. Gene imposing type 1,000 1. Gene imposing t	Wran in the following anoun- Minimum (and an expected of the second of	Worse in the following areas: 1-Naia Impact gips 4,0001 1-Naia Impact gips 4,0001 Naia Burness 4-4: Gually Bardolinearia In terms of the memory of the second	Wood is the following remain Wood is the following remain Wood is the following remain Fold home Barter is the following remain How is major to the following remain How is many the following remain How is many to the following remain Barter is the following remain How is the following remain Barter is the f
				Road on the IDA Skottar Assessment methodology, Option C1 has been deemed the REECTED option written t design emologie.	FAVOURABLE option within the design envelope.	Based on the ICA Shorthal Assessment methodology, Option O3 has been deemed the EEE/CED option within the design annelape.	Based on the ICA Shorthar Assessment methodology, Option CS has been deemed the <u>EEICTED</u> option within the design envelope.	option within the design envelope.

	809 D W 07
ion 5 but using multiple turns worth with the first turn to the	Option 7 has a 10° southerly affset but with an extended route east initially to help avoid the overflight of major urbin arread. This option commences with a 10° affset from the runway heading possing to the south of Kegworth
worth with the first turn to the ower station and Clifton before r to head in a south westerly uth of the junction between the	which is maintained for an extended distance of 4.2nm. Once past East Leake it makes a 90o left turn to the to the north and runs parallel to the A60 before commencing a second 90o left turn to achieve a
urns possible. The route is	westerly heading and passing just to the south of Long Eaton. The route terminates to the south east of Darby in the vicinity of Boulton Moor. The route does manage but to achieve avoid the overflight of major urban areas but the initial easterly track is extended and the initial two turns have been limited to 190KMS to enable the tightest turns
ecommended that it is age 4 of CAP1616.	track is extended and the initial two turns have been limited to 190KIAS to enable the tightest turns possible. The route is PANS-OPS compliant, but should it become a preferred option them it is recommended that it is assessed for Hybolity or part of the procedure validation process whin Stage 4
	recommended that it is assessed for tlyability as part of the procedure validation process within Stage 4 of CAP1616.
	Runwsy 09
ouseholds with an approximate	Up to 4,000ft, this option is estimated to overfly approximately 700 households with an approximate population of 1,300. Taking account of 3,750 planned property developments, this option is estimated
evelopments, this option is ial noise impact on health and an the 'do nothing' scenario.	to overfly and impact a total population of 8,300. The potential noise impact on health and quality of life up to 4,000ft is assessed as likely to affect fewer people than the 'do pothing' scenario.
ouseholds with an approximate ints, this option is estimated to act on health and quality of life	Up to 7,000ft, fhis option is estimated to overfly approximately 23,750 households with an approximate population of 43,800. Taking account of 700 planned property developments, this option is estimated to overfly and impact a total population of 45.100. The optionation locies impact on health and availity of
'do nothing' scenario.	to overfly and impact a total population of 45,100. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.
below 1,000 feet, the location para B72 a full Air Quality	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required.
nario, this option is deemed to	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overflies the same number of AQMAs.
An element of radar vectoring milence of this option is 40.69	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 40.42
An element of radar vectoring nileage of this option is 40.69 on is longer and is therefore d to the 'do nothing' scenario, s will take place at Stage 3 to	km (21.82 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environment dischandit Mare inderet modules will lake place at Sone 3 to
eased.	und is deemed to be or environmenta as-benear. Avoir in-tagent environs will date place or slogers to confirm the exact volumes of greenhouse gases released.
sing airspace capacity which (both in the air and on the gational aids will significantly	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly
gational aids will significantly on of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.
Bs or National Parks), nor any o the 'do nothing' scenario and	This option overflies no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.
tific Interest (SSSIs), Special SAR sites, as identified on the use of dispersion and mixing,	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSid), Special Protection Areas (SPA), Special Areas of Conservation (SAC) and RAVASR sites, as identified on the DBFRA.MAG(C Mop. CAP1616, Appendix B, pare RRAY, statist the backness of dispersion and maing, there is unlikely to be an impact on local air quality from aircraft above 1,000th. Furthermore,
ove 1,000ft. Furthermore, ge proposal will not have an	but An index index, over to is, pagentiate as part of any, sums intra buttows to dispersion runn image, there is unitially to be an impact on local air quality from aircraft above 1,000F. Furthermore, CAP1616, Appendix B, para BB0, states that in general, arrapose change proposal will not have an impact on biodivensity as they do not involve ground-based infrastructure. However, the change spontor
. However, the change sponsor MA will be assessed in Stage 3 s.	impact on biodiversity as they do not involve ground-based intrastructure. However, the change spontor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.
annone of the ACR ANNO -	Inspect to Gassian Juliation prozes is politicisted to be instand a second s
equence of this ACP. All Visual eral Aviation access will be usure their continued validity.	
ments will be reviewed as part	Airspace dessification requirements and any additional inspace requirements will be reviewed as part of Stoge 3 activities.
ace capacity which in turn will or on the ground). This is	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more pradictable flight paths and Sever delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport
r or on the ground). This is frequency of air transport go tonnage carried.	expected to tocilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tannage carried.
nount of fuel burnt. There is no irm, this will be conducted in e shorter the track length, the	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1016 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the
I long. When compared to the that it will be of economic dis- ad out in Stage 3 to confirm.	and/g 3. Interesting, to ensuble a constraint of the optimal is a final annual that an under the interest weight, the less fuel is burn. With regards to this option, it is 0.41 z km (21.82 nm) long, when compared to the do nothing' accentric, this option is longer and at this stage, it is assumed that it will be of economic dis- benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stoge 3 to confirm.
erege o no colliniti.	and a source of any source we we we wanted out in angle a to contribute.
ble pilots to fly the new PBN	It is notificated that no extra nilat/year training will be sourced to sould a during it. And
rd across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
inagement Systems (FMS), sts versus training etc. It is not o commercial airlines of flying	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other cost' to commercial airlines of Bying PBN procedures.
to the implementation of PBN educes the reliance on ground no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.
tion of new procedures and identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff of EMA: however, these cannot be identified at this stage of the
	training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.
tation of the new departure be identified at this stage of the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
e curreefy milianted down	Possible hazards have been identified, some of which are extant and are currently miligated through
e currently mitigated through als from the north resulting in	ATC procedures. Firstly, aircraft departing on the SID to the West could conflict with arrivals from the north resulting in
als from the north resulting in and an increase in controller tuation tactically to maintain	the potential loss of horizontal or vertical separation between aircraft and an increase in controller workload. This is an estant hazard and ATC would manage the ATC situation tactically to maintain concentrate at concentration.
Procedure (IAP)to Runway 09 ation between aircraft and an Id manage the ATC situation	Secondly, confliction with an aircraft conducting an Instrument Approach Procedure (IAP) to Runway 09 could occur resulting in the potential lass of horizontal or vertical separation between aircraft and an increases in controller workload. This is an extent harved and ATC would memore the ATC situation.
the LUVUM SID. ATC tactical o mitigate this. The change lateral meetings to ensure that	tactically to maintain separation if required. Aircraft departing on the SID could conflict with aircraft departing BHX on the LUVUM SID. ATC tactical intervention or IFP design parameters may be required to be applied to miligate this. The change sponsor is maintaining close laison with both BHX and NERL through tridated meetings to ensure that
(i.e., above 7,000tt) that could en aircraft that would result in intain close liaison with NERL equirements are met.	result in the potential loss of horizontal and/or vertical separation between aircraft that would result in an increase in ATCO workload. The sparsor would be required to maintain close linison with NFR
equirements are met. traffic operating from Derby ng that the departing traffic are FAS.	through bilateral meetings to ensure that network connectivity requirements are met. Finally, there is the potential for confliction with GA traffic due to GA traffic operating from Derby Articlel possibly infringing CAS. This would be mitigated through neuroing that the departing traffic are at altitudes where the SID terminates above CTAS.
IAD. nd a further assessment will be act nature of all hazards and	at altitudes where the SID terminates above C.1A3. These hazards will be further be mitigated through the design process and a further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.
	minipations. When compared to the 'do nothing' scenario, this option performs:
	Worse in the following areas: - Greenhause ans emissions
	- Greenhouse gas emissions - Fuel burn Better in the following areas:
	Better in the following areas: - Naise impact up to 4,000th - Naise impact up to 7,000th
ge when compared to today's	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
his specific option. Possible been identified, but the exact	At this time, it is not possible to fully determine the softety implications of this specific option. Possible conflicts with some routes operated by other routes/nearby airports have been identified, but the exact
agement is required in Stage 3 In has been assessed as in	nature of these conflicts is unclear at this stage. Further analysis and engagement is required in Stage 3 and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in
unway pair. Additional option when compared to all	isolation rather than as a set of design options as part of a wider system/rumway pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to all the other options.
en deemed the ACCEPTABLE	Based on the IOA Shortlist Assessment methodology, Option O7 has been deemed the PREFERED option within the disign envelope.

		MAG EMA AC	P - INITIAL OPTIONS APPRAISAL - FULL	ANALYSIS TABLE			
Departure Env	velope: SID Runway	09 East	'DO NOTHING' BASELINE	R09 D.E.O1	R09_D_E_03	SID 09 EAST R09_D_E_O4	809 D E O5
			For the east design envelope, the 'do nothing' scenario for departures in terms of today's operation is based around the existing conventional DAVENTRY SID. The 'do nothing' scenario for departures consists of a	Option 1 proceeds straight ahead after take-off with no offset before making two right-hand turns to head east. The route follows a runway heading for 1.4nm before initiating a 90° right turn to the north	Option 3 proceeds straight ahead after take-off with no offset before making two right-hand turns to head east. It is similar to Option 1 but terminates slightly further north. The roote follows a rurway heading for 1.4mm before initiating a 90o right turn to the north just to the north	Option 4 differs to the majority of options in that it is a RNP1 departure using RF turns, rather than RNAV1 with By-by waypoints. It was created to offer an alternative option to see if an RF turn could minimise the impact of noise on Derby. If proceeds straight ahead after take-off with no offset, and then makes a single	Option 5 is a tight RNAVI inght-hand wrap-around with no offset, which has been created to see if a combination of RNAVI surres could minimise the impact of noise an Darby. This is achieved by applying a 200KJAS speed restriction to achieve tighter turns than if the CAP 778 recommended 210KJAS was to be
			modal track that has been derived to provide an accurate representation of what occurs today. In addition to the modal track, a polygon has also been created that represents an area where current operations are	just to the north-east of Melibourne. The option then routes over south east Derby before commaning a second right turn to achieve an east-south east heading, terminating just to the east of Roudington on the southern edge of Nattingham.	east of Melbourne. The option then routes over south east Derby before commencing a second right turn to achieve an east-south east heading, terminating just to the south of Ruddington. The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed	right turn to head east. The initial departure is along the extended runway centreline for 1 nm prior to commencing a 180° RF turn to achieve an east heading. This minimises the overflight of south east Derby and the route then continues east	applied. The route follows a runway heading for 1.4nm before initiating a 90° right turn to the north, restricted to 200KUAS, to achieve a northerly heading. A second 90° turn, also restricted to 200KUAS, commences just as
			dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this SID was based on the modal track created using Noise and Track Keeping data at altitudes of	The route has a constant climb gradient of 6%, terminating at 7,000ft and the CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	of 210 KIAS has been applied to the first turn.	with a small right turn to the north of Long Eaton to terminate to the east of Ruddington. The route has a constant climb gradient of 6%, terminating at 7,000H and the CAP 778 recommended speed of 210 KKS has been applied to the list turn.	the route crosses the ASO south of Derby and results in a direct track east over Long Eaton and Ruddington to terminate south east of Nottingham. The 200KRAS turns are PANS-COPS compliant but should this become a preferred option then it should be
			4,000ft and 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the Deporture End of Bureau to the end of the modal track olds the				assessed for flyability as part of the procedure validation process within Stage 4 of CAP1616.
			distance from the end of the modal track to the common point.				
Group Communities	Impact Noise impact on health and	Level of Analysis Initial Options Appraisal:	Runway 09	Rumay O9	Runway 09	Runway 09	Rumay 09
	quality of life	Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario was				
			based upon the existing DAVENTRY SID. In terms of potential noise impact, initial quantitative analysis has identified that:	Up to 4,000ff, this option is estimated to overfly approximately 1,750 households with an			
			<ul> <li>Up to 4,000 ft, this 'do nothing' scenario is estimated to overfly approximately 750 households with an approximate population of 1.800. Taking account of 650 planned property</li> </ul>	approximate population of 3,400. Taking account of 50 planned property developments, this option is estimated to overfly and impact a total population of 3,500. The potential noise impact on health and quality of like up to 4,000ft is assessed as likely to affect more	Up to 4,000ft; this option is estimated to overfly approximately 750 households with an approximate population of 1,500. Taking account of 350 planad property developments, this option is estimated to overfly and impact a total population of 2,200. The potential noise impact on health and quality of life up to	Up to 4,000ft; this option is estimated to overify approximately 800 households with an approximate population of 1,600. Taking account of 100 planned property developments, this option is estimated to overify and impact a total population of 1,800. The potential noise impact on health and quality of life up to	Up to 4,000ft, this option is estimated to overfly approximately 750 households with an approximate population of 1,500. Taking account of 50 planned property developments, this option is estimated to overfly and impact a total population of 1,600. The potential noise impact on health and quality of life up to 4,000ft
			developments, this option is estimated to overfly and impact a total population of 3,400.	people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 2,700 households with an approximate population of 5,200. Taking account of 50 planned property developments,	4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 1,800 households with an approximate population of 3,400. Taking account of 50 planned property developments, this option is estimated to overfly	4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. Up to 7,000ft, this option is estimated to overfly approximately 1,850 households with an approximate population of 3,500. Taking account of 100 plannad properly developments, this option is estimated to	is assessed as likely to affect fewer people than the 'do nothing' comaria. Up to 7,000t, this option is estimated to overfly approximately 1,850 households with an approximate population of 3,500. Taking account of 50 planned property developments, this option is estimated to overfly
			is estimated to overfly approximately 10,450 households with an approximate population of 19,400. Taking account of 1,400 planned	this option is estimated to overfly and impact a total population of 5,300. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	and impact a total population of 3,700. The potential noise impact on health and quality of life up to 7,000th is assessed as likely to affect fewer people than the 'do nothing' scenario.	t overfly and impact a total population of 3,700. The potential noise impact on health and quality of life up to 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	and impact a total population of 3,600. The potential noise impact on health and quality of life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.
			property developments, this option is estimated to overfly and impact a total population of 22,000.	peoples men me ou norming accounts.			
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions.				
			The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity of the Departure End of	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not 2: within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quality Assessment is designed not required.	Athough there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality Assessment is deemed not required.
			Runway. In terms of AQMAs, the existing Runway 27 DAVENTRY SID overflies one AQMAs when the aircraft is above 1,000ft.	This option overfiles no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer AQMAs.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative					
			Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring, although aircraft do all follow the extant				
			procedures in a broader sense. The existing procedures do not support	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage o this option is 8.8.3 km (20.80 nm). When compared to the 'do nothing' scanario, his option		This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39.55 km (21.36	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39.96 km (21.58
			environmental impact compared to proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative emissions analysis. This will be	is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environmental benefit. More it depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	mir set Nepreneran methoding the inclusion constraints in the lack method provided in the optimizer and right methods in result in mill. When compared to the ido nothing's scenario, this option is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the ido nothing's scenario, and is deemed to be of environment) benefit. More in-depth analysis will take place and Stoge 31 to confirm the exact volumes of	nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environment benefit. More in-depth analysis will take place at Stage 3 to contine the exect volumes of	nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a decrease in greenhouse gas emissions compared to the 'do nothing' scenario, and is deemed to be of environment benefit. More in-depth analysis will lake place at Stage 3 to confirm the exact volumes of
			covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline	aepth anaysis will take place at stage 3 to confirm the exact volumes of greenhouse gases released.	greenhouse gases released.	greenhouse gases released.	greenhouse gases released.
			scenario, the track length to the common point is 42.31km (22.85nm).				
Wider Society	Capacity and resilience	Initial Options Appraisal:					
,		Qualitative	Maintaining extant procedures would maintain current capacity; however,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which
			due to the reliance upon around-based navigational aids, resilience could	The important of Far forms is expected to derive benefits by inclusing anyone capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The initialization or ray robus is adjustant of outward events or photosting anapose captury witch sobsequently both on more predicable flight patient and fewer delays, both in the air and on the ground). The reduction of the reliance on autidated ground based navigational aids will significantly increase operational realinear through the introduction of PRN.	The initialization rar robusts is applicate to bearding unique comparison of the testing unique comparison with the babaquerity leads to more predictable flight patient of fewer delays (both in the circu and on the ground). The reduction of the reliance on outdated ground based nonigational aids will significantly increase operational realiance through the introduction of PRN.	The initialization is any robust is applicate to assist any determine by threading unspace down, which is ablaquently leads to more predicable light patient and fewer debys (both in the air and on the ground). The reduction of the reliance on outdated ground based novigational aids will significantly increase operational resultance through the introduction of PRN.
				me agreement wherease operational resilience mrough the introduction of PBN.	normence introduction of PBN.	Residence introduction of PBN.	Normaling introduction of PBY.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks				
			only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	This option overfiles no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and
			engagement. The 'do nothing' scenario overflies no tranquility receptors (AONBs or National Parks).	the 'do nothing' scenario and assessed as neutral.	assessed as neutral.	assessad as neutral.	assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative					
			The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs),			
			Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality	Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because	EThe change sponsor has mapped the designated Stiks of Special Scientific Interest (SSSI), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be
			from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure.	above 1,000ft. Furthermore, CAP1616, Appendix B, para 880, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor achowledges that any potential	an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Äppendix B, para B80, states from a general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any obtential impact st	an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Äppendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact st	on impact on local air quality from aircraft above 1,000th. Furthermore, CAP1616, Äppendix B, para B80, states that in general, airspace change proposal will not have an impact on biodivesity as they do not involve ground-based infrastructure. However, the change sponsor achnowledges that any potential impact to
			However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	ground-based intrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EVA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	involve ground-based intrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	Involve ground-based intrastructure. However, me change sporeor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	Involve ground-based intrastructure. However, the change sponsor accoverages that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.
			process by Subject Matter Experts.				
General Aviation	Access	Initial Options Appraisal: Qualitative					
			No change to existing airspace arrangements. Any General Aviation users	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual
			of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.		padated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	indicated to that and teaching beams or regionements on the mean of the second relation of the second secon
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative					
			No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PBN is expected to deliver benefits by increasing airspace copocity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to Sociliste economic benefit by potentially increasing the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movement, increasing on the second seco	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or an the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movement, increasing the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing
			россавоча, начало но ассление занаш во случиния.	frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	passenger numbers and increasing cargo tannage carried.	possenger numbers and increasing cargo tonnage carried.	possenger numbers and increasing cargo tornage carried.
General Aviation /	Fuel burn	Initial Options Appraisal: Qualitative					
commercial airlines		Qualitative					
			The existing EMA procedures for departures do not enable continuous climb operations.	This option supports continuous climb operations, reducing the overall amount of fuel burnt	This option supports continuous dimb operations, reducing the overall amount of fuel burnt. There is no	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no	This option supports continuous climb operations, reducing the overall amount of fuel burnt. There is no
			Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track	There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 38.53 km	requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 38,93 km (21.02 nm) long. When compared to the id on holing' scenario,	requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, not enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 39.55 km (C1.36 nm) long. When compared to the lon othing iscenario,	requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 39 A6 km (21.58 nm) long. When compared to the ido nothing iscancia,
			mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length to the common point is 42.31km (22.85nm).	[20.80 nm] long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in- depth analysis will be carried out in Stage 3 to confirm.	this option is shorter and at this stage, it is assumed that it will be of economic benefit as less wel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this option is shorter and at this stage, it is assumed that if will be of economic benefits as fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
			,				
Commercial airlines	Training costs	Initial Options Appraisal:					
		Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining	Other costs to commercial airlines may include updates to Flight Management Systems	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation
			legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	(FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	Other case in Commission and the second plants in any include diplatities or ingin variagement systems (resp. intergation) databases and operating proceedures, increased pilot hire casts versus training etc. It is not propositionate at this stage of the ACP for EMA to assess the 'other casts' to commercial airlines of thying PBN procedures.	Other case and operating proceedings, increased pilotises or right warrughteen systems (may, invegation) dotabases and operating proceedings, increased pilot hire costs versus training etc. It is not propositionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of thying PBN procedures.	Online case and operating proceedures, increased plot hite cases were straining etc. It is not propositionate at this stage of the ACP for EMA to assess the 'other casts' to commercial airlines of flying PBN procedures.
Airport / Air navigation service	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extract	There are no expected additional infrastructure costs. All options relate to the			
provider			conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior	There are no expected additional intrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer meded.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer medied.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based novigation aids are no longer needed.
Airport / Air	Operational costs	Initial Options Appraisal:	to the proposed removal date.	aids are no longer needed.			
navigation service provider		Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EAA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these connot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
provider Safety Assessment	Safety Assessment	Initial Options Appraisal:	· · · · · · · · · · · · · · · · · · ·	identified at this stage of the ACP process.	and any or on wome company, sowerse, make company or reentitied of this stage of the ACP process.	and uniting or on wome community, nowever, make curring or ineentied of this stage of the ACP process.	
		Qualitative		Possible hazards have been identified, some of which are extant and are currently mitigated through existing ATC procedures. Firstly, aircraft departing may conflict with an aircraft conducting the EMA lost	Possible hazards have been identified, some of which are extant and are currently mitigated through existing ATC procedures.	Possible hazards have been identified, some of which are extant and are currently mitigated through existing ATC procedures.	Possible hazards have been identified, some of which are estant and are currently mitigated through existing ATC procedures.
			The 'do nothing' scenario assumes that current operations at EMA are safe	communications proceeding they control min or and a factor of a factor of the control of the con	Firstly, aircraft departing may conflict with an aircraft conducting the EMA last communications procedure. This is an extant hazard and ATC would manage the ATC situation tactically at this point allowing priority to the american aircraft.	Firstly, aircraft departing may conflict with an aircraft conducting the EMA lost communications procedure. This is an extant hazard and ATC would manage the ATC situation tractically at this point allowing priority to the emeraneous aircraft.	Firstly, aircraft departing may conflict with an aircraft conducting the EMA lost communications procedure. This is an extent hazard and ATC would manage the ATC situation tectically at this point allowing priority to the emergency aircraft.
			including use of the extant conventional procedures. Following the removal of ground-based navigational aids supporting the existing SID, aircraft departine ENA would continuously reautire radar vectoring (should	or GA aircraft (including Langar parachutes) in Class G airspace, both of which can be mitigated through the design process and potential additional CAS requirements that are	Secondly, it was identified that the options within this envelope may conflict with military and or GA aircraft (includion langar parachutes) in Class G airspace, both of which can be mitigated through the design	Secondly, it was identified that the options within this envelope may conflict with military and or GA aircraft (including Langar parachutes) in Class G aircraft	Secondly, it was identified that the options within this envelope may conflict with military and or GA aircraft (including Langar parachutes) in Class G aircraft of which can be mitigated through the design
			CAP1781 or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	being investigated by NERL. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000th). This could result in an increase in ATCO workload to ensure that horizontal	process and potential additional CAS requirements froit are being investigated by NERL. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000F). This could result in an increase in ATCO workload to ensure that horizontal and/or vertical separation is maintained	process and potential additional CAS requirements that are being investigated by NERL. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000th). This could result in an increase in ATCC overfload to ensure that horizontal and/or vertical separation is maintained	process and potential additional CAS requirements that are being investigated by NERL. Finally, there could be unknown or no interaction possible with the network (i.e., above 7,000f). This could result in an increase in ATCCD workload to ensure that horizontal and/or vertical separation is maintained
				and/or vertical separation is maintained and avoid potential loss of separation between aircraft. The sponsor would be required to maintain close liaison with NERL through bilidateral meetinas to ensure that network connectivity requirements are met.	and avoid potential loss of separation between aircraft. The sponsor would be required to maintain close liaison with NERL through bildeteal meetings to ensure that network connectivity requirements are met. Further assessment will be conducted at Staces 3 and 4 of the CAP1616 process to confirm the exact nature	and avoid potential loss of separation between aircraft. The sponsor would be required to maintain close liaison with NERL through bilateral meetings to ensure than network connectivity requirements are met. Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exoct nature of all hazards and mitigations.	and avoid potential loss of separation between aircraft. The sponsor would be required to maintain close liaison with NERk through bildeteral meetings to ensure that network connectivity requirements are met. Further assessment will be conducted at Staces 3 and 4 of the CAP1616 process to confirm the exact nature
				Further assessment will be conducted at Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	of all hazards and mitigations.		of all hazards and mitigations.
		Summary of Analysis	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation and is unviable following the removal of the DTY DVOR	When compared to the ido nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:
			beacon, which would have a significant impact on capacity and resilience. The existing SID does not enable continuous climb operations to 7.000th.	Worse in the following areas: - Noise impact up to 4,000ft	- Noise impact up to 4,000ft - Noise impact up to 7,000ft	Noise impact up to 4,000th     Noise impact up to 7,000th	Noise impact up to 4,000ft     Noise impact up to 7,000ft
			which leads to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change	Better in the following areas: - Noise impact up to 7,000th - Greenhouse gas emissions	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality
			to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. Following the removal of the DTY DVOR, it is acknowledged that the ATCOs workload is likely to increase due to the	- Fuel burn - Air Quality	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
			it is acknowledged that the ATCOs workload is likely to increase due to the enduring requirement for radar vectoring.	to today's operation.	' At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	" At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	." At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional
				At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616	used to statute a solution (now that a bit of could be approximate as part or a work specific realization analysis will be required in Stage 3 and 4 of the CAP(616 process to determine the cumulative impact of this option when compared to all the other options.	used transition in actuality (them that do a bit of carding) operators around the symmetric transitional canalysis will be required in Stage 3 and 4 of the CAP(16) for process to determine the cumulative impact of this option when compared to all the other options.	see it associates in required in Stagle 3 and 4 of the CAP (of 6 process to determine the cumulative impact of this caption when compared to all the other options.
				on a water spatiet. Additional diridysis will be required in addge 3 and 4 of the OFF of a process to determine the cumulative impact of this option when compared to all the other options.			
			IOA Shortlist Assessment	Based on the IDA Shortlat Assessment methodology, Option O1 has been deeped the	Based on the IOA Shortlist Assessment methodology, Option O3 has been deemed the ACCEPTABLE option	Based on the IOA Shortlist Assessment methodology, Option O4 has been deemed the FAVOURABLE option	Based on the IOA Shortlat Assessment methodology, Option OS has been deemed the PREFERRED option
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	REJECTED option within the design envelope.	within the design envelope.	within the design envelope.	within the design envelope.

		MAG EMA	ACP - INITIAL OPTIONS APPRAISAL	- FULL ANALYSIS TABLE							
Departure En	elope: SID Runwe	y 09 South	DO NOTHINO' BASELINE			MAR / OA		SID 07 SOUTH			
			TO NOTHING' BASELINE For the south design envelope, the 'do nothing' scenario for deporture in terms of today's operation is based around the existing convention	ROP D.S.C.1 s. This is an RNAV re-creation of the current DTY 4F SID with a southerly offset but with an initial turn at cil. Tim bayord the DER which is earlier than the current route.	Coption TA is an RNAV 1 replication of the current Daverby 4P SID with a southerly offset included as "do minimum" option. An initial 7 <sup>1</sup> southerly offset leads to the first turn which commences in the sam	a Chatro J passade analysis shared and the Section Section and commercian the single right turn tare with the Section Castler and commercian the single right turn tare of Lingshorms, the Castle The Castler and the Castle The Castler and the Castle The Castler and the	(b) Control of the existing Bookmann Park (BK 27) departure that has a 10° southerly oth Option 6 is a replication of the existing Bookmann Park (BK 27) departure that has a 10° southerly offset, and which has been included as a "do minimum" option that also avoids large built up areas.	EDP.D.3.CB Option 8 has a 10° southely offset and follows the early part of the current 8PK 2P departure but turn south wett earlier to roote north of Leicester.	ROP D. S. C10     ms     Option 10 has been created to provide a field efficient route to the south west.     The route proceeds straight alwad after take-off and overfliss the confiser edge of Keyworth with no	ROP. D. S. O13 Option 13 proceeds straight alward with no offset for approximately 2.5 nm beyond the DER before making the first turn. This is greater than the existing SID and this extended eastedy track allows the	ROP D S D14     ROP D S D
			For the source of the singuport on the source of the sour	In an an IRMV evention of the coursel DT 47-150 white accurding durat but with an initial time at a limit limit level of the limit level of the limit level of the limit limit limit limit limit limit limit li	Capitor 1.4 in the BWU implication of the control Density of 250 miles anotherly dual included as difficult and the second of the control Density of 250 miles a montherly dual included as difficult and the castra (250, 250, 250, 250, 250, 250, 250, 250,	<ul> <li>et Loughborough.</li> <li>The note overflue the southern edge of Kegworth, before turning right and passing between Suttan</li> <li>Bonington and East Leake before souting over the western edge of Loughborough and terminating nor</li> </ul>	The initial 10" other to the south neutrins in the rooke, passing south of Kegworth with the tint turn to th south east made at 1.7mm beyond the DER, thereby passing to the north east of Loughborough and rh. Spaton. It then turns south and terminates to the east of Leicenter, close to Houghton on the Hill.	The initial IU' offset to the south results in the roote, passing south of Keyworth with the tint turn to the touth east made at 1.7mm beyond the DER, passing to the north east of Loughborough. It then make second turn onto a south wait heading routing south east of Loughborough and passing between	Type In D Pata bian could be provide to be defined mode to be such wait If Separath with no be defined and concernes a first 90 might have to be such as the such wait If Separath with no be defined and concernes a first 90 might have to be such as the such as t	) poste to pass to the east and soch east of Loughborough; rather than overlying it. After departure the route overlike the sochem edge of Kegevarh before making its finit right turn close to West Leake onto a socherly heading. A second turn takes the route soch east of Loughborough as	Copier 14 manageneity to vehiculate devices to use for manageneity to vehicular to device the second
			polygon has also been created that represents an area where current aperations are dispensed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on thi	t As a replicated route it follows a similar track over the ground as the current route, turning right other departure to route east of Loughborough, before turning right to the south west and terminating in the is vicinity of Mallony Park, west of Laicester.	departure to route east of Loughborough, before turning right to the south west and terminating in the vicinity of Mallony Park, west of Leicenter. The CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	<ul> <li>Bonington and East Lacks before outing over the western edge of Looghborough and terminating nor of Hinckley meer Mallory Park.</li> <li>The CAP 778 recommended speed of 210 KIAS has been applied to the first turn.</li> </ul>		Leicenter and Coshville and terminating north east of Market Bawarth. The CAP 778 recommended speed of 210 KAS has been applied to the first turn.	The CAP 778 recommended speed of 210 KIAS has been applied to the first turn.	isouth of Coalville to terminate clase to Nalistone. The first turn takes place when the aircraft is above 3,000ft and has therefore been designed to be flow at 250 KMS as per the recommendation in <i>CAP</i> 778.	a bases for the Soviety and Eal tack before soring over the weeken edge of Locybborough and winnising on of Harland Janko Jankon soring over the weeken edge of Locybborough and winnising on of Harland Jankon Jankon and Locybborough and Jankon Jank
			SID was based on the modal track created using Noise and Track Keeping data at altitudes of 4,000H and 7,000H with the addition of radar vectoring area where appropriate. The track length has been	The CAP 778 recommended speed of 210 KIAS has been applied to the first turn. If a							
			calculated on the distance from the Departure End of Runway to the end of the modal track plus the distance from the end of the modal track to the common point								
Group Communifies	Inpoc Noise impact on health an	Level of Anolysis Initial Options Appraisal:	Burning 09	Rutesty 09	Rotary 09	Renacy 09	Bernedy 09	Butway 09	Rutway 09	Rutmery 09	Researcy 07 Runney 07
	quality of life	Qualitative	For comparison purposes within the IOA, the 'do nothing' scenario ve based upon the existing DAVENTRY SID.	a1							
			lassia upon me exerting DAVENTIR 3D. In terms of potential noise impact, initial quantitative analysis has identified that: - Us to 4.000 ft. this 'do nothing' scenario	Up to 4,000H, this option is estimated to overfly approximately 2,950 households with an approximate	Up to 4,000%, this option is estimated to overfly approximately 3,900 households with an approxim	nate Up to 4,000%, this option is estimated to overfly approximately 4,750 households with an approxima	ate Up to 4,0008; this option is estimated to overfly approximately 600 households with an approximately 600 households.	B Up to 4,0008, this option is estimated to overfly approximately 2,000 households with an approximately	nate Up to 4,000%, this option is estimated to overfly approximately 6,000 households with an approximate	Up to 4,000R, this option is estimated to overfly approximately 2,750 households with an approxima	If Up to 4,000H, this option is estimated to overfly approximately 4,200 households with an approximate Up to 4,000H, this option is estimated to overfly approximately 1,950 households with an approximately 1,950 households with 1,950 hous
			<ul> <li>up to 4,000 m, mix do noming scenario is estimated to overly approximately 750 households with an approximate population of 1,800. Taking account of 650 planned property developments, this option is estimated to overly and impact</li> </ul>	population of 5,400. Taking account of 1,100 planned property developments, this option is estimates to overify and impact a total population of 2,400. The potential noise impact on health and quality of life up to 4,000 it is assessed as likely to affect more people than the 'do nothing' accentio. Up to 7,000 it, this option is estimated to overify approximately 7,000 households with an approximate	I population of 7,300. Taking account of 650 planned property developments, this option is estimate overly and impact a total population of 8,500. The patential noise impact on health and quality of up to 4,000 hi accessed as likely to official more secole than the ido nathinal scenario.	d to population of 9,600. Taking account of 1,150 planeed property developments, this option is estimat life to overfly and impact a total population of 11,900. The potential noise impact on health and quality life up to 4,000 ki is assessed as lifewith o affect more secole than the 'do nothina' servaria.	ted population of 1,100. Taking account of 1,900 planned property developments, this option is estimat y of to averify and impact a total population of 4,600. The potential noise impact on health and quality life us to 4,000 kin a conservat and likely to affect more secole than the 'do nothina' scenario.	ted population of 3,900. Taking account of 1,700 planned property developments, this option is estimate to overfly and impact a total population of 7,200. The potential noise impact on health and quality life us to 4,000M is accessed as lider to affect more secole than the 'do nothina' scenario.	and population of 17,900. Taking account of 1,400 planned property developments, this option is y of astimated to overfly and impact a total population of 22,100. The potential noise impact on health an availity of life was to 4,000 his assessed as likely to offect more assessed fram the 'do nothing' assession.	population of 5,600. Taking account of 1,400 planned property developments, this option is estimate to overfly and impact a total population of 8,400. The patential noise impact on health and quality of life use to 4.000 fit assessed as likely to offect more seader fram the 'do nothing' accession.	d population of 8,400. Taking account of 550 planned property developments, this option is withmated to population of 3,900. Taking account of 800 planned property developments, this option is withmated 8 overlip nord impact a total population of 5,500. The potential main pract an health and quality of 11 us to 4,000 hit is assessed as likely to decit man accelet from this do notify accention.
			total population of 3,400. - Up to 7,000 ft; this 'do nothing' scenario	<sup>10</sup> Up to 7,000H, this option is estimated to overfly approximately 7,050 households with an approximate population of 12,900. Taking account of 650 planned property development, this option is estimated to overfly and impact a total acoustion of 14,000. The optimiter is abeath and auditor of the overfly and impact a total acoustion of 14,000.	<ul> <li>Up to 7,000%, this option is estimated to overfly approximately 7,800 households with an approxim population of 14,500. Taking account of 650 planned property developments, this option is estimat to overfly and impact a total acoulation or 15,700. The contential onices impact on health and available.</li> </ul>	sate Up to 7,000%, this option is estimated to overly approximately 7,600 households with an approximated population of 14,600. Taking account of 700 planned property developments, this option is assimpt v of to overly and instant or tabla population of 16,000. The orbitration table instant and suality v.	ate Up to 7,000h, this option is estimated to overly approximately 5,850 households with an approximately 5,850 households with an approximated population of 11,500. Taking account of 2000 planned property developments, this option is estimated to overly and impact a total population of 12,100. The optimated notes impact on health and availity	Up to 7,0009, this option is estimated to overly approximately 7,400 households with an approximately 7,400 households with an approximate property developments, this option is estimated to overly for and impact a total acquidement of 15,300. The optential noise impact on beach and would be accessed as the acquired overlap of 15,300.	Tate Up to 7,000%, this option is estimated to overfly approximately 8,000 households with an approximated population of 21,800. Taking account of 200 planned property developments, this option is estimate to overfly and insect or total population of 22,300. The other site ancies impact on health and audit via for overfly and insect or total population of 22,300.	Up to 7,000%, this option is estimated to overfly approximately 6,350 households with an approximately population of 12,200. Taking account of 1,000 planned property developments, this option is 6 estimated to overfly and impact to total acoustation of 14.100. The acceleration account on bedfine 3.	a b 4.00% to uptus a stimute to avoid sparameter 4.200 standals of an arguments of a 400 km standals of a strangeness of a
			is estimated to overly approximately 10,450 households with an approximate population of 19,400. Taking account of 1,400 planes property developments, this option is estimated to overly and impact total population of 22,000.	ed to to	life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.	" If up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario.	Ife up to 7,000R is assessed as likely to affect fewer people than the ido nothing'scenario.	life up to 7,000H is assessed as likely to affect ferver people than the 'do nothing' scenario.	Infe up to 7,000H is assessed as likely to affect more people than the 'do nothing' scenaria.	quality of life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenario	life up to 7,000H is assessed as likely to affect fewer people than the 'do nothing' scenaria. '
			tera population er 22,000.								
Communities	Air Quality	Initial Options Appraisal: Qualitative									
			No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overlight above 1,000h, other than the areas in the immediate vicinity of the Departure Ford of Remove.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AQMA and as per CAP1616, page 872 a full Air Quality	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the locat is not within the vicinity of a designated AQMA and as per CAP1616, pans B72 a full Ar Quality	tion Although there is likely to be a change in aviation emissions by location below 1,000 feet, the locativ is not within the vicinity of a designated AQMA and as per CAP1616, para B72 a full Air Quality	ion Although fhere is likely to be a change in aviation emissions by location below 1,000 feet, the locati is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Air Quality	on Although there is likely to be a charge in aviation emissions by location below 1,000 feet, the locati is not within the vicinity of a designated AQMA and as per CAP1616, para 672 a full Air Quality	ation. Although there is likely to be a change in aviation emissions by location below 1,000 feet, the location is not within the vicinity of a designated AGMA and as per CAP1616, pore 872 a full Air Quality.	Although there is likely to be a change in aviation emissions by location below 1,000 feet, the locatio is not within the vicinity of a designated AQMA and as per CAP1616, para 872 a full Ar Quality.	Although there is likely to be a change in oxidation emissions by location below 1,000 feet, the location is not writin the vicinity of a change in aviation emissions by location below 1,000 feet, the location is not writin the vicinity of a designeded AGMA and as per CAP1616, pane 872 a full Air Caudity
			Departure Field of Rumway, In terms of AQMAs, the existing Rumway 27 DAVENTRY SID overfile one AQMAs when the aircraft is above 1,000ft.	Although them is likely to be a change in orienten emissions by location below 1,000 best, the location is not within the scienty of a designated AGMA and as per CAP1616, pore E72 is UR Accolly and the science of the	Although there is likely to be a change in outdron emissions by location below 1,000 feet, the locat is not within the visibly of a designated AGMA and as per CAP1616, pane B72 of kill Ar Quality This option overflies are AQAAA. When compared to the bio rading'i constrol, this option is deemse be required as it ourthers the same same of AQAAA.	Although flame is liady to be a change in aviation emissions by location below 1,000 feet, fina locati is not within the vicinity of a designated AQNA and as per CAP1616, pose BF2 a full Ar CAu3hy Anazament is desmarked to required. I has option owellas one AQNA. When compared to the tion onlying supervise functional to embed at AQNAs.	600 Although frame is liality to be a charge in evidence amininous by location below 1,000 feet, the location within the vicitity of a designated AQMA and as per CAP16 16, pore 10°2 of tol X+ CAuchty and the second second second of the second second second of the second	on Although them is kinkly to be a charge in evidator emissions by location below 1,000 feet, the location is not within the vicinity of a designable AQMA and as per CAP1616, pore B72 a full Ar CAudhy and the second second to the second	Assassment is deemed not required. I this option overfless one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overfless the scene number of AQMAs.	Assessment is deemed not required. This option overfiles one AQMA. When compared to the 'do nothing' scenario, this option is deemed be equal as it overfiles the same number of AQMAe.	<ul> <li>Mondy American Martin V and American Martin M</li></ul>
			one Augmais when the databilitis above 1,000m.						-		
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current routes do not enable continuous climb operations. It must b								
			Current routes do not enable continuous climb operations. It must be noted that the exact track length flown by alroad may vary slightly d to the notive of rodar vectoring, offlowugh alroad to all follow the extent procedures in a broader sense. The existing procedures do no	be be s							
			support optimal aircraft performance and therefore are predicted to have a areater environmental impact compared to proposed option	This option has been designed to support continuous climb operations. An element of radar vectoring may still be required to manage element separation distances. The track mileage of this option is 41.34 million and a start of the second	This option has been designed to support continuous climb operations. An element of radar vectori may still be required to manage aircraft separation distances. The track mileage of this option is 41.1 km (22.67 mm). When compand to the two pointer services this nations is shorts—air to function	Ing This option has been designed to support continuous climb operations. An element of radar vectorin 98 may still be required to manage accord separation datances. The track mileage of this option is 37. is the 20 z nml. When a company of the dia orbitral security, this option is aborter and is therefore	ng This option has been designed to support continuous climb operations. An element of radar vectoric 45 may still be required to manage aircraft separation datances. The track mileage of this option is 42. I have also also also also also also also also	g This option has been designed to support continuous climb operations. An element of radar vectorie 9 may still be required to manage aircraft separation distances. The track mileage of this option is 43.3 km (23.37 rml. When compared to the 'do rathraft accension, this colores in a lineare and in therefore	This option has been designed to support continuous climb operations. An element of radiar vectoring 1.27 may still be required to manage aircraft separation distances. The track mileage of this option is 36.5 km (19.75 m). When compared to the 'dan option' screation, this ordinic is about and is therefore	This option has been designed to support continuous climb operations. An element of radar vectoring in may still be required to manage aircraft supportion distances. The track mileage of this option is 4.6.0. Im (24.48 mm). When compared to the "do patient version" is in outcome in a forward of the data of the second sec	This option has been designed to support continuous climb operations. An element of nator vectoring Insy till be required to manage accent supports on attacks. The tack inleage of this option is 43-24 tray till be required to manage accent supports datassas. The tack minage of this option is 43-34 tray till be required to manage accent supports datassas. The tack minage of this option is 43-34 tray till be required to manage accent supports datassas.
			Within Stage 2 of the CAP1616 process, there is no requirement for change sponsor to conduct quantitative emissions analysis. This will covered in Stage 3. In order to make a comparison in Stage 2, trac	re supected to reall' in a decrease in greenbuck gas entrand, ma denot a active out a interested and a supected to reall' in a decrease in greenbuck gas entrances, compared to the 'do nothing' accentration, and is desreed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exect volumes of greenbuckse gas enterested.	bit (2.10) may characterize on the bit home gradients on compared to the bit of the second	<ul> <li>applied to make in a decrease in genericous gas entance, mu special in the intermediate expected to make in a decrease in genericous gas entances compared to the 'do nothing' carendo or and is deemed to be of environmental banefit. More in-depth analysis will take place at Stage 3 to continue the encoded of the second of th</li></ul>	and the second secon	v) particular resp. Francisco provide a rest for interrupt administration, rest specific that double under a immersive supercised to result in an interrupt administration of the rest of rest of the rest of t	where the first of the second is a second or second or second or second or second or second or second is a descendent or second or se	See Qui-Cut many transmission and constraining scattering, and operating transmission and operating transmission and is descended and an element of the day configuration and is descended and an element. More in-depth analysis will trait place at Stage 3 to configuration and an element of the according transmission and an element. More in-depth analysis will trait place at Stage 3 to configuration and an element of the according traits of precisions are greater than the according traits of precisions are precisions.	In grad the analysis for surgery nearby transmission that the surgery of the spectra of the s
			change sponter to consuce quantitative ensurements antiquite. I mit with covered in Steps 3. In order to marke a comparison in Stop 42, two milesoga is used, based on the theory that the shorter the track million the less greenbourse games are emitted. In the case of the ido nothin baseline scenario, the track length to the common point is 42.31 kr	ලිවා ල ල ල ල ල ල ල ල ල					- g Ann Brunn inneonar	general general resources.	U U U U U U U U U U U U U U U U U U U
			(22.85nm).								
Wider Society	Capacity and resilience	initial Options Appraisal: Qualitative									
			Maintaining estant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids resilience could be significantly affected, following the sensored of th DTV DVOR and the requirement to adopt RN procedures as part of the FASI-N Programme.	The introduction of PRN routes is expected to deliver benefits by increasing airpace copacity which, <sup>10</sup> , valuequently leads to may predictable light partie and leaver delays [both in the air and on the ground and The reduction of the relations on outstand ground based an expectional data will is inflammly increase operational realismon increases of the introduction of PRN.	The introduction of PBN routes is expected to deliver benefits by increasing airspace aspecity which ubsequently leads to more predictable Right parts and lever delays both in the air and on the grou. The reduction of the relieves an entitlet are and entities and the set of the relieves t	In The introduction of PBN isoutes is expected to deliver benefits by increasing aimpoor capacity which righ unbanquently loads to more predictable flight parts and ferrer delays (both in the eir and on the group and the relations on caldhaid ground based rangistration disk will significantly increase operational realibance through the introduction of PBN.	h The introduction of PBN iscular is expected to deliver benefits by increasing aimpose capacity which rdl, subsequently lacts to more predictable flight parts and ferrer delays (both in the eir and on the group a The reduction of the relations on coldraid ground beams francipation of all will significantly increase operational multience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing aimpoor capacity which di, subsequently leads to more predictable flight paths and feerer delays (both in the sit and on the group The reduction of the relaxes on auchted ground bound product for distance the second operational realismon through the introduction of PBN.	ch The introduction of PBN routes is expected to deliver benefits by increasing aimpace capacity which undi, subsequently leads to more predictable flight paths and lever delays (both in the is and on the ground The metatron of the subsequence) and and and and and and the set of the	The introduction of PBN routes is expected to deliver benefits by increasing aimpace capacity which indesequently leads to more predictable hight paths and ferver delays (both in the air and on the groun The which route of the subscence on articletable revend hands invariantly and will introllivery increase.	The induction of BPI waters aspectful dather bunch to increasing aspects capacity which The induction of BPI waters aspectful dather bunch to increasing aspects capacity which The induction of BPI waters aspectful to BPI waters and the spectral process aspect to BPI waters are considered process aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect to BPI waters and the spectral process aspect to BPI waters are not aspect t
			DTY DVOR and the requirement to adopt PBN procedures as part of the FASI-N Programme.	of operational realises to consume you're based nevgational dias will agrificantly increase operational realises through the introduction of PBN.	The introduction of RBI rouchs is expected to define handlin by increasing airpace apportly which subsequently face to more predictable (RBI) parts and severe advaps both in the sim and on the group. The reduction of the relations on outlands ground based manipational oxids will significantly increase operational realismose through the introduction of RBN.	operational resilience through the introduction of PBN.	operational multimers through the introduction of PBN.	operational nullience through the introduction of PBN.	operational realises of consumery ground based nongational acid was lightfoorthy increase operational realises frough the introduction of PBN.	operational realience through the introduction of PBN.	operational realisers from the introduction of PBN.
Wider Society	Tranquility	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sporson are required to consider Tranquility with specific reference to AONBs as								
			National Parka only, unless other areas have been identified throug community engagement. No additional specific areas were identified	b) This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any ad identified through community engagement and is therefore comparable to the 'do nothing' scenario and manadim memory and a statutorial.	This option overfles no statutorly identified tranquility scaptors (AONBs or National Parks), nor as identified through community engagement and is therefore comparable to the 'do nothing' scenario or manual na security.	my This option overfiles no statutorly identified tearquility receptors (AONBs or National Parks), nor on and identified through community engagement and is herefore comparable to the 'do nothing' scenario a meaned no new m <sup>2</sup>	ny This option overfiles no statutorly identified tranquillity receptors (AONBs or National Parks), nor or and identified through community engagement and is therefore comparable to the 'do nothing' scenario a measured no water?	y This option overfles no statutorly identified tranquillity receptors (AON8s or National Parks), nor and identified through community engagement and is therefore comparable to the 'do nothing' scenario a manual no numerical.	any This option overfiles no statutorily identified tranquility recepton (ADNBs or National Parka), nor any and identified through community engagement and is therefore comparable to the 'do nothing' scenario an execution and the second scenario.	This option overfles no statutorily identified tranquility receptors (AONBs or National Parka), nor an I identified through community engagement and is therefore comparable to the 'do nothing' scenario or command no matterial and in the scenario or comparable to the 'do nothing' scenario or command no matterial and the scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or comparable to the 'do nothing' scenario or command no matterial scenario or command no matterial scenario or comparable to the 'do nothing' scenario or com	This options overflies no statutority identified transpillary receptors (2018s or National Parks), nor any didentified through community supgement and in headness comparable to the ido nothing scenario and command an available of the statutority identified transpillary support of a headness comparable to the ido nothing scenario and command an available of the statutory identified transpillary support of a headness comparable to the ido nothing scenario and command an available of the statutory identified transpillary support of the statutory identified transpillary
Wider Sectors	Pindhamita	latited Outland Associate	The 'do nothing' scenario averilles no tranquility receptors (AONBs o National Parks).	GP	Garmand Gr Hourd Gr	CARRENT GA INCOME.	CARPERENT GE INFORMA	GARGERINA HA INCOMP.	Sammers Sa Interna.	Valationappin An Employment.	URBERRY GETRODAL. GETRODAL
trian secury	acarring	Qualitative	The change sporeor has mapped the designated Sites of Special								
			The document process (in recognized field designed Society of Special Society (in the SSA) Special Pointerio and SSA Special Pointerio and Special Pointerio Advances Pointerio and Special Pointerio and Special Pointerio Advances Pointerio and Special Pointerio Advances Pointerio and Special Pointerio and Pointerio and Special Pointerio and Special Pointerio and Pointerio and Pointerio and Pointerio Advances Pointerio and Pointeri	RA Protection Areas (SPAs), Special Areas of Conservation (SACA) and RAMSAR sites, as identified on the of protection Areas (SPAs), Special Areas of Conservation (SACA) and RAMSAR sites, as identified on the of protection areas (SPAs).	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSb), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, an identified on the PERFORMANCE of Conservation (SACs) and RAMSAR sites, an identified on the DEFENSION of the Conservation (SACs) and RAMSAR sites, an identified on the DEFENSION of the Conservation (SACs) and RAMSAR sites,	In The change sponsor has mapped the designated Sites of Special Scientific Internet (SSSIs), Special he Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), Special Areas of Conservation (SACs), and RAMSAR sites, as identified on the Protection Areas (SPAs), and and areas (SPAs), and and areas (SPAs), and and areas (SPAs), and and areas (SPAs), and ar	The change sporeor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special he Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the protection (SPA).	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on th DESERVATION AND A SPECIAL AREAS OF A SPECIAL AREAS AND A SPECIAL	al The change spansor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special the Protection Amou (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the Protection Construction of Conservation (SACs) and RAMSAR sites, as identified on the Protection of the Construction of the	The charge process has regard for aligned a fixed of the set of th
			dispension and mixing, there is unlikely to be an impact on local ai quality from aircraft above 1,000th. Furthermore, CAP1616, Appene B, para B80, states that in general, airspace charge proposal will n	bit DEPA Mulai. Map. Cer 1616, Appendix 6, para 5.4, states that because of esperision and moning, these is unlikely to be an impact on local eir quality from alicent down 1,000k. Furthermore, CAP1616, Appendix 8, para 880, states that in general, airspace change proposal will not have an	Der NA Malak, Map, CAP 1016, Applinda 6, part 674, stelle that baccula or supersion and moot there is unlikely to be on impact on local ei quality from aiscraft baove 1,000k. Furthermore, CAP1616, Appendix B, para 880, states that in general, ainpace change proposal will not have a	ng, Lerth MASIL, Map. CAP 1010, Appendix B, para Dr.4, Istalia Inter because or alignment and main filem is unlikely to be an impact on local air quality from alcord down 1,0000. Furthermore, an CAP1616, Appendix B, para 880, states that in general, alignace change proposal will not have a	B) Derive Weck, Wap, CAP1010, Appendix B, para 074, Institute because of alignment main filters is unlikely to be on impact on local air quality from alcord above 1,000f. Furthermore, or CAP1616, Appendix B, para 880, states that in general, airspace change proposal will not have a	g. Derive Model: Mep. C471010, Appendix B, para D/4, intent the because of alignment of ment frame is unlikely to be on impact on local air quadry from alicrary above 1,0000. Furthermore, n C4P1616, Appendix B, para B80, states that in general, airspace change proposal will not have a	ing, Derna Mular, wap. Cer 6 is , Appendix D, para 6 / a, interes that because or subpension and mang these is unlikely to be on impact on local air quadry from aircraft above 1,000ff. Furthermone, an CAP1616, Appendix B, para B80, status that in general, airspace change proposal will not have an	DEPEN MAUNE MORE, CHE 10 10, Appendix 6, para 6 /4, initial mar because or appendix on one many frave is unkledy to be on impact on local in quality from incredit balove 1,000K. Enthermose, CAP1616, Appendix B, para B80, states that in general, ainpace change proposal will not have an enterprise of the second sec	UPTA WALL MD, CHE 10 6, Appenda 6, parts 24, tases into secure or appendo not mange frems is unlikely to be as impact in local air quality material tables in a more tables. (DAF) Furthermose, CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an CAP1616, Appenda 8, parts 880, states that in general, simpace change proposal will not have an Appenda 8, parts 880, states that in general, simpace change proposal will not have an Appenda 8, parts 800, states that in general will not have an Appenda 8, parts 800, states that in general will not have an Appenda 8, parts 800, states that in general will not have an Appenda 8, parts 800, states that in general will not have an Appenda 8, parts 800, states that in general will not have an Appenda 8, parts 8, par
			have an impact on blodivenity as they do not involve ground-base infrastructure. However, the change sponsor acknowledges that an potential impact to the designated sites around EMA will be assess	d impact on biodiventity as they do not involve ground-based infrastructure. However, the change sponso acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	e impact on biodiventity as they do not involve ground-based infrastructure. However, the charge spor a acknowledges that any potential impact to the designated sites around BMA will be assessed in Stag of the ACP process by Subject Matter Expents.	near impact on biodivenity as they do not involve ground-based infrastructure. However, the charge spon advoorkedges that any potential impact to the designated sites around EMA will be assessed in Stage of the ACP process by Subject Matter Experts.	stor (impact on blockvenity as they do not involve ground-based infrastructure. However, the change spon a donowledges that any potential impact to the designated sites around EMA will be assessed in Stage of the ACP process by Subject Matter Experts.	are impact on biodivenity as they do not involve ground-based infrastructure. However, the change spon a cknowledges that any potential impact to the designated sites around BMA will be assessed in Stage of the ACP process by Subject Mather Expent.	enter impact on biodivenity as they do not involve ground-based infrantucture. However, the change spores ge 3 acknowledges that any potential impact to fine designated sitte around EMA will be assessed in Stage of the ACP process by Subject Matter Expents.	e (impact on biodivenity as they do not involve ground-based infrastructure. However, frei change spore a acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage of the ACP process by Subject Matter Expent.	or Impact on biodivenity as they do not involve ground-based interactions. However, the changes sponse Impact on biodivenity as they do not involve ground-based interactions. However, the changes sponse of the ACP process by Subject Matter Experts.
			in Stoge 3 of the ACP process by Subject Matter Experts.								
General Aviation	Access	Initial Options Appraisal: Qualitative									
			No change to existing ainpace arrangements. Any General Aviatio	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All on Vasual Reference Points and existing Letters of Agreement periaising to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. Al Yawa Reference Points and existing Latens of Agreement particining to General Aviation access vill reviewed and updated (where applicable) prior to implementation to ensure their continued validit	II Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All be Vaval Reference Points and existing Latters of Agreement pertaining to General Aviation access will is	II Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will I	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All be Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will it	NI Impact to General Aviation occess is anticipated to be minimal as a consequence of this ACP. All Use Visual Belevince Paints and existing latters of Agreement pertaining to General Aviation occess will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity.	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Import to General Austron access is anticipated to be mained as a consequence of the ACP. All Yours Menserar Prime and waiting Limited Agreement pertorings to General Austron access will be movined and updated (when explicited) per us implementation to ensure the control and statistic movined and updated (when explicited) per us implementation to ensure the control and statistic movined and updated (when explicited) per implementation to ensure the control and statistic movined and updated (when explicited) per implementation to ensure the control and statistic ensurementation of the application of the ACP. All
			users of aimpace in the vicinity of ENA will maintain their current lev of access under extant operational arrangements.	ell reviewed and updated (where opplicable) prior to implementation to ensure their continued validity. Airapace classification requirements and any additional airapace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity Aimpace classification requirements and any additional cirripace requirements will be reviewed as p of Stoge 3 activities.	y, avviewed and updated (where applicable) prior to implementation to ensure their continued validity and Airupace classification requirements and any additional claspace requirements will be reviewed as po of Stoge 3 activities.	y. reviewed and updated (where applicable) prior to implementation to ensure their continued validity and Ainpoor dassification requirements and any additional clippoor requirements will be reviewed as p of Stage 3 activities.	<ul> <li>nviewed and updated (where applicable) prior to implementation to ensure their continued validity and Arapace classification requirements and any additional oinspace requirements will be reviewed as pr of Stoge 3 activities.</li> </ul>	fy. reviewed and updated (where applicable) prior to implementation to ensure their continued validity, part Ainpace classification requirements and any additional ainpace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Ainpace classification requirements and any additional ainpace requirements will be reviewed as pa of Stage 3 activities.	noviewed and updated lykewe opplicability prior to implementations to ensure thair continued validity. An poce classification requirements and any additional classopae requirements will be reviewed as part of Stoge 3 activities.
Connered Assistant (	Economic impact from	latited Outland Associate									
commercial airlines	increased effective capacity	Initial Options Appraisal: Qualitative		The introduction of \$990 is summarized to dollars because in the immediate sciences exactly which is true with	The latest size of PON is served to delive benefits to immediate size and the birth in terms	off. The interduction of 99% is associated to define benefits by intervening elements which is to as	will The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn v	11 The introduction of 80% is accorded to define bandle by interview elements which is to be	The interval of an effect is exceeded in deliver branche in increasing elements which is true of	The introduction of 998/ is monoted by define formedia to increasing structure many in which is to see	
			No increase to effective capacity anticipated for continued use of est procedures, therefore no economic benefit for GA/airlines.	and handback to be a supervised to dense advance of parallel of the second second back to be a supervised to many end to be advanced and there advanced both in the second second back to be advanced by potentially increasing the frequency of air transport movements,	the end to more predictable flip paths and lever delays (both in the size on the ground). This is egged to facilitate economic benefit by potentially increasing the frequency of air transport movements,	will The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn victed lead to more predictable Right paths and lever delays (both in the sir or on the ground). This is expected to facilitate accoratic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo storage carried.	where mini immediate the start of the dependence or deferrer advances by discretizing subspaced exposure minimum dependences and share a start of the start of	ted lead to more predictable fight path and fewer delays (both in the air or on the ground). This is expect to facilitate economic benefit by potentially increasing the frequency of air transport movements,	will The introduction of PBN is expected to deliver benefits by increasing aimpace capacity which in turn will acted lead to more predictable light path and leave delays (both in the air or on the ground). This is expected to facilitate economic beautility potentially increasing for feasiward of air transport movements, increasing passenger numbers and increasing cargo homage carted.	I manufacture of the second se	In an indexection of the expectation of the examples in proceeding the expectation of
				increasing passenger numbers and increasing cargo tomage carried.	increasing passenger numbers and increasing corgo tornage carried.	increasing passenger numbers and increasing cargo tonnage carried.	increasing passenger numbers and increasing cargo tormage cames.	increasing passenger numbers and increasing cargo tonnage carried.	increasing passenger numbers and increasing corgo tonroge comea.	increasing passenger numbers and increasing cargo tomoge carried.	movement, increasing passenger numbers and increasing cargo torrage carried. movements, increasing passenger numbers and increasing cargo torrage carried.
General Axiation / commercial airlines	Fuel burn	Initial Options Appraisal: Qualitative									
			The existing EMA procedures for departures do not enable continuo climb operations.			no This option supports continuous climb operations, reducing the overall amount of feel burst. There is			is or This periors supports continuous climb constraints, advices the recentl arrows of hall burnt. These is a		n This action supports continuous climb assertions, induction the overall amount of fuel burnt. There is no This action supports continuous climb assertions, inductos the overall amount of fuel burnt. There is no
			Within Stage 2 of the CAP1616 process, there is no requirement for change sponsor to conduct quantitative fuel burn analysis. This will i covered in Stage 3. In order to make a comparison in Stage 2, trac	a This option supports continuous climb operations, reducing the overall encount of fuel burnt. There is n requirement within Stage 2 of the CAPI 616 process to quantify bue burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the tack length, the	a This option supports continuous climb operations, reducing the overall encourt of feel burnt. There is requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the tack length, the set of the starter that tack length, the set of the set of the starter that tack length of the set of the se	a no This option supports continuous climb operations, reducing the overall amount of heel burnt. There is nequipement within States 2 of the CAP1616 process to quartify heel burnt, this will be conducted in the Stage 3. Therefore, to enable a comparison, the logic opplied is that the shorter the track length, th	in no This options supports continuous climb operations, reducing the overall arroute of foul burnt. These is nequirement within Stage 2 of the CAPI 616 process to quantify foul burn, this will be conducted in Stage 3. Therefore, to emble a comparison, the logic applied is that the shorter the tack length, th	no This option supports continuous climb operations, reducing the overall amount of Nul burnt. These is nequirament within Stage 2 of the CAP1616 process to quorify foal burn, this will be conducted ir s Stage 3. Therefore, to arable a comparison, the logic applied is that the shorter the track length, th	is no. This option supports continuous climb operations, reducing the overall amount of hall burnt. There is n in requirement within Stapps 2 of the CAP1016 process to quantify facel burnt, this will be conducted in the Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the	a This option supports continuous climb operations, reducing the overall amount of heal burnt. These is requirement within Stage 2 of the CAP1616 process to quantify feel burnt, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied in that the shocker the track length, the	In this option support continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis option supports continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis optionser/ports continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis optionser/ports continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis optionser/ports continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis optionser/ports continuous dimb operations, reducing the owerall ensourd it has barri. There is no lihis optionser/ports continuous dimb operations, reducing the owerall ensource of the barries dimb operations, reducing the owerall ensource of the barries dimb operations. The libit operations, reducing the owerall ensource of the barries dimb operations, reducing the owerall ensource of the barries dimb operations. The libit operations, reducing the owerall ensource of the barries dimb operations, reducing the owerall ensource of the barries dimb operations. The libit operations operations. The libit operations o
			mileage is used, based on the theory that the shorter the track mileag the less greenhouse gases are emitted. In the case of the 'do nothing baseline scenario, the track length to the common point is 42.31kr	Provide the set of	reverse user a sector, vrim regarata to mis opscor, it is 41.98 km [22,07 nm] long. When compared to 1 'do nothing' scenario, this explorion is shorter and at this stapp, it is assumed that it will be of oconom banefit as less fuel will be burnt. More in-depth analysis will be canted out in Stage 3 to confirm.	ver versioner auf dutter, versioner auf auf dutter a	ware ware adverte adverte, verte regarate to trais opnore, in it 42,99 km (23.221 nm) long. When compared to 16 ic do nothing approximate a protonia is longer and at this stager, it is assumed that it will be obcomin: benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	and some some solaret. Virter regardes to tras openar, in is 43.27 km (23.37 km) lang. When compared to f dia-do nothing's constato, this option is langue and at this stopp, it is assumed that it will be of economic benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	<ul> <li>me source is source, when regards to this openion, in is 36.5/ km (1972/5 rm) long. When compared to the data do nothing's constrols, this option is shorter and at this stategi, it is assumed that it will be of economic m.</li> </ul>	mean own workt. With regards to this option, it is 40.01 km (24.34 nm) long. When compared to thid on rothing sciencito, this option is longer and of this stops, it is assumed that it will be of economic disensity and the stops. When compared to the stops, it is assumed that it will be deconomic disensity and the stops of the stops of the stops. The stops of the stops. The stops of the sto	agreement for Sign 2.2 the CPU R1 grows spectral structures that the structure of the struc
			(22.85m).								
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applied by watering second one of the	h It is anticipated that no extra plot/grew training will be revuleed in another state to Public survey 001.1	It is enticipated that no extra pilot/crew training will be revuleed to evolve allots to R. do	N It is articlasted that no extra plot/crew trainion will be remined to evolve nilvity to 8- 4 80x1	It is anticipated that no extra pilot/crew tograph will be serviced to evolve relate to the service of the s	It is precisioned that no entry pilot/crew trainion will be serviced to avoide relate to its time 90mi	It is enticleated that no extra allot/crew training will be serviced to exclute refers to Parkov 9844	It is anticipated that no entry pilot/case training will be required to avoid relate to <sup>10</sup> · 6 · · · · · · · · · · · · · · · · ·	h is anticipated that no extra citat/oner training will be required to exable citate to fir the new PBN is anticipated that no exten citat/oner tension will be required in model.
Commercial airlines	Ofher costs	with Output to an indu	It is not proportionate at this stage for EMA to assess potential offe	th is anticipated that no extra plicit/crew training will be required to enable plicits to By the new PBN procedures as PBN has become a common navigation standard across the world.							bits anticipated that no exter platforms training will be required to eacher plats to fig fine new PRN     bits anticipated that no exter platforms training will be required to eacher plats to fig fine new PRN     bits anticipated that no exter platforms training will be required to eacher plats to fig fine new PRN     bits anticipated that no exter platforms training will be required to eacher plats to fig fine new PRN     bits anticipated that no exter platforms training will be required to eacher plats to fig fine new PRN     bits anticipated that no exter platforms training will be required to the plate training will be required to eacher plats     bits anticipated that no external because the world.
			costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigatio but there are too many variables (e.g. aircraft types, on-board syste	<ul> <li>cover come to commencia a annexe may include updates to Right Management Systems (RMS), nanigation databases and operating procedures, increased plat hite casts werse training act. It is not proportionate at this stage of the ACP for EMA to cases the 'other casts' to commercial airlines of Bying</li> </ul>	uner cost to commercia animas may include updates to Flight Management Systems [MAS], navigation databases and operating procedures, increased pilot hirs cant versus training etc. It is proportionate at this stage of the ACP for EMA to cases the 'other cast' to commercial airlines of thy		<ul> <li>ore come to commercial antimes may include updates to Flight Management Systems (MAR) nonvigation databases and operating proceediness, increased plict his conversion failing proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of hys</li> </ul>	<ul> <li>where costs to commercial antihesis may include updates to Flight Management Systems [FMS], non/gation databases and operating proceedures, increased pilot his costs wereau training etc. It is n proportionate at this stage of the ACP for EMA to assess the 'ather costs' to commercial airlines of hys</li> </ul>	ner cass to commercial artifies may include updates to Flipht Management System (FMG), anarygation databases and aparating proceedurus, increased pilot his cash venus tabiling at it. It is not proportionate at this stage of the ACP for EMA to assess the 'after cash' to commercial artifies of fliph.	univer cases to commencia assess may include updates to Flight Management Systems (PAG), navigation adabases and a generating proceediums, increases algold him cash varius tabiling atc. It is no proportionate at this stage of the ACP for EMA to assess the 'orher costs' to commercial addiness of Hyin	Other can'ts commercial alchean may include updates to Flight Monogament Systems [FMS]. Inordigation databases and operating procedures, increased plat hirs can't senses taking etc. It is not proportional et fis stage of the ACP in DMs is many the take can't is commercial alchean of lying proportional et fis stage of the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying may all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying many all the ACP in DMs is many the take can't is commercial alchean of lying man
Airport / Air	Infrastructure costs	Initial Options Appraisal:	copublity etc.) to consider these effectively.	PBN proordures.	PBN procedures.	PBN procedures.	PBN procedures.	PBN procedures.	PBN procedures.	PBN procedum.	PBN prosedures. PBN procedures.
novigation service provider		Could talive	No additional infrastructure is required at EMA to maintain estant conventional proceedures; however, maintaining accessibility to curre ground-based equipment (operated by NERI) may become prohibitively expensive should a CAP1781 BrVAV usetstrution not b	and no additional infrastructure is required as the introduction of PBN reduces the reliance on around	and no additional infrastructure is required as the introduction of PBN reduces the reliance on arou	BN Them are no expected additional infrastructure casts. All options relate to the implementation of PB and no additional infrastructure is required as the introduction of PBN reduces the reliance on proce	IN There are no expected additional infrastructure cests. All options relate to the implementation of PB and no additional infrastructure is required as the intraduction of PBN reduces the relations on prove	N There are no expected additional infrastructure costs. All options relate to the implementation of PB and no additional infrastructure is required as the introduction of PBN reduces the reliance on prove	19N There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based margation olds are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBn and no additional infrastructure is required as the introduction of PBN reduces the reliance on grours	These are no expected additional infrastructure costs. All options relates to the implementation of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PBN and no additional infrastructure is required as the introduction of PB
			prohibitively expensive should a CAP1781 RNAV substitution not b implemented prior to the proposed removal date.	se infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based ravigation aids are no longer needed.						
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the est procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff of ENA, however, these cannot be identified at this stage of the AC process.	Some operational costs are anticipated with suspect to the implementation of new procedures and Praining of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the <i>i</i> process.	ACP training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the A	Some operational costs are anticipated with respect to the implementation of new proceedures and ACP training of air traffic controlling stell at EMA; however, these cannot be identified at this stage of the A process. Some deployment costs are anticipated with wapped to the implementation of the new departure	CP training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the A	ACP training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the AC	Some operational costs are anticipated with respect to the implementation of new procedures and Praining of air traffic controlling shaff of BAQ; however, these cannot be identified at this stage of the AI process.	P training of air traffic controlling shaff at BMA; however, these connot be identified at this stage of the ACP training of air traffic controlling shaff at EMA; however, these cannot be identified at this stage of the AC
Airport / Air navigation service provide	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllen; however, these cannot be identified at this stage of the ACP process.	Some deployment casts are articipated with respect to the implementation of the new departure procedures and training of air traffic controllen; however, these convol be identified at this stage of ACP process.	Some deployment costs are ordicipated with respect to the implementation of the new departure the procedures and training of air traffic controllen; however, these connot be identified at this stage of the ACP process.	Some digitoyment cash are anticipated with sugged to the implementation of the new departure procedures and training of air traffic controlles; however, these connot be identified at this stage of the ACP process.	Serve deployment cash are anticipated with respect to the implementation of the new departure he procedures and training of air traffic controllers; however, these control te identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure the procedures and hairing of air haffs: costollers; however, these costnot be identified at this stage of the ACP process.	Score deployment cash are articipated with respect to the implementation of the new departure procedures and training of air traffic controllen; however, these cannot be identified at this stage of th ACP process.	Some deployment costs on anticipated with respect to the implementation of the new departure procedure and training of air traffic controllers, between, these control to identified of this stoge of the procedure and training of air traffic controllers, between, these control to identified of this stoge of the procedure and training of air traffic controllers, between, these control to identified of this stoge of the procedure and training of air traffic controllers, between, these control to identified of this stoge of the procedure and training of air traffic controllers, between, these control to identified of this stoge of the procedure and training of air traffic controllers, between the identified of this stoge of the procedure and training of air traffic controllers, between the procedure and training of air traffic contrelers, between the procedure and training of a
Sofety Assessment	Salety Assessment	Initial Options Appraisal: Qualitative		Possible hazards have been identified, some of which are extant and are currently mitigated through					gh Possible hazards have been identified, some of which are extant and are currently mitigated through		Possible hazards have been identified, some of which are extant and are currently mitigated through Possible hazards have been identified, some of which are extant and are currently mitigated through
				Finity, already departing on the SID to the autor may collicit with anivals from the south resulting in the potential law of horizontal or vertical separation between aircraft and an increase in controller verbload This is an eatort horard and AIC would emage the AIC substants relating by to maintain separation as	I potential loss of horizontal or vertical separation between aircraft and an increase in controller working This is an extent hazard and ATC would manage the ATC situation tactically to maintain separation	and, potential loss of horizontal or vertical separation between aircraft and an increase in controller worklo as This is an extant hazard and ATC would manage the ATC situation tactically to maintain separation in	and, potential loss of horizontal or vertical separation between aircraft and an increase in controller worldo as This is an extant hazard and ATC would manage the ATC situation tactically to maintain separation	ad, potential loss of horizontal or vertical separation between aircraft and an increase in controller worklo as This is an extant hazard and ATC would manage the ATC situation tactically to maintain separation	load, potential loss of horizontal or vertical separation between aircraft and an increase in controller worklow n as This is an estant hazard and ATC would manage the ATC situation tactically to maintain separation a	creatial loss of horizontal or vertical separation between aircraft and an increase in controller workloc This is an estant hazard and ATC would manage the ATC situation tactically to maintain separation or	d. potential loss of horizontal or vertical separation between aiscraft and an increase in controller potential loss of horizontal or vertical separation between aiscraft and an increase in controller verkload. This is an extant hazard and ATC would manage the ATC situation tactically to maintain
			The 'do nothing' scenario assumes that current operations at BMA a safe including use of the estant conventional procedures. Following t	required. Secondly, aircraft deporting EMA on the SID could conflict with aircraft deporting BHK on the LUVUM the SID if nouting along the watern edge of the design envelope. ATC tocical intervention or IFP design	required. Secondly, aircraft departing ENA on the SID could conflict with aircraft departing BHK on the LUVU SID if noting along the weatern edge of the design envelope. ATC tractical intervention or IFP desig	required. M Secondly, aircraft departing EMA on the SID could coeffict with aircraft departing BHX on the LUVUB gn SID if noting along the western edge of the design envelope. ATC tactical intervention or iPP desig	required. M Secondly, already departing EMA on the SIC could coeffici with aircraft departing BHX on the LUVUI gn SID if routing along the western edge of the design envelope. ATC tactical intervention or IFP desig	required. A Secondly, aircraft departing BMA on the SID could coefficit with aircraft departing BHX on the LUVUI and SID if routing along the wastern edge of the design envelope. ATC tastical intervention or IPP design	ian SID if routing along the western edge of the design envelope. ATC tactical intervention or IFP design	required. Secondly, aircraft departing EMA on the SID could conflict with aircraft departing BHK on the LU/U.W SID if noting along the western edge of the design envelope. ATC toctical intervention or IPP design	SD if noting along the watern edge of the design envelope. ATC tactical intervention or IPP design SD if noting along the watern edge of the design envelope. ATC tactical intervention or IPP design
			semoval of ground-based navigational aids supporting the existing SID, aircraft departing BMA would continuously require radar vector (should CAP1781 or a commercial agreement to maintain the existi	g parameters may be required to be applied to mitigate this. EMA will continue to work collaboratively ing with BHX and it necessary NERL through subsequent stages of this ACP, to refine the design options. It is a cossible that this work will identify across collocus that cannot be safely decording to the existing a scalar product of the same scalar product of the safely decord to be safely decording to the existing.	parameters may be required to be applied to mitigate this. EMA will continue to work collaborative with BHX and if necessary NRR, through subsequent stages of this ACP, to refine the design options to nonsible that this under all identity surger activant that refer derarchite derarchite them the activity.	why parameters may be required to be applied to miligate this. BMA will continue to work collaborative is the BMA will continue to work collaborative is the BMA and it necessary NER; through subsequent stages of this ACP, to reline the danign options. It is possible that this work will identify screen pathorn the auxilit described from the existing the second statement of the second s	eV parameters may be required to be applied to miligate this. EMA will continue to work collaborative in the Wh BHX and it necessary NERs, through subsequent atoges of this ACP, to refine the design options in possible that this work will identify serve actions that correct be subject deconflicted from the existing the server option.	by parameters may be required to be applied to miligate this. EMA will continue to work collaborative it with BHX and it necessary NERs, through subsequent stages of this ACP, to refine the design options, is nearlist first this work will identify owner options that control to useful decording tool from the writing.	ing is possible that this work will identify some options that cannot be safely deconflicted from the existing	parameters may be required to be applied to mitigate this. EMA will continue to work collaborativel with BHC and it necessary NERL, through subsequent stages of this ACP, to refine the design options, is possible that this work will identify some options that cannot be safely decordicated from the existing	parameters may be required to be applied to mitigate this. EMA will contrave to work callaboratively with BK and il accessary RBs, through subsequent stages of this ACP, to reline the design options. It is casuable that is not will identify some actions that cannot be active description for the analyzed in the design options. It is casuable that is not will identify some actions that cannot be active description for the analyzed in the design options. It is cannot be that is not will identify some actions that cannot be active description the analyzed in the design options.
			navigational aid not be implemented), resulting in a possible increa in ATCO workload.	as published BHXSIDs which may mean that some options will be discounted. Finally, there could be unknown or no interaction passible between with the network (i.e., above 7.000th. This could result in an increase in ATCO workload to ensure that harizontal and/or vertical	published BHX SIDs which may mean that some options will be discourted. Finally, there could be unknown or no interaction possible between with the network (i.e., above 7.000H. This could result in an increase in ATCO workload to ensure that horizontal and/or vertice	published BHX SIDs which may mean that some options will be discourted. Findly, there could be unknown or no interaction possible between with the network (i.e., above call 7,000H). This could result in an increase in ATCO workload to ensure that horizontal and/or vertice	published BHX SIDs which may mean that some options will be discounted. Finally, there could be unknown or no interaction possible between with the network (i.e., above of 7.000Ph. This could result in an increase in ATCO workload to ensure that horizontal and/or vertice	published BHX SDs which may mean that some options will be discounted. Finally, frame could be unknown or no interaction possible between with the network (i.e., above all 7.000%). This could result in an increase in ATCO workload to ensure that horizontal and/or vertice	published BHX SIDs which may mean that some options will be discounted. Finally, there could be unknown or no interaction possible between with the nativox (i.e., above 17.000ML. This could mustlin an increase in ATCO workload to ensure that hotizontal and/or vertice	published BHC SIDs which may mean that some options will be discounted. Finally, there could be unknown or no interaction possible between with the network (i.e., above 7.000H. This could result in an increase in ATCO workload to ensure that horizontal and/or vertica	published BHX SDs which may mean that some options will be discourted. Finally, there could be unknown or no interaction possible between with the network (a., above 7000H. This could be unknown or no interaction possible between with the network (b., above 7000H. This could be unknown or no interaction possible between with the network (b., above 7000H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between with the network (b., above 700H. This could be unknown or no interaction possible between the interaction possible between the fractionation dark were the fractio
				separation is maintained and avoid potential loss of separation between aircraft. The sponsor would b required to maintain close liaison with NRE through bildeeal meetings to ensure that network connectivity reas/instruct are met.	e separation is maintained and avoid potential loss of separation between aixraft. The sporsor would	d be separation is maintained and avoid potential loss of separation between aircraft. The sponsor would required to maintain dose laison with NEX forcuph bifateral meetings to ensure that network connectivity requirements are mat.	I be separation is maintained and avoid potential loss of separation between aircraft. The sponsor would required to maintain close liaison with NBX through bifateral meetings to ensure that network connectivity requirements are met.	be separation is maintained and avoid patential loss of separation between aircraft. The spansor would required to maintain close lisison with NERL through bitateral meetings to ensure that network connectivity requirements are maintained.	Id be separation is maintained and avoid potential lass of separation between aircraft. The sponsor would be required to maintain class liaison with NEE through bildetral meetings to ensure that network connectivity requirements are met.	2 poddy, this both status is an an internant in Proceed metadate of statement and indicates and and internant and potential loss of separation is maintained and and an and internant in Proceeding to ensure state of the sequence of the maintain class listicon with NRR. Howays bilateral meetings to ensure that network consocitivity sequirements are seen.	a paperation is maintained and avoid potential loss of separation between aircraft. The sponsor would be required to maintain class liaison with NBL through bilateral meetings to ensure that network constrained and avoid potential loss of separation between aircraft. The sponsor would be required to maintain class liaison with NBL through bilateral meetings to ensure that network
				These hazards and mitigations will be captured as part of the safety and risk mitigation process within Stages 3 and 4 of CAP1616 and the Masterplan and in line with CAP760.	These hozords and million tools into the second of the sec	hin These hazards and mitigations will be captured as part of the safety and risk mitigation process with Stages 3 and 4 of CAP1616 and the Masterplan and in line with CAP760.	tin These hazards and mitigations will be captured as part of the safety and risk mitigation process with Stages 3 and 4 of CAP1616 and the Masterplan and in line with CAP760.	In These hazards and mitigations will be captured as part of the safety and risk mitigation process with Stages 3 and 4 of CAP1616 and the Masterplan and in line with CAP760.	thin These hazards and mitigations will be captured as part of the safety and risk mitigation process within Stages 3 and 4 of CAP1616 and the Masterplan and in line with CAP760.	These hazards and mitigations will be captured as part of the softer and risk mitigation process with Stages 3 and 4 of CAPI 616 and the Masterplan and in line with CAP760.	These hazards and mitigations will be captured as part of the safety and risk mitigation process within Stegers 3 and 4 of CAP1616 and the Masterplan and in low with CAP760. Stegers 3 and 4 of CAP1616 and the Masterplan and in low with CAP760.
		Summary of Analys	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of aimpace modernisation and is unviable following the removal of the DTY DVC	<ul> <li>When compared to the 'do nothing' scenario, this option performs:</li> <li>OR Worse in the following areas:</li> </ul>	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nathing' science's, this option performs: Wome in the following areas:	When compared to the ido nothing' scenario, this option performs: Wone in the following areas:	When compared to the 'do nothing' scenario, this option performs: Wome in the following areas:	When compared to the ido nothing scenario, this option performs: When compared to the ido nothing scenario, this option performs: Wone in the following areas: Wone in the following areas:
			modernization and is unvisible following the removal of the DTY DVC beacon, which would have a significant impact on capacity and realience. The existing SD does not enable continuous climb operations to 7,0008, which leads to a greater volume of fuel burn,	2H Worse in the following creat: - Noise import up to 4,000th Better in the following creat:	Wone in the following amou: - Noise imposit op 5-4,000H Better in the following areas:	Worne in the following energies - Noise impact up to 4,000th Butter in the following areas:	Wome in the following areas: - Note improved up to 4,000th - Greenbourse gas eminations - Fuel born	Wone in the following area: - Noise impact up to 4,000th - Greenbouxe gas emissions - Fuel born	Wone in the following exerce: Noise impact up to 4,000th Noise impact up to 7,000th	Wonse in the following osea: - Noise import up to 4,000th - Generhouse gas emissions - Fuel barn	Wares in the tollowing even:         Wares in the tollowing even:           - Notain import up to 4,000th         - Notain import up to 4,000th           - Gravehouse gas even:         - Gravehouse gas events           Better in the following even:         - Full to tom
			emissions and noise at lower levels. In terms of Tranquillity, Biodivenity, General Aviation access and Economic impact, the 'do	Noise impact up to 7,000H     Greenhouse gas emissions	Noise impact up to 7,000H     Generihouse gas emissions	Noise impact up to 7,000H     Greenbouse gas emissions	Better in the following areas:	Better in the following areas:	Better in the following anexa: - Greenbouse gas emissions	Better in the following areas:	- Noise impact up to 7,000H - Greenhouse gas emissions Better in the following areas:
			nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenaria. From a safety perspective, it is assumed that current EMA	<ul> <li>Fuel burn         Fuel burn          Equal/neutral in terms of the remaining criteria because there is no change when compared to today's     </li> </ul>	- Fuel burn " Equal/neutral in terms of the remaining criteria because there is no charge when compared to today	<ul> <li>Fuel burn         Fuel burn         Equal/neutral in terms of the remaining criteria because there is no charge when compared to today's     </li> </ul>	- Notes Impact up to 7,000H -Air Quality	- Noine impact up to 7,000ft Air Quality	- ruei oum	- Noise impact up to 7,000h	- Food born Equal/mouted in terms of the sumalining criteria because from is no change when compared to today's Equal/mouted in terms of the sumalining criteria because from is no change when compared to today's
			operations are safe. Following the removal of the DTY DVOR, it is acknowledged that the ATCOs workload is likely to increase due to t enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option. Possible	operation. At this time, it is not possible to fully determine the sofety implications of this specific option. Possible	operation. At this time, it is not possible to fully determine the sofety implications of this specific option. Possible	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's spenation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	operation. Equal/neutral in terms of the remaining oriteria because there is no change when compared to today's operation.
				and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in	and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in	ct coefficit with some routes operated by other routes/nearby airports have been identified, but the exact nature of these coefficits is unclear at this stage. Further analysis and engagement is required in Stage and 4 of the CAP1616 process to determine this. Furthermore, this option has been assured as in	a a 3 At this time, it is not possible to fully determine the sofety implications of this specific option. Possible coefficient with some youtes operated by other routes/nearby simports have been identified, but the each	At this time, it is not possible to fully determine the sofiety implications of this specific option. Possible coefficts with some routes operated by other routes/nearby airports have been identified, but the esac	At this time, it is not possible to July determine the softwy implications of this specific option. Possible conflicts with some routes operated by other routes/mostly sirports have been identified, but the exact nature of these conflicts is unclear of this stops. Further enablys and engagement is required in Stops 5	At this time, it is not possible to fully determine the safety implications of this specific option. Possible conflicts with some routes operated by other routes/ready alposts have been identified, but the exact nature of these conflicts is unclear of this stage. Further combins and engagement is required in Stage	conflict with core notes operated by other notes/modey alroom have been identified, but the ward. Instrue of these conflicts is unclear of this toges, Further analysis and engagement is explicitly and and group conflicts in the second of a specific splits. A substitution of a second of a specific splits of a second of a specific splits. The many second splits and engagement is explicit and the second of a specific splits.
				isolation nather than as a set of design options as part of a wider system/verway pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to all the other options.	isolation rather fran as a set of design options as part of a wider system/runway pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to a the other options.	isolation rother than as a set of design options as part of a wider system/numvay pair. Additional analysis is required in Stage 3 to determine the cumulative impact of this option when compared to a the other options.	narum of these condicts is unclear of this stops. Further analysis and engagement is nequired in Stope and 4 of the CAPI 61.6 process to determine this. Furthermore, this option has been assessed on in isolation rather than as a set of design options as part of a wider system/tumory pair. Additional	a renew or these contlicts is unclear or this stops. Further analysis and engagement is required in Stops and 4 of the CAP1616 process to determine this. Furthermore, this option has been assessed as in adoletion rather than an a set of design options as part of a wider system/humway pair. Additional	ct pative of the same obtained optimized of some including manufacture (applies in their teaminance, use and including pative of the songle. Further analysis and engagement is required in Stoge 3 as 3 and 4 of the CAPI 616 process to determine this. Furthermany, this option has been assessed as in isolation or that those as a set of design option are part of a wider system/runner park. Additional analysis of the songle 3 and 4 of the CAPI 616 process to determine this constant of a wider system/runner park. Additional analysis of a songle 3 and a songle is insolation contact those as a set of design option are part of a wider system/runner park. Additional analysis of a songle 3 and a songle is insolation compared to all	pro 4 or the CAPI 616 process to determine this. Furthermow, this option has been causused as in solution rather than as a set of design options as part of a wider system/survey pair. Additional prolysis is required in Stope 3 to determine the currulative impact of this option when compared to al	lachton sther than as a wir of dwige options as part of a vider system/runway pair. Additional andysis is mywinel in Stage 3 to determine the cumulative impact of this option when compared to all lachton mfarr than as a wir of dwige options as part of a wider system/runway pair. Additional the often option.
				Received on the IDA Stocket Assessment methodology. Online O1 has been desceed in according	Read on the 17th Standard Strength and the Standard Strength	Read on the IDA Studiet Assessment path of the Output Of the Long Ass	anarym is required in Stage 3 to determine the cumulative impact of this option when compared to a the other options.	<ol> <li>analysis is required in Stage 3 to determine the cumulative impact of this option when compared to a the other options.</li> <li>Brand no the UA Standard assessment matheorization. Online: DR has been desmal the EA/O1828</li> </ol>	are the other options.	the other options.  Proof on the IOA South Element anticology, Onter O11 by here desced by EEE/IEOE	he ofter site OA Southe Assessed nutricides. Onter D12 to loss describe EEEED Enables to 10 Southe Assessed nutricides. Onter D12 to loss describe EEEED
			IOA Shortlist Assessment		within the design envelope.	option within the design emelope.	Browd on the ICJA Shortfall Assessment methodology, Cyption Cib has been desmed the PREF197EL option within the datign envelope.	option within the design envelope.	option within the design envelope.	option within the design envelope.	option within the design envelope. Option within the design envelope. Option within the design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	ACCEPTARE	REJICTED	REACTED	PAPERIO	FAVOURABLE	RUBCTED	NUECTED	REACTED REACTED

## ARRIVALS





P, F, A (Runway 27N_Arrivals)								
	Р, F,	A (Runway						
IAF	D/I	Name	Classification					
ROKUP ROKUP	Direct Direct	R27_A_N_01 R27 A N 02	PREFERRED REJECTED					
ROKUP	Indirect	R27_A_N_02 R27_A_N_03	FAVOURABLE					
ROKUP	Indirect	R27_A_N_O4	ACCEPTABLE					
DIPSO	Direct	R27_A_N_05	REJECTED					
DIPSO	Direct	R27 A N O6	REJECTED					
DIPSO	Direct	R27_A_N_07	FAVOURABLE					
DIPSO	Direct	R27_A_N_08	PREFERRED					
DIRCO	In all and		REJECTED					
DIPSO DIPSO	Indirect Indirect	R27_A_N_O29 R27 A N O30	ACCEPTABLE					
2								
IAF 1	Direct	R27_A_N_017	ACCEPTABLE					
IAF 1	Direct	R27_A_N_018	REJECTED					
IAF 1	Indirect	R27_A_N_019	FAVOURABLE PREFERRED					
IAF 1	Indirect	R27_A_N_O20						
IAF 2	Direct	R27_A_N_013	ACCEPTABLE					
IAF 2	Direct	R27_A_N_014	REJECTED					
IAF 2	Indirect	R27_A_N_021	PREFERRED FAVOURABLE					
IAF 2	Indirect	R27_A_N_022	I AVOUNDLL					
IAF 3	Indirect	R27_A_N_011	FAVOURABLE					
IAF 3	Indirect	R27_A_N_012	PREFERRED					
IAF 3	Direct	R27 A N O23	REJECTED					
IAF 3	Direct	R27_A_N_023	ACCEPTABLE					
IAF 4	Direct	R27_A_N_O9	FAVOURABLE					
IAF 4	Direct	R27_A_N_010	REJECTED					
IAF 4	Indirect	R27_A_N_O25	PREFERRED					
IAF 4	Indirect	R27_A_N_025	ACCEPTABLE					
		020						
IAF 5	Direct	R27_A_N_015	FAVOURABLE					
IAF 5	Direct	R27_A_N_016	REJECTED					
IAF 5		R27_A_N_027 R27 A N 028	ACCEPTABLE PREFERRED					
J	maneul	<u></u>						
	DF		27S_Arrivals)					
		. ,						
	D/I	Name						
	Direct	R27_A_S_01	FAVOURABLE PREFERRED					
JUNCK	Direct	R27_A_S_O2						
JUNCK	Indirect	R27_A_S_O4	ACCEPTABLE					
JUNCK	Direct	R27_A_S_07	REJECTED					
JUNCK	Direct	R27_A_S_08	REJECTED					
JUNCK	Indirect	R27_A_S_O9	REJECTED					
LEICE	Indirect	R27 A S O5	ACCEPTABLE					
LEICE	Indirect		FAVOURABLE					
LEICE	Indirect	R27_A_S_011	REJECTED					
LEICE	Indirect	R27_A_S_012	PREFERRED					
LEICE	Direct	R27_A_S_023	REJECTED					
LEICE	Direct	R27_A_S_O24	ALTERNATE					
FYEHO	Indirect	R77 A \$ 012	ACCEPTABLE					
EYEHO EYEHO	Indirect		PREFERRED					
EYEHO	Direct	R27_A_5_014	REJECTED					
EYEHO	Direct	R27_A_S_021	FAVOURABLE					
CTAR	D'	D07 4 6 5						
STAPL	Direct	R27_A_S_015	ACCEPTABLE FAVOURABLE					
STAPL STAPL	Direct Indirect	R27_A_S_016 R27_A_S_019	REJECTED					
STAPL	Indirect	R27_A_5_019	PREFERRED					

P, F, A (Runway 09N_Arrivals)								
IAF	D/I	Name	Classification					
ROKUP	Direct	R09_A_N_O1	PREFERRED					
ROKUP ROKUP	Direct Indirect	R09_A_N_02 R09_A_N_03	ACCEPTABLE REJECTED					
ROKUP	Indirect	R09_A_N_O4	ALTERNATE					
ROKUP	Direct	R09_A_N_O4A	FAVOURABLE					
DIPSO	Indirect	R09 A N O5	REJECTED					
DIPSO	Indirect	R09_A_N_06	REJECTED					
DIPSO	Direct	R09_A_N_07	PREFERRED					
DIPSO	Direct Direct	R09_A_N_08 R09 A N 08A	ACCEPTABLE FAVOURABLE					
DIPSO	Indirect	R09_A_N_029	REJECTED					
DIPSO	Indirect	R09_A_N_O30	ALTERNATE					
IAF1	Indirect	R09 A N 017	FAVOURABLE					
IAF1	Indirect	R09_A_N_018	REJECTED					
IAF1	Direct	R09_A_N_019	PREFERRED					
IAF1 IAF1	Direct Direct	R09_A_N_O20 R09_A_N_O20A	REJECTED ACCEPTABLE					
0.0 1	Direct	100_11_02011						
IAF2	Indirect	R09_A_N_013	REJECTED					
IAF2 IAF2	Indirect Direct	R09_A_N_014 R09 A N 021	ALTERNATE PREFERRED					
IAF2	Direct	R09_A_N_021	ACCEPTABLE					
IAF2	Direct	R09_A_N_022A	FAVOURABLE					
IAF3	Direct	R09 A N 011	PREFERRED					
IAF3	Direct	R09_A_N_012	ACCEPTABLE					
IAF3	Direct	R09_A_N_012A	FAVOURABLE					
IAF3 IAF3	Indirect Indirect	R09_A_N_023 R09_A_N_024	REJECTED ALTERNATE					
	maneet	105_A_N_024						
IAF4	Direct	R09_A_N_O9	PREFERRED					
IAF4 IAF4	Direct Direct	R09_A_N_010 R09 A N 010A	ACCEPTABLE FAVOURABLE					
IAF4	Indirect	R09_A_N_010A	REJECTED					
IAF4	Indirect	R09_A_N_026	ALTERNATE					
IAF5	Direct	R09 A N 015	PREFERRED					
IAF5	Direct	R09 A N 016	FAVOURABLE					
IAF5	Indirect	R09_A_N_027	REJECTED					
IAF5	Indirect	R09_A_N_028	ACCEPTABLE					
		. (						
	P, F,	A (Runway 0	9S_Arrivals)					
IAF	D/I	Name	Classification					
JUNCK	Direct Direct	R09_A_S_O1 R09 A S O2	PREFERRED ACCEPTABLE					
JUNCK	Indirect	R09_A_S_03	REJECTED					
JUNCK	Indirect	R09_A_S_O4	REJECTED					
JUNCK	Indirect	R09_A_S_07						
JUNCK	Indirect Direct	R09_A_S_08 R09_A_S_09	REJECTED REJECTED					
JUNCK	Direct	R09_A_S_010	REJECTED					
JUNCK	Direct	R09_A_S_018	FAVOURABLE					
	Dinest							
LEICE	Direct Direct	R09_A_S_O5 R09 A S O6	PREFERRED FAVOURABLE					
LEICE	Indirect	R09_A_S_011	ACCEPTABLE					
LEICE	Indirect	R09_A_S_012	REJECTED					
EYEHO	Direct	R09_A_S_013	PREFERRED					
EYEHO	Direct	 R09_A_S_014	FAVOURABLE					
EVELLO	Indirect		ACCEPTABLE					
EYEHO EYEHO	Indirect	R09_A_S_023 R09_A_S_024	REJECTED					
STAPL	Direct	R09_A_S_015	PREFERRED					
STAPL	Direct	R09_A_S_016	FAVOURABLE					

STAPL Indirect R09\_A\_S\_021

Indirect R09 A S

ACCEPTABLE

			'DO NOTHING' BASELINE	ROKUP Direct R27_A_N_01	ROKUP Direct R27_A_N_02	ROKUP Indirect R27_A_N_03	ROKUP Indirect R27_A_N_04
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for	The IAF for this option is ROKUP and the style of the route is 'direct' which means the distance to the final approach has been minimised. This option starts at IAF ROKLP west of Belper and initially tracks	The IAF for this option is ROKUP and the style of the route is 'direct' which means the distance to the final approach has been minimised. It follows a similar route to Option 1 but routes further east before joining the final approach.	The IAF for this option is ROKUP and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative resplite option to a 'direct' route. The option stata IAF ROKUP west of Belper and Initially tracks	The IAF for this option is ROKUP and the style of the re 'indirect' which means the distance to the final approach been minimised but has been designed to provide an alt respite option to a 'direct' route. It follows a similar route 3 but routes further east before joining the final appro
			arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The	south-east over southern likeston and southern Nottingham. It continues on this track until south of Gamston where the route turns south and routes east of Keyworth before turning left to join the extended runway centrellien. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3 85m) when PANS OPS criteria	The option starts at IAF ROKUP west of Belper and initially tracks south-east over southern likeston and southern Nottingham. It continues on this track until Cotgrave to the south east of Nottlingham where the route turns south and routes east of Keyworth briefly following the line of the AA6, before turning left to join the extended rumway centreline. This RNAV1 a travia connects the IAF to the IF which is placed as	south-east before turning south over West Hallam, just to the west of likeston, then turning east to fly over Long Eaton and Clifton. To the south-east of Nottingham, the route turns south and routes east of Keyworth before turning left to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as	south-east before turning south over West Hallam, just to
			overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7.000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	and MSD for a 90° turn is taken into consideration. The FAF is at 2,0001, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 2.13° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	far as possible from the FAF (5nm) while keeping the route within existing controlled arspace. The FAF is at 2,0001, which is the platform allude for the existing FAF for Rumway 27 approaches. The descent gradient to the FAF is 1.33' which is below the optimum range for iow noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2.000t, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1.36° which is below the optimum range for lw noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	This RNAV 1 arrival comrects the UAF to the IF which is go far as possible from the FAF (smn) whilst keeping the tou existing controlled airspace. The FAF is at 2.0001, whice platform altitude for the existing FAF for Rumway 27 appr The descent gradient to the FAF is 1.81" which is belo optimum range for CDAs defined within ICAO guida
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal: Qualitative	Runway 27 For comparison purposes in the IOA, in terms of potential noise	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approxit
		r uppraceas. equandarie	Impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the following. From 7,000ft: is estimated to overfly approximately 221,550 households with an approximate population of '436,600. Taking	45.350 households with an approximate population of 90,500. Taking account of 4,450 planned property developments, this option is estimated to overfly and impact a total population of 99.400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothin'a 'scenario. From 4,000t. this option is estimated to overfly	48.200 households with an approximate population of 96,100. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 105,100. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothin's cenario. From 4,000ft, this ocionio is estimated to	36.450 households with an approximate population of 66,300. Taking account of 5,050 planned property developments, this option is estimated to overfly and impact a total population of 5,500. The potential noise impact on health and quality of life from 7,000 ti is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000 this to othin is estimated to overfly	34,000 households with an approximate population of 6 Taking account of 3,600 planned property development option is estimated to overly and impact a total popula 68,400. The potential noise impact on health and quality o 7,000f is assessed as likely to affect fewer people than nothind scenario. From 4,000f. this option is estimated to
			account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100. From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 122,600. Taking account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	approximately 10,500 households with an approximate population of 20,000. Taking account of 1.850 planned property developments, this option is estimated to overfly and impact a total population of 23,500. The potential noise impact on health and quality of life from 4,000 ft assessed as likely to affect fever people than the 'do nothing' scenario.	overfly approximately 14.200 households with an approximate population of 26,900. Taking account 02,800 planned property developments, this option is estimated to overfly and impact a tota population of 31,800. The potential noise impact on health and quality of life from 4.000 ft as assessed as likely to affect fewer people than the 'do nothing' scenario.	approximately 10,050 households with an approximate population of 18,000. Taking account of 3,400 planned property developments, this option is estimated to overfly and impact a total population of 24,900. The potential noise impact on health and quality of life from 4,000 tit assessed as likely to affect fever people than the 'do nothing' scenario.	approximately 10,450 households with an approximate po of 19,200. Taking account of 5,500 planned proper
Communities		Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000t, other than the areas in the immediate vicinity or final approach to EMA. In terms of ADMAs, the ROKUM* on obthing scenario overflies 3 ADMAs. Overflight of these ADMAs occurs when the aircraft is above 1,000t.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies two AQMAs. When compared to the do nothing scenario, this option is deemed to be beneficial as it overflies tever AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles three AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overfiles the same number of AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles on e AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer AQMAs.	There is not likely to be a change in aviation emissions by below 1,000 feet. As per CAP1616, para B72 a full Air O Assessment is deemed not required. This option overflies one AOMA. When compared to th nothing' scenario, this option is deemed to be beneficia overflies lewer AOMAs.
Wider Society	impact	Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA (rom 7.000ft. It must be noted that the exact track length hown by aircard may vary slightly due to be nature of radar vectoring. Existing procedures do not support optimal aircard performance and therefore are predictated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis, link will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the shorts the tack mileage, the less greenhouse gases are emitted. The track length of the 05 notifying scenario for Rumway 27 from the Neth 6 55.06m (25.73mn).	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 55.28 km (24.85 km). When compared to the 40 nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-beneft. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this polion is 59.46 km (32.10 nm, When compared to the 40 nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-beneft. More in-depth analysis will ake place at Stage 3 to confirm the exact volumes of greenhouse gases released.	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircaft separation distances. The track mileage of this polion is 58.85.86 m (31.78 mm, When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-beneft. Mere in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	Stage 3 to confirm the exact volumes of greenhouse g released.
Wider Society Wider Society		Initial Options Appraisal: Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predicable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operactional resilience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	
		Appraisal: Qualitative	As per CAP1616, Appendix B. para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutority identified tranquility re (AONBs or National Parks), nor any identified through cor engagement and is therefore comparable to the 'do no scenario and assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSBIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGL Mone, CAP1616, Appendx B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.0001. Furthermore, CAP1616, Appendx B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential	have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000f. Furthermore, CAP1616, Appendix B, para Bø0, states that in general, airspace change proposals will no have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACS) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000f. Hurthermore, CAP1616, Appendix 8, tpars Bdo, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACS) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	and mixing, there is unlikely to be an impact on local air from aircraft above 1.000F. Furthermore, CAP1616, App para Bdo, states that in general, airspace change proposes have an impact on biodiversity as they do not involve g based infrastructure. The change sponsor has mappe designated Sites of Special Scientific Interest (SSBs). Protection Areas (SPAs), Special Areas of Conservation and RAMSAR sites, as identified on the DEFRA MAGCI acknowledges that any potential impact to the designat
General Aviation	Access	Initial Options Appraisal: Qualitative	Impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual Reference Points and existing	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual Reference Points an
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	reviewed and updated (where applicable) prior to implem to ensure their continued validity. Airspace classifica requirements and any additional airspace requirements reviewed as part of Stage 3 activities.
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefit increasing airspace capacity which in turn will lead to predictable flight paths and fewer delays (both in the air ground). This is expected to facilitate economic benef potentially increasing the frequency of air transport move increasing passenger numbers and increasing cargo to carried.
General Aviation / commercial	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage	This option supports continuous descent operations, redu overall amount of fuel burnt. There is no requirement with
airlines			continuous descent operations from 7.000f. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, Incark mileage is used, based on the theory that the shorter the track mileage, the less greenhouse galess are emitted. In the case of the do nothing' baseline scenario, the track length is 55.08km (29.73nm).	2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 552 km (23.85 km) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that if will be of economic di-sbenefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it's 59.4 kt m(32 to 10 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage. It is assumed that twill be of economic disbenefit as more fuel will be burnt. Hore in-depth analysis will be carried out in Stage 3 to confirm.	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 58.85 km (31.78 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-leopth analysis will be carried out in Stage 3 to confirm.	applied is that the shorter the track length, the less fuel With regards to this option, it is 62.56 km (33.78 m) lon compared to the 'do nothing' scenario, this option is long this stage, it is assumed that It will be of economic dis- more fuel will be burnt. More in-depth analysis will be car Stage 3 to confirm.
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be rec enable pilots to fly the new PBN procedures as PBN has be common navigation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for ENA to assess the "other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not		procedures, increased pilot hire costs versus training etc
Airport / Air navigation service provider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERJ, may become prohibilityed yearsive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	There are no expected additional infrastructure costs. Al relate to the implementation of PBN and no addition infrastructure is required as the introduction of PBN redu reliance on ground infrastructure, in particular ground- navigation aids are no longer needed.
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect t implementation of new procedures and training of air controlling staff at EMA; however, these cannot be identifi stage of the ACP process.
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anlicipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of ail traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative Summary of Analysi	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extent conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	A hazard relating to anrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a norther or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	A hazard relating to anrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northery or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of al hazards and mitigations. When compared to the 'do nothing 'scenario', this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations.	between arriving aircraft conflicting with aircraft departit EMA a na onther or easterly direction. This would requ- tactical intervention and could result in an increase in workload. This hazard could be further mitigated throu design process or procedurally if required. Further assessment will be conducted during Stages 3 an CAP1616 process to confirm the exact nature of all hazar mitigations.
		Summary of Analysis	5	when compared to the do nothing scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn	when compared to the do noming scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn	When compared to the do nothing scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn	When compared to the do noming scenario, this option p Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000t, which could lead to a greater volume of fue burn, emissions and noise at lower envels. In terms of Trannellity Riodiversity Ceneral Aviation	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality	Better in the following areas: - Noise impact from 4.000ft - Noise impact from 7.000ft Equal/heutral in terms of the remaining criteria because there is no	Better in the following areas: - Noise impact from 4.000ft - Noise impact from 7.000ft - Air Quality	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality
			levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/ho change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	change when compared to today's operation. At this time, it is not possible to fully determine the safety	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	change when compared to today's operation.
			safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP106 process to determine the cumulative impact of this option when compared to all the other options.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design option of a wider system. Additional analysis will be required in St and 4 of the CAP1616 process to determine the cumulativ of this option when compared to all the other options.
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option O1 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option O2 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option O3 has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option been deemed the ACCEPTABLE option within this design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	PREFERRED	REJECTED	FAVOURABLE	ACCEPTABLE

AN 04 AN 04 CUP and the style of the route is ince to the final approach has not designed to provide an alternative It follows a similar route to Cohon It follows a similar route to Cohon > west of Belper and initially tracks over West Hallman, just to the west fly over Long Eaton and Ciffon. It uhw est of Cotrgrave to the south oute turns south and routes east of a runway centreline. In e of the A46, before turning left to 4 runway centreline. In LAF to the IV which is placed as mm) whiles! keeping the route within the LAF to the IV which is placed as FAF is 131\* which is below the sapproaches but is within the defined within ICAO guidance. wway 27 Stimated to overfly approximately

way 27 stimated to overfly approximately sproximate population of 61,800. ned property developments, this and impact a total population of tct on health and quality of life from affect fewer people than the 'do this option is estimated to overfly is with an approximate population t of 5,500 planned property mated to overfly and impact a total nitial noise impact on health and isessed as likely to affect fewer a nothing scenario.

in aviation emissions by location 616, para B72 a full Air Quality emed not required. IA. When compared to the 'do s deemed to be beneficial as it wer AQMAs.

d to support continuous descent ent of radar vectoring may still be expansition distances. The track m (33.78 nm). When compared to option is longer and is therefore se in greenhouse gas emissions conario and is deemed to be of in-depth analysis will take place at volumes of greenhouse gases ased.

is expected to deliver benefits by hich subsequently leads to more of delays (both in the air and on the eliance on outdated ground based ty increase operational resilience roduction of PBN.

ly identified tranquillity receptors any identified through community comparable to the 'do nothing' essed as neutral.

i, states that because of dispersion be an impact on local air quality thermore, CAP1616, Appendix B, airspace charge proposals will not y as they do not involve ground-ange sponsor has mapped the elemtific interest (SSSIs), Special ial Areas of Conservation (SACs) d on the DEFRA MAGIC Map and all impact to the designated sites in Stage 3 of the ACP process by atter Experts.

ss is anticipated to be minimal as a sual Reference Points and existing to General Aviation access will be pplicable) prior to implementation alidity. Airspace classification ali airspace requirements will be of Stage 3 activities.

which is the second sec

rried. a descent operations, reducing the error is no requirement within Stage oquantify hel burn, this will be to enable a comparison, the logic rack length, the loss fuel is burn. 62.65 km (33.78 mm) long. When enarith, this options is longer and at will be of economic dis-benefit as depth analysis will be carried out in to confirm. Joiccrew training will be required to procedures as PDN has become a andariad across the world.

es may include updates to Flight vigation databases and operating costs versus training etc. It is not ACP for EMA to assess the 'other s of flying PBN procedures.

al infrastructure costs. All options on of PBN and no additional i introduction of PBN reduces the ture, in particular ground-based e no longer needed.

e no longer needed. anticipated with respect to the deutes and training of air traffic the search of the search of the search anticipated with respect to the intrue procedures and training of air a cannot be identified at this stage 2P process. Im the north was identified where notizontial and/or ventical separation icting with aircraft departing from firection. This would require ATC d result in an increase in ATCO to further mitigates 3 and 4 of the the exact nature of all hazards and alitons.

ining criteria because there is r s operation.

. Illy determine the safety as this option has been as a set of design options as part ysis will be required in Stage 3 determine the cumulative impact all the other options.

nt methodology, Option O4 has option within this design

				DIPSO	DIPSO	DIPSO	DIPSO Direct	DIPSO
			'DO NOTHING' BASELINE	Direct R27_A_N_05	Direct R27_A_N_06 The IAF for this option is DIPSO and the style of the route is 'direct'	Direct R27 A N 07 The IAF for this option is DIPSO and the style of the route is 'direct' which means the distance to the final approach has been minimised.	R27_A_N_08 The IAF for this option is DIPSO and the style of the route is 'direct'	Indirect R27 A. N 029 The IAF for this option is DIPSO and the 'indirect' which means the distance to the I
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation	The IAF for this option is DIPSO and the style of the route is 'direct' which means the distance to the final approach has been minimised.	which means the distance to the final approach has been minimised. It follows a similar route to Option 5 but routes further east before joining the final approach.	It follows a similar track to Option 5 but routes slightly further south west over Nottingham.	It follows a similar route to Option 7 but routes further east before joining the final approach.	been minimised but has been designed to respite option to a 'direct'
			of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current	The option starts at IAF DIPSO, east of Ripley and initially tracks south-east over Eastwood, Kimberley, and central Nottingham. It continues on this	t The option starts at IAF DIPSO, east of Ripley and initially tracks south-east over Eastwood, Kimberley, and central Nottingham. It	The option starts at IAF DIPSO east of Ripley and initially tracks south-east passing just south of Kimberley. Just west of Nottingham it makes a slight left turn and continues over central	The option starts at IAF DIPSO east of Ripley and initially tracks south-east passing just south of Kimberley. Just west of Nottingham it makes a slight left turn and continues over central	The option starts at IAF DIPSO, east of R between Heanor and Eastwood and w Nottingham. It then turns east to fly over Lo
			operations where most arrivals are radar vectored by air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where current	track until south of Gamston where the route turns south and routes east of Keyworth before turning left to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as close as	Continues on this track until overhead Cotgrave to the south east of Nottingham where the route turns south and routes east of Keyworth briefly following the line of the A46, before turning left to join the	Nottingham until south of Gamston where the route turns south and routes east of Keyworth before turning left to join the extended runway centreline.	Nottingham until overhead Cotgrave to the south east of Nottingham where the route turns south and routes east of Keyworth briefly	the south-east of Nottingham the route turn of Keyworth before turning left to join th centreline.
			operations and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the modal track created	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5nm) whilst keeping the route within	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and	following the line of the A46, before turning left to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as	This RNAV 1 route connects the IAF to the close as possible to the FAF (3.85nm) when
			using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track	The descent gradient to the FAF is 2.59° which is within the optimum range for low noise approaches and is within the acceptable range for CDAs	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	far as possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	MSD for a 90° turn is taken into consider 2,000ft, which is the platform altitude for Runway 27 approache
			length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	defined within ICAO guidance.	The descent gradient to the FAF is 2.33° which is within the optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.57° which is within the optimum range for low noise approaches but is within the acceptable	The descent gradient to the FAF is 2.3° which is within the optimum range for low noise approaches and is within the acceptable range	The descent gradient to the FAF is 2.1° optimum range for low noise approache
Group Communities	Impact Noise impact on health		Runway 27	Runway 27	Runway 27 From 7,000ft, this option is estimated to overfly approximately	range for CDAs defined within ICAO guidance. Runway 27 From 7,000ft, this option is estimated to overfly approximately	for CDAs defined within ICAO quidance. Runway 27 From 7,000ft, this option is estimated to overfly approximately	acceptable range for CDAs defined with Runway 27 From 7,000ft, this option is estimated to
	and quality of life	Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the following.	From 7,000ft, this option is estimated to overfly approximately 78,650 households with an approximate population of 162,300. Taking account of	80,100 households with an approximate population of 158,300. Taking account of 3,750 planned property developments, this option	58,100 households with an approximate population of 120,300. Taking account of 2,900 planned property developments, this option	67,550 households with an approximate population of 138,200. Taking account of 5,000 planned property developments, this option	44,400 households with an approximate Taking account of 6,550 planned property de
			From 7,000ft: is estimated to overfly approximately 221,550	3,000 planned property developments, this option is estimated to overfly and impact a total population of 168,500. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer	potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	is estimated to overfly and impact a total population of 126,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	is estimated to overfly and impact a total population of 148,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	is estimated to overfly and impact a total po potential noise impact on health and quality assessed as likely to affect fewer people
			households with an approximate population of 436,600. Taking account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100.	people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 6,450 households with an approximate population of 12,200. Taking account of 2,750 planned property developments, this	scenario. From 4,000ft, this option is estimated to overfly approximately 3,750 households with an approximate population of 7,400. Taking account of 3,000 planned property developments, this	scenario. From 4,000ft, this option is estimated to overfly approximately 7,350 households with an approximate population of 13,900. Taking account of 1,850 planned property developments,	scenario. From 4,000ft, this option is estimated to overfly approximately 3,400 households with an approximate population of 6,900. Taking account of 3,850 planned property developments, this	scenario. From 4,000ft, this option is e approximately 10,400 households with an ap 19,100. Taking account of 3,700 planned p
			From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 122,600. Taking	option is estimated to overfly and impact a total population of 17,400. The potential noise impact on health and quality of life from 4,000ft is assessed	option is estimated to overfly and impact a total population of 13,300. The potential noise impact on health and quality of life from 4,000ft	this option is estimated to overfly and impact a total population of 17,400. The potential noise impact on health and quality of life from	option is estimated to overfly and impact a total population of 14,700. The potential noise impact on health and quality of life from 4,000ft	this option is estimated to overfly and impa 25,900. The potential noise impact on health
			account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	as likely to affect fewer people than the 'do nothing' scenario.	is assessed as likely to affect fewer people than the 'do nothing' scenario.	4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	is assessed as likely to affect fewer people than the 'do nothing' scenario.	4,000ft is assessed as likely to affect fewer nothing' scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emissions by location below 1.000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1.000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation below 1,000 feet. As per CAP1616, para
			above 1,000ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing'	deemed not required. This option overflies two AQMAs. When compared to the 'do nothing'	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do	Assessment is deemed not r This option overflies one AQMA. When com
Wider Society	Greenhouse Gas	Initial Options	scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000ft. Current arrival options do not facilitate continuous descent	scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deemed to be benefi AQMAs.
, , ,	impact	Appraisal: Qualitative	approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of	This option has been designed to support continuous descent approaches	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support
			radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within	to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 47.95 km	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 51.74 km (27.94 nm). When compared to the 'do	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 48.23 km (26.04 nm). When compared to the 'do	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 52.16 km (28.16 nm). When compared to the 'do	approaches to EMA. An element of radar required to manage aircraft separation distar of this option is 55.79 km (30.12 nm). Whe
			Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions	(25.89 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the	nothing scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the	nothing scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the	nothing' scenario, this option is longer and i result in an increase in greenhouse gas emi
			analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.		'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	'do nothing' scenario and is deemed to be benefit. More in-depth analysis will take plac the exact volumes of greenhouse g
			emitted. The track length of the 'do nothing' scenario for Runway 27 from the North is 55.06km (29.73nm).					
Wider Society	Capacity and resilience	Appraisal: Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected increasing airspace capacity which subser predictable flight paths and fewer delays (bo
			resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on or navigational aids will significantly increase through the introduction of
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs	This option overflies no statutorily identified tranquillity receptors (AONBs or	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identifie
			and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does	Inis option overnies no statutorily identified tranquility receptors (AUNES or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community	(AONBs or National Parks), nor any identifi
Wider Society	Biodiversity	Initial Options	not overfly any AONBs or National Parks.		and assessed as redutal.	and assessed as neutral.		
,	,	Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that
			Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para	and mixing, there is unlikely to be an impact aircraft above 1,000ft. Furthermore, CAP1 B80, states that in general, airspace change
			that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616. Aopendix B. para B80. states that in general. airspace	general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs).	an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated	an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated	an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated	an impact on biodiversity as they do not i infrastructure. The change sponsor has m
			change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change	Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and		Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any	Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, or identified on the DEEDA MACC May and advantage and the approximated and the second seco	Sites of Special Scientific Interest (SSSIs), 5 (SPAs), Special Areas of Conservation (SAC as identified on the DEFRA MAGIC Map and
			sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	potential impact to the designated sites around EMA will be	potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	potential impact to the designated sites assessed in Stage 3 of the ACP process by
General	Access	Initial Options			Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticip
Aviation	100000	Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Refere Letters of Agreement pertaining to General
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional	ensure their continued validity. Airspace classification requirements	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of		reviewed and updated (where applicable) pri ensure their continued validity. Airspace class and any additional airspace requirements will
	Economic impact from			airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by increasing	Stage 3 activities. The introduction of PBN is expected to deliver benefits by increasing	and any additional an space requirement a win environment as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by increasing	Stage 3 activities.	Stage 3 activities. The introduction of PBN is expected to delive
Aviation / commercial airlines	increased effective capacity	Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport	airspace capacity which in turn will lead to more predictable flight	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the	airspace capacity which in turn will lead to paths and fewer delays (both in the air or or expected to facilitate economic benefit by po
			extent procedures, therefore no economic benefit to Granimes.	movements, increasing passenger numbers and increasing cargo tonnage carried.		frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	frequency of air transport movements, in numbers and increasing cargo ton
General Aviation / commercial	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stare 2.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within State 2.	This option supports continuous descent of overall amount of fuel burnt. There is no req
airlines			descent operations from 7,000ft. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In	CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the	of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is	of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is	of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is	of the CAP1616 process to quantify fuel bur in Stage 3. Therefore, to enable a comparis that the shorter the track length, the less fue
			order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse	track length, the less fuel is burnt. With regards to this option, it is 47.95 km (25.89 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic	to this option, it is 51.74 km (27.94 nm) long. When compared to	that the shorter the track length, the less fuel is burnt. With regards to this option, it is 48.23 km (26.04 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is	to this option, it is 52.16 km (28.16 nm) long. When compared to	to this option, it is 55.79 km (30.12 nm) lot the 'do nothing' scenario, this option is longe
			gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 55.06km (29.73nm).	benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	assumed that it will be of economic dis-bene burnt. More in-depth analysis will be carr confirm.
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew train enable pilots to fly the new PBN procedures
	Other costs	Initial Options	would be practised by crews through existing simulator exercises.	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard acro Other costs to commercial airlines may inc
airlines		Appraisal: Qualitative	costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation da procedures, increased pilot hire costs versu
Airport / Air	Infrastructure costs	Initial Options	navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for El costs' to commercial airlines of flying
navigation service	initiast deture costa	Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on	There are no expected additional infrastruct relate to the implementation of PBN and no is required as the introduction of PBN rec
provider			prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	ground infrastructure, in particular ground-based navigation aids are no longer needed.	ground infrastructure, in particular ground-based navigation aids are no longer needed.	ground infrastructure, in particular ground-based navigation aids are no longer needed.	ground infrastructure, in particular ground-ba no longer needed.
Airport / Air navigation service	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA;	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA: however, these cannot be identified at this	Some operational costs are anticipated implementation of new procedures and controlling staff at EMA: however, these car
provider Airport / Air	Deployment costs	Initial Options	extern procedures.	however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation	stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP proce Some deployment costs are anticipated
navigation service provider		Appraisal: Qualitative	No deployment costs applicable to extant procedures.	of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure proces traffic controllers; however, these cannot be of the ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		A hazard relating to arrivals from the north was identified where there is the	A hazard relating to arrivals from the north was identified where	A hazard relating to arrivals from the north was identified where	A hazard relating to arrivals from the north was identified where	A hazard relating to arrivals from the north
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures.	potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly	between arriving aircraft conflicting with aircraft departing from EMA	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical		there is the potential for loss of horizontal ar between arriving aircraft conflicting with aircr in a northerly or easterly direction. This wo
			Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or proceedurally if required.		intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or		
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.		procedurally if required.	procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	procedurally if require Further assessment will be conducted durin CAP1616 process to confirm the exact nat
				mitigations.	mitigations.	mitigations.	mitigations.	mitigations.
		Summary of Analysis	\$	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas:	When compared to the 'do nothing' scenario, Worse in the following areas:
				- Noise impact from 4,000ft - Noise impact from 7,000ft	- Noise impact from 4,000ft - Noise impact from 7,000ft	- Noise impact from 4,000ft - Noise impact from 7,000ft	- Noise impact from 4,000ft - Noise impact from 7,000ft	- Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality	Better in the following areas: - Noise impact from 4,000ft
			continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In	Equal/neutral in terms of the remaining criteria because there is no change	Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no	<ul> <li>Noise impact from 4,000ft</li> <li>Noise impact from 7,000ft</li> <li>Air Quality</li> </ul>
			terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no	when compared to today's operation.	change when compared to today's operation. At this time, it is not possible to fully determine the safety	change when compared to today's operation.	change when compared to today's operation. At this time, it is not possible to fully determine the safety	Equal/neutral in terms of the remaining criter
			change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	change when compared to today's operation. At this time, it is not possible to fully determine
				be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option	system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option	system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option	implications of this specific option as this opt in isolation rather than as a set of design opti
					when compared to all the other options.	when compared to all the other options.	when compared to all the other options.	system. Additional analysis will be required in CAP1616 process to determine the cumulati- when compared to all the other options.
				Based on IOA Shortlist Assessment methodology, Option O5 has been	Based on IOA Shortlist Assessment methodology, Option O6 has	Based on IOA Shortlist Assessment methodology, Option O7 has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option O8 has	Based on IOA Shortlist Assessment method
			IOA Shortlist	deemed the REJECTED option within this design envelope.	been deemed the REJECTED option within this design envelope.	been deemed the FAVOURABLE option within this design envelope.	been deemed the PREFERRED option within this design envelope.	been deemed the REJECTED option within t
			Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	REJECTED	REJECTED	FAVOURABLE	PREFERRED	REJECTED

t	DIPSO Indirect
O29	R27_A_N_030
and the style of the route is	The IAF for this option is DIPSO and the style of the route is
to the final approach has not	indirect which means the distance to the final approach has not
med to provide an alternative	been minimised but has been designed to provide an alternative
direct' route.	respite option to a 'direct' route.
st of Ripley and tracks south	The option starts at IAF DIPSO, east of Ripley and tracks south
and west of likeston and	between Heanor and Eastwood and west of likeston and
over Long Eaton and Clifton. To	Nottingham. It then turns east to fly over Long Eaton and Clifton. It
te turns south and routes east	continues on this track until south west of Cotgrave to the south east
join the extended runway	of Nottingham where the route turns south and routes east of
e.	Keyworth briefly following the line of the A46, before turning left to
F to the IF which is placed as	join the extended runway centreline.
) when PANS OPS criteria and	This RNAV 1 arrival connects the IAF to the IF which is placed as
onsideration. The FAF is at	far as possible from the FAF (5nm) whilst keeping the route within
ude for the existing FAF for	existing controlled airspace. The FAF is at 2,000ft, which is the
roaches.	platform altitude for the existing FAF for Runway 27 approaches.
s 2.1° which is close to the	The descent gradient to the FAF is 1.9° which is below the optimum
proaches and is within the	range for low noise approaches but is within the acceptable range
ed within ICAO guidance.	for CDAs defined within ICAO guidance.
27	Runway 27
ited to overfly approximately	From 7,000ft, this option is estimated to overfly approximately
imate population of 81,200.	45,600 households with an approximate population of 83,300.
perty developments, this option	Taking account of 6,900 planned property developments, this option
otal population of 93,200. The	is estimated to overfly and impact a total population of 95,900. The
d quality of life from 7,000ft is	potential noise impact on health and quality of life from 7,000ft is
people than the 'do nothing'	assessed as likely to affect fewer people than the 'do nothing'
ion is estimated to overfly	scenario. From 4,000ft, this option is estimated to overfly
h an approximate population of	approximately 9,250 households with an approximate population of
inned property developments,	17,200. Taking account of 1,600 planned property developments,
id impact a total population of	this option is estimated to overfly and impact a total population of
n health and quality of life from	20,100. The potential noise impact on health and quality of life from
act fewer people than the 'do	4,000ft is assessed as likely to affect fewer people than the 'do
nario.	nothing' scenario.
aviation emissions by location	There is not likely to be a change in aviation emissions by location
5, para B72 a full Air Quality	below 1,000 feet. As per CAP1616, para B72 a full Air Quality
ad not required.	Assessment is deemed not required.
en compared to the 'do nothing'	This option overflies one AQMA. When compared to the 'do nothing'
beneficial as it overflies fewer	scenario, this option is deemed to be beneficial as it overflies fewer
i.	AQMAs.
support continuous descent	This option has been designed to support continuous descent
f radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage alcraft segretion distances. The track mileage
n distances. The track mileage	required to manage aircraft separation distances. The track mileage
1). When compared to the 'do	of this option is 60.18 km (32.50 nm). When compared to the 'do
er and is therefore expected to	nothing' scenario, this option is longer and is therefore expected to
ar and is therefore expected to	nothing' scenario, this option is longer and is therefore expected to
pas emissions compared to the	result in an increase in greenhouse gas emissions compared to the
d to be of environmental dis-	'do nothing' scenario and is deemed to be of environmental dis-
ke place at Stage 3 to confirm	benefit. More in-depth analysis will take place at Stage 3 to confirm
ouse gases released.	the exact volumes of greenhouse gases released.
xpected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by
subsequently leads to more	increasing airspace capacity which subsequently leads to more
ays (both in the air and on the	predictable flight paths and fewer delays (both in the air and on the
ce on outdated ground based	ground). The reduction of the reliance on outdated ground based
ce on outdated ground based	ground). The reduction of the reliance on outdated ground based
crease operational resilience	navigational aids will significantly increase operational resilience
ction of PBN.	through the introduction of PBN.
dentified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors
identified through community	(AONBs or National Parks), nor any identified through community
able to the 'do nothing' scenario	engagement and is therefore comparable to the 'do nothing' scenario
s neutral.	and assessed as neutral.
tes that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion
impact on local air quality from	and mixing, there is unlikely to be an impact on local air quality from
, CAP1616, Appendix B, para	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para
change proposals will not have	B80, states that in general, airspace change proposals will not have
to not involve ground-based	an impact on biodiversity as they do not involve ground-based
has mapped the designated	infrastructure. The change sponsor has mapped the designated
SSIs), Special Protection Areas	Sites of Special Scientific Interest (SSSIs), Special Protection Areas
on (SACs) and RAMSAR sites,	(SPAs), Special Areas of Conservation (SACs) and RAMSAR sites,
lap and acknowledges that any	as identified on the DEFRA MAGIC Map and acknowledges that any
d sites around EMA will be	potential impact to the designated sites around EMA will be
ess by Subject Matter Experts.	assessed in Stage 3 of the ACP process by Subject Matter Experts.
anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a
Reference Points and existing	consequence of this ACP. All Visual Reference Points and existing
eneral Aviation access will be	Letters of Agreement pertaining to General Aviation access will be
able) prior to implementation to	reviewed and updated (where applicable) prior to implementation to
ace classification requirements	ensure their continued validity. Airspace classification requirements
ents will be reviewed as part of	and any additional airspace requirements will be reviewed as part of
vities. o deliver benefits by increasing	and any additional anspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by increasing
lead to more predictable flight	airspace capacity which in turn will lead to more predictable flight
air or on the ground). This is	paths and fewer delays (both in the air or on the ground). This is
fit by potentially increasing the	expected to facilitate economic benefit by potentially increasing the
ents, increasing passenger	frequency of air transport movements, increasing passenger
rgo tonnage carried.	numbers and increasing cargo tonnage carried.
cent operations, reducing the	This option supports continuous descent operations, reducing the
no requirement within Stage 2	overall amount of fuel burnt. There is no requirement within Stage 2
uel burn, this will be conducted	of the CAP1616 process to quantify fuel burn, this will be conducted
omparison, the logic applied is	in Stage 3. Therefore, to enable a comparison, the logic applied is
less fuel is burnt. With regards	that the shorter the track length, the less fuel is burnt. With regards
nm) long. When compared to	to this option, it is 60.18 km (32.50 nm) long. When compared to
is longer and at this stage, it is	the 'do nothing' scenario, this option is longer and at this stage, it is
dis-benefit as more fuel will be	assumed that it will be of economic dis-benefit as more fuel will be
be carried out in Stage 3 to	burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
ew training will be required to	It is anticipated that no extra pilot/crew training will be required to
edures as PBN has become a	enable pilots to fly the new PBN procedures as PBN has become a
and across the world.	common navigation standard across the world.
may include updates to Flight	Other costs to commercial airlines may include updates to Flight
ation databases and operating	Management Systems (FMS), navigation databases and operating
ts versus training etc. It is not	procedures, increased pilot hire costs versus training etc. It is not
P for EMA to assess the 'other	proportionate at this stage of the ACP for EMA to assess the 'other
I flying PBN procedures.	costs' to commercial airlines of flying PBN procedures.
rastructure costs. All options	There are no expected additional infrastructure costs. All options
and no additional infrastructure	relate to the implementation of PBN and no additional infrastructure
BN reduces the reliance on	is required as the introduction of PBN reduces the reliance on
ound-based navigation aids are	ground infrastructure, in particular ground-based navigation aids are
reded.	no longer needed.
cipated with respect to the	Some operational costs are anticipated with respect to the
es and training of air traffic	implementation of new procedures and training of air traffic
ese cannot be identified at this	controlling staff at EMA; however, these cannot be identified at this
process	stage of the ACP process.
cipated with respect to the	Some deployment costs are anticipated with respect to the
procedures and training of air	implementation of the new departure procedures and training of air
nnot be identified at this stage	traffic controllers; however, these cannot be identified at this stage
rocess.	of the ACP process.
e north was identified where	A hazard relating to arrivals from the north was identified where
ontal and/or vertical separation	there is the potential for loss of horizontal and/or vertical separation
ith aircraft departing from EMA his would require ATC tactical	between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical intervention and certific the project section and the provided that the section of the sec
rease in ATCO workload. This	intervention and could result in an increase in ATCO workload. This
mough the design process or	hazard could be further mitigated through the design process or
required	proceedings of the increase of the second s
required. d during Stages 3 and 4 of the mot noture of all becords and	procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the
act nature of all hazards and	CAP1616 process to confirm the exact nature of all hazards and
ns.	mitigations.
enario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
	Worse in the following areas:
	- Greenhouse gas emissions - Fuel burn
	Better in the following areas:
	- Noise impact from 4,000ft - Noise impact from 7,000ft
	- Air Quality
g criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
eration.	At this time, it is not possible to fully determine the safety
eration.	implications of this specific and the second
eration. letermine the safety this option has been assessed	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider
eration. letermine the safety this option has been assessed ign options as part of a wider uired in Stage 3 and 4 of the	in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the
	in isolation rather than as a set of design options as part of a wider
eration. letermine the safety this option has been assessed ign options as part of a wider uired in Stage 3 and 4 of the umulative impact of this option s.	In isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.
eration. letermine the safety this option has been assessed ign options as part of a wider uired in Stage 3 and 4 of the mulative impact of this option	in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option
eration. letermine the safety this option has been assessed ign options as part of a wider uired in Stage 3 and 4 of the mulative impact of this option s. rethodology, Option 29 has	In isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Staga 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options. Based on IOA Shortlist Assessment methodology, Option 30 has
eration. letermine the safety this option has been assessed ign options as part of a wider uired in Stage 3 and 4 of the mulative impact of this option s. rethodology, Option 29 has	In isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options. Based on IOA Shortlist Assessment methodology, Option 30 has

			'DO NOTHING' BASELINE	IAF 1 Direct R27_A_N_017	IAF 1 Direct R27_A_N_018	IAF 1 Indirect R27_A_N_019	IAF 1 Indirect R27_A_N_020
					The IAF for this option is IAF1 and the style of the route is 'direct'	The IAF for this option is IAF1 and the style of the route is 'indirect which means the distance to the final approach has not been	The IAF for this option is IAF1 and the style of the route is 'inc
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A	The IAF for this option is IAF1 and the style of the route is 'direct' which means the distance to the final approach has been minimised.	which means the distance to the final approach has been minimised. It follows a similar route as Option 17 but routes further	minimised but has been designed to provide an alternative respite option to a 'direct' route. The option starts at IAF1 west of Sutton-in-Ashfield and tracks	which means the distance to the final approach has not be minimised but has been designed to provide an alternative re option to a 'direct' route. It follows the same route as Option 1
			modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for	minimised. The option starts at IAF1 west of Sutton-in-Ashfield and tracks south-east following the line of the M1 motorway, passing between	east before joining the final approach. The option starts at IAF1 west of Sutton-in-Ashfield and tracks	south passing over Heanor and routing west of Sutton-In-Ashineid and tracks south passing over Heanor and routing west of Ilkeston and Nottingham. It then turns east to fly over Long Eaton and Clifton.	routes further east before joining the final approach. The option starts at IAF1 west of Sutton-in-Ashfield and trai
			arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by one traffic controllare from the local una offitiants the model track.	Hucknall and Kimberley. It then makes a slight left turn passing over central Nottingham and continues on this track until south of	south-east following the line of the M1 motorway, passing between Hucknall and Kimberley. It then makes a slight left turn passing ours exercised Nettinghame and exercise on this breach until method	To the south-east of Nottingham the route turns south and routes east of Keyworth before turning left to join the extended runway	south passing over Heanor and routing west of likeston ar Nottingham and then turns east to fly over Long Eaton and C
			air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar	Gamston where the route turns south and routes east of Keyworth before turning left to join the extended runway centreline.	over central Nottingham and continues on this track until overhead Cotgrave to the south east of Nottingham where the route turns south and routes east of Keyworth briefly following the line of the	centreline. This RNAV 1 route connects the IAF to the IF which is placed as	It continues on this track until south west of Cotgrave to the s east of Nottingham where the route turns south and routes ea
			vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85mm) when PANS OPS criteria of MOO (see 0.05 km is being lot being in the set of the the total set of	A46, before turning left to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	Keyworth briefly following the line of the A46, before turning lipoin the extended runway centreline.
			modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where	and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	far as possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the	2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1.82° which is below the	This RNAV 1 arrival connects the IAF to the IF which is place far as possible from the FAF (5nm) whilst keeping the route w existing controlled airspace. The FAF is at 2,000ft, which is
			appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown	The descent gradient to the FAF is 2.3° which is within the optimum range for low noise approaches and is within the	platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 2.08° which is below the	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	platform altitude for the existing FAF for Runway 27 approac The descent gradient to the FAF is 1.67° which is below th
			point) of the runway.	acceptable range for CDAs defined within ICAO guidance.	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.		optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance
Group	Impact Noise impact on health	Level of Analysis	Runway 27	Runway 27	Runway 27	Runway 27	Runway 27
Communices	and quality of life	Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do	From 7,000ft, this option is estimated to overfly approximately 78,200 households with an approximate population of 157,400.	From 7,000ft, this option is estimated to overfly approximately 69,550 households with an approximate population of 137,000.	From 7,000ft, this option is estimated to overfly approximately 50,650 households with an approximate population of 93,000.	From 7,000ft, this option is estimated to overfly approximat 52,200 households with an approximate population of 95,7
			nothing' scenario for Runway 27 is estimated to overfly the following.	Taking account of 4,850 planned property developments, this option is estimated to overfly and impact a total population of 167,100. The potential noise impact on health and quality of life	Taking account of 4,950 planned property developments, this option is estimated to overfly and impact a total population of 146,700. The potential noise impact on health and quality of life	Taking account of 7,050 planned property developments, this option is estimated to overfly and impact a total population of 105,900. The potential noise impact on health and quality of life	Taking account of 7,500 planned property developments, ti option is estimated to overfly and impact a total population 109,500. The potential noise impact on health and quality of
			From 7,000ft: is estimated to overfly approximately 221,550 households with an approximate population of 436,600. Taking	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to affect fewer people than 'do nothing' scenario. From 4,000ft, this option is estimated
			account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100.	overfly approximately 14,750 households with an approximate population of 28,200. Taking account of 2,750 planned property	overfly approximately 28,900 households with an approximate population of 60,000. Taking account of 2,900 planned property	overfly approximately 12,850 households with an approximate population of 23,200. Taking account of 3,150 planned property	overfly approximately 10,100 households with an approxim population of 18,600. Taking account of 3,500 planned prop
			From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 122,600. Taking	developments, this option is estimated to overfly and impact a total population of 33,500. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	developments, this option is estimated to overfly and impact a total population of 66,000. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	developments, this option is estimated to overfly and impact a tota population of 28,900. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	I developments, this option is estimated to overfly and impact a population of 25,100. The potential noise impact on health a quality of life from 4,000ft is assessed as likely to affect few
			account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by loc
		Appraisal. Qualitative	conditions. The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final processing the terms of a contrast of the provide the set of the se	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do	below 1,000 feet. As per CAP1616, para B72 a full Air Qua Assessment is deemed not required.
			approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1.000ft.	This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	nis option overnies one AQWA. When compared to the do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AOMAs.	This option overflies one AQMA. When compared to the 'c nothing' scenario, this option is deemed to be beneficial as overflies fewer AQMAs.
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact				
	Impace	Appraisal. Qualitative	track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descr approaches to EMA. An element of radar vectoring may still required to manage aircraft separation distances. The trac
			performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within	required to manage aircraft separation distances. The track mileage of this option is 52.44 km (28.32 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore		required to manage aircraft separation distances. The track mileage of this option is 62.07 km (33.52 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	
			Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a	expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissis compared to the 'do nothing' scenario and is deemed to be
			comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	environmental dis-benefit. More in-depth analysis will take place al Stage 3 to confirm the exact volumes of greenhouse gases	t environmental dis-benefit. More in-depth analysis will take pla Stage 3 to confirm the exact volumes of greenhouse gase
			emitted. The track length of the 'do nothing' scenario for Runway 27 from the North is 55.06km (29.73nm).	released.	released.	released.	released.
Wider Society	Capacity and resilience	e Initial Options Appraisal: Qualitative	Retaining extant procedures would maintain current capacity;	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and table difference in the subsequently leads to more the subsequently leads to more the subsequently leads to more the s	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and that all divide and the subsequently leads to more the subsequently leads to more the subsequently leads to more the s	The introduction of PBN routes is expected to deliver benefit increasing airspace capacity which subsequently leads to m
			however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience		predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	
Wider Society	Tranquillity	Initial Options	As per CAP1616, Appendix B, para B76, change sponsors are	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.
		Appraisal: Qualitative	required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity recep (AONBs or National Parks), nor any identified through comm
			through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overflv any AONBs or National Parks.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothin scenario and assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs),	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality	CAP1616, Appendix B, para B74, states that because of dispe and mixing, there is unlikely to be an impact on local air qua
			Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map. CAP1616, Appendix B, para	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will no	from aircraft above 1,000ft. Furthermore, CAP1616, Append t para B80, states that in general, airspace change proposals w
			B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft.	have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	have an impact on biodiversity as they do not involve groun based infrastructure. The change sponsor has mapped th
			Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve around-based infrastructure.	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites as identified on the DFFRA MAGIC Man and	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and	designated Sites of Special Scientific Interest (SSSIs), Spec Protection Areas (SPAs), Special Areas of Conservation (SA and RAMSAR sites, as identified on the DEFRA MAGIC Map
			However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	acknowledges that any potential impact to the designated s around EMA will be assessed in Stage 3 of the ACP process
General Aviation	Access	Initial Options Appraisal: Qualitative	Stage 3 of the ACP process by Subject Matter Experts.	Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	Subject Matter Experts. Impact to General Aviation access is anticipated to be minima
Aviabon		Appraisal. Qualitative	No change to existing airspace arrangements. Any General		consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Letters of Agreement pertaining to General Aviation access will be	Letters of Agreement pertaining to General Aviation access w
			Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be	reviewed and updated (where applicable) prior to implementa to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will
General	Economic impact from	Initial Options		reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by
Aviation / commercial	increased effective capacity	Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of	increasing airspace capacity which in turn will lead to more predictable hight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to mor predictable flight paths and fewer delays (both in the air or or
airlines			extant procedures, therefore no economic benefit for GA/airlines.	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport moveme increasing passenger numbers and increasing cargo tonna
General	Fuel burn	Initial Options		carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing
Aviation / commercial airlines		Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations from 7,000ft. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic	2 of the CAP1616 process to quantify fuel burn, this will b
annios			conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 52.44 km (28.32 nm) long. When	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 46.55 km (25.13 nm) long. When	applied is that the shorter the track length, the less fuel is burnt. With reards to this option, it is 62.07 km (33.52 nm) long. When	applied is that the shorter the track length, the less fuel is bu With regards to this option, it is 66.47 km (35.89 nm) long. V
			is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing'	this stage, it is assumed that it will be of economic benefit as less	compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less	this stage, it is assumed that it will be of economic dis-benefit as	compared to the 'do nothing' scenario, this option is longer an this stage, it is assumed that it will be of economic dis-benef
Commercial	Training costs	Initial Options	baseline scenario, the track length is 55.06km (29.73nm).	fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	Stage 3 to confirm.	n more fuel will be burnt. More in-depth analysis will be carried Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be require
airlines		Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.		It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	a enable pilots to fly the new PBN procedures as PBN has beco common navigation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to F Management Systems (FMS), navigation databases and oper
			with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	procedures, increased pilot hire costs versus training etc. It is not	procedures, increased pilot hire costs versus training etc. It is proportionate at this stage of the ACP for EMA to assess the
Airport / Air	Infrastructure costs	Initial Options	board system capability etc.) to consider these effectively. No additional infrastructure is required at EMA to maintain extant	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All op
navigation service		Appraisal: Qualitative	conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces
provider			prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particular ground-base navigation aids are no longer needed.
Airport / Air navigation service	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traff controlling staff at EMA; however, these cannot be identified a
provider Airport / Air	Deployment costs	Initial Options	exam procedures.	stage of the ACP process. Some deployment costs are anticipated with respect to the	Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with respect to the	Some deployment costs are anticipated with respect to th
navigation service	-p jiion oosts	Appraisal: Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage	implementation of the new departure procedures and training of ai traffic controllers; however, these cannot be identified at this stage	r implementation of the new departure procedures and training traffic controllers; however, these cannot be identified at this
provider Safety	Safety Assessment	Initial Options		of the ACP process. A hazard relating to arrivals from the north was identified where	of the ACP process. A hazard relating to arrivals from the north was identified where	of the ACP process. A hazard relating to arrivals from the north was identified where	of the ACP process. A hazard relating to arrivals from the north was identified wh
Assessment		Appraisal: Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures.	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	there is the potential for loss of horizontal and/or vertical sepa between arriving aircraft conflicting with aircraft departing fr EMA in a northerly or easterly direction. This would require a
			Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an increase in ATC workload. This hazard could be further mitigated through t
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.		design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the		
		Summary of Analysis		CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards mitigations. When compared to the 'do nothing' scenario, this option perfor
		, or analysis		Better in the following areas:	Better in the following areas:	Worse in the following areas:	Worse in the following areas:
			The 'do nothing' scenario in relation to this ACP is not a viable	- Noise impact from 4,000ft - Noise impact from 7,000ft - Greenhouse gas emissions	Noise impact from 4,000ft     Noise impact from 7,000ft     Greenhouse gas emissions	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn
			option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not	- Greenhouse gas emissions - Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn - Air Quality	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft
			enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower	- Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no	- Noise impact from 7,000ft	- Noise impact from 7,000ft - Air Quality
			levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides	change when compared to today's operation.	change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there
			minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	change when compared to today's operation. At this time, it is not possible to fully determine the safety	change when compared to today's operation. At this time, it is not possible to fully determine the safety
			safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as
				of this option when compared to all the other options.	of this option when compared to all the other options.	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options	of a wider system. Additional analysis will be required in Stage and 4 of the CAP1616 process to determine the cumulative in of this option when compared to all the other options.
						of this option when compared to all the other options.	or and option when compared to all the other options.
			IOA Shortlist	Based on IOA Shortlist Assessment methodology, Option 17 has been deemed the ACCEPTABLE option within this design	Based on IOA Shortlist Assessment methodology, Option 18 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 19 has been deemed the FAVOURABLE option within this design any local	Based on IOA Shortlist Assessment methodology, Option 20 been deemed the PREFERRED option within this design envelopment
			Assessment	envelope.		envelope.	
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	ACCEPTABLE	REJECTED	FAVOURABLE	PREFERRED
				1			

the style of the route is 'indirect' is final approach has not been 10 provide an alternative resplic the same route as Option 19 but for the same route as Option 19 but of Sutton-in-Ashide and tracks of routing west of likesion and Citho 5 Sutton-in-Ashide and tracks of the Ada, before turning left to unway centralient is placed as 10 whits keeping the route white PFF is at 2,000 the route his the tPFF is at 2,000 the site is before the is af and the before approaches but is within the approaches but is within the strend within IGAO guidance.

y 27 mated to overfly approximately rodinate population of 95,700, d property developments, this d impact a total population of sact on health and quality of life to affect fever people than the 2010, this option is estimated to useholds with an approximate due to overfly and impact a total tatel to overfly and impact a total tatel on the impact on health and essed as likely to affect fever nothing scenario.

n aviation emissions by location 16, para B72 a full Air Quality ned not required. I. When compared to the 'do deemed to be beneficial as it or AQMAs.

to support continuous descent t of radar vectoring may still be paration distances. The track (35.89 nm). When compared to pion is longer and is therefore a in greenhouse gas emissions smanio and is deemed to be of -depth analysis will take place at olumes of greenhouse gases sed.

s expected to deliver benefits by ich subsequently leads to more delays (both in the air and on the ance on outdated ground based i increase operational resilience duction of PBN.

y identified tranquillity receptors ny identified through community omparable to the 'do nothing' essed as neutral.

states that because of dispersion ee an impact on local air quality emore. CAP1616, Appendix B, irspace change proposals will not as they do not involve ground-new sponsor hat Scrippi Ground Interact D and Scrippi Ground Inter Scrippi Ground Inter

ons. scenario, this option performs

ning criteria because there is no operation.

ly determine the safety as this option has been is a set of design options as part ysis will be required in Stage 3 determine the cumulative impac II the other options.

			'DO NOTHING' BASELINE	IAF 2 Direct R27_A_N_013	IAF 2 Direct R27_A_N_014	IAF 2 Indirect R27_A_N_021	IA Ind R27_A
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The	The IAF for this option is IAF2 and the style of the route is 'direct' which means the distance to the final approach has been minimised. The option starts at IAF2 near Alfreton and tracks south-east between Hearor and Eastwood and overflies the eastern side of likeston where it turns slightly left. It then passes over south-west Nottingham and continues on this track unlis outh-east of Notingham to a point south of Gamston. At this point the route turns south and routes east of Keyworth before turning left to join the extended runway centreline.	The IAF for this option is IAF2 and the style of the route is 'direct' which means the distance to the final approach has been minimised. If flows a similar route as Option 13 but routes further east before joining the final approach. The option stars at IAF2 near Alfretion and tracks south-east between Heanor and Eastwood and overflies the eastern side of likeston where it turns slightly left. It then passes over south-west Nottingham and continues on this track unil overhead Cotgrave to the south east of Nottingham where the route turns south and routes east of Keyworth, briefly following the line of the AA6, before turning left to join the extended runway contreline.	The IAF for this option is IAF2 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative resple to the option tains at IAF2 near Alfeton from where it tracks south- east turning south between Heanor and Eastwood and routing west of likestion and Nottingham. It then turns east to fly over Long Eaton and Cliffon. To the south-east of Nottingham the route turns south and route east of Keyworth before turning left to join the extended rurway centrelline.	The IAF for this option is IAF2 ar which means the distance to minimised but has been designe option to a "direct route. It follow routes further east before The option starts at IAF2 near A east turning south between Hear of likeston and Nottingham. It the and Clifton. It continues on this to the south east of Nottingham routes east of Keyworth briefly fo
			overtlight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7.000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	close as possible to the FAF (3.65m) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000t, which is the platform altitude for the existing FAF for Rurway 27 approaches. The descent gradient to the FAF is 2.18° which is close to the optimum range for two noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	This RNAV 1 arrival connects the IAF to the IF which is placed as for as possible from the FAF (som) whils teleping the route whith existing controlled airspace. The FAF is at 2.00ft, which is the platform altitude for the existing FAF for Rumay27 approaches. The descent gradient to the FAF is 1.99° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	close as possible to the FAF (3.65m) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Rurway 27 approaches. The descent gradient to the FAF is 1.89° which is within the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	turning left to join the ex This RNAV 1 arrival connects th far as possible from the FAF (5r existing controlled airspace. T platform altitude for the existing The descent gradient to the f optimum range for low noiss acceptable range for CDAs i
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal: Qualitative	Runway 27 For comparison purposes in the 10A, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the following. From 7,000ft: is estimated to overfly approximately 221,550 households with an approximate population of 436,600. Taking account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100. From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 26,600. Taking incurrent and approximate population of 26,260. Taking incurrent approximate population of 22,600. Taking incurrent approximate population approximately 58,550 households with an approximate population of 22,600. Taking incurrent approximate population approximately 58,550 households with an approximate population approximately 58,550 households with appr	Runway 27 From 7,000ft, this option is estimated to overfly approximately 55,100 households with an approximately population of 106,200. Taking account of 5,750 planned property developments, this option is estimated to overfly and impact a total population of 117,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fever people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 12,000 households with an approximately population of 22,700. The king account of 1,700 planned property developments, this option is estimated to overfly and impact a total population of 25,900. The potential noise impact on health and quality of life rom 4,000ft assessed as likely to affect fever	Runway 27 From 7.000ft, this option is estimated to overfly approximately 64,000 households with an approximate population of 125,200. Taking account of 6,850 planned property developments, this option is estimated to overfly and impact a total population of 138,600. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fever people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 14,150 households with an approximate population of 22,600. The potential noise impact on health and quality of fire form 4,000ft. Bis essessed as likely to affect fever	Runway 27 From 7.000ft, this option is estimated to overfly approximately 51.250 households with an approximate population of 93.400. Taking accound 7 850 planed property developments, this option is estimated to overfly and impact a total population of 107.800. The potential noise impact on health and papel full from 7.000ft is assessed as likely to affect fewer pople than the 'do nothing' scenario. From 4.000ft, this option is estimated to overfly approximately 10.350 households with an approximate population of 19.100. Taking account of 3,250 planned property developments, this option is estimated to overfly and impact a total population of 25,100. The potential noise impact on health and quality of iffer fom 4.000ft assessed as likely to affect fewer	Rum From 7.000ft, this option is es 53.050 households with an ap Taking account of 8.250 plant option is estimated to overfly 111.700. The potential noise in from 7.000ft is assessed as like 'do nothing' scenario. From 4, overfly approximately (10.250 population of 18.900. Taking a developments, this option is esti population of 25,600. The pote quality of ifte rom 4.000ft as
Communities	Air Quality	Initial Options Appraisal: Qualitative	account of 7.500 planned property developments, this option is estimated to overfly and impact a total population of 138.300. No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1.000f. tother than the areas in the immediate vicinity of final approach to EMA. In terms of AGMAs, the ROKUP 'do nothing approach to EMA. In terms of AGMAs, the ROKUP 'do nothing and the second secon	people than the 'do nothing' scenario. There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B/2 a full Air Quality Assessment is demend not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this ootion is deemed to be beneficial as it	people than the 'do nothing' scenario. There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Ar Quality Assessment is demend not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this ootion is deemed to be beneficial as it	people than the 'do nothing' scenario. There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is demend not required. This option overfiles one AQMA. When compared to the 'do available to the option of the domend of the schedule of the 'do	people than the 'd There is not likely to be a chang below 1,000 feet. As per CAF Assessment is d This option overflies one AQ
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	scenario overflight of these AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000t. Current arrival options do not facilitate continuous descent approaches to EMA from 7,000t. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the shorter the tack mileage, the less greenhouse gases are emitted. The track length of the 'do nothing' scenario for Runway 27 from the North is 50 folm; 07 3mn).	noming scenario, this option is deelined to be beneficial as it overflies ferver ADMAs. This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 54.24 km (29.29 nm). When compared to the 'do nothing' scenario, this coption is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	noming scenario, this option is deelined to be beneficial as it overflies fettiver ACMAs. This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 58.31 km (31.49 nm). When compared to the 'do nothing' scenario, this contain is herefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs. This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircaft separation distances. The track mileage of this option is 60.54 km (32.69 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	the 'do nothing' scenario, this expected to result in an increa compared to the 'do nothing's
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Relating extent is document (221 min): Relating extent procedures would maintain current capacity: however, due to the reliance upon ground-based navigational aids, realience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PSN procedures.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fever delays (both the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fever delays (both the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes increasing airspace capacity v predictable flight paths and fewe ground). The reduction of the n navigational aids will significan through the int
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overly any AONBs or Vational Parks.	This option everifies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statuto (AONBs or National Parks), nor engagement and is therefore scenario and as
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The charge sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and FANISAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.0001t. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and ackrowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	and mixing, there is unlikely to be an impact on local air quality fron aircraft above 1000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not hav an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	and mixing, there is unlikely to b aircraft above 1,000ft. Furthern B80, states that in general, airsy an impact on biodiversity as I infrastructure. The change spc Sites of Special Scientific Inte Areas (SPAs), Special Area RAMSAR sites, as identified acknowledges that any potent around EMA will be assessed Subject M
General Aviation	ACCESS	Initial Options Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements	consequence of this ACP. All V Letters of Agreement pertaining reviewed and updated (where a ensure their continued validity. A
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is increasing airspace capacit predictable flight paths and few ground). This is expected to potentially increasing the frequincreasing passenger numbe ca
General Aviation / commercial airlines	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations from 7.000f. Within Stage 2.0 the CAP1'516 process. Ihere is on requirement for a change sponsor to conduct quantitative hub burn analysis. This will be covered in Stage 3.1 noted to make a comparison in Stage 2. In change, the lass does not be theory that the shorter the track mileage, the lass greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 55.06km (29.73nm).	This option supports continuous descent operations, reducing the overall amount of fuel burn. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burn. With regards to this option, it is 54.24 km (22.2 mm) long. When compared to	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 58.31 km (31.49 nm) long. When compared to this option.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP-1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 60.54 km (32.69 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is	This option supports continuou overall amount of fuel burnt. The of the CAP1616 process to quar in Stage 3. Therefore, to enable that the shorter the track length, to this option, it is 64.93 km (3 the 'do nothing' scenario, this op
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pi enable pilots to fly the new PBN common navigation st
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue thying conventional navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBM procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBM procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBM procedures.	Other costs to commercial airli Management Systems (FMS), r procedures, increased pilot hirr proportionate at this stage of the costs' to commercial airlin
Airport / Air navigation service provider Airport / Air	Infrastructure costs Operational costs	Initial Options Appraisal: Qualitative Initial Options	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by VERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	is required as the introduction ground infrastructure, in partici are no lor Some operational costs are
navigation service provider	Dealerment contr	Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	stage of the ACP process.	stage of the ACP process.	stage of the
Airport / Air navigation service provider	Deployment costs	Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.		Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are implementation of the new depa traffic controllers; however, thes of the Al
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP178) or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical intervention and could fersult in an increase in ATC0 workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	A hazard relating to anrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EM in a northerly or eastherly direction. This would require ATC bactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EM/ in a northerly or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	A hazard relating to arrivats fr there is the potential for loss of between arriving aircraft conflict in a northerly or easterly directic intervention and could result i This hazard could be further mi or procedur Further assessment will be conf CAP1616 process to confirm i mitig
		Summary of Analysis	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000t, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillits, Biddiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to toda's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current IBM operations are safe. It is acknowledged that ATCD workload is likely to increase due to the enduring requirement for radar vectoring.	When compared to the 'do nothing' scenario, this option performs: Better in the following areas: - Noise impact from 4.000t - Noise impact from 4.000t - Greenhouse gas emissions - Fuel burn - Air Quality Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn Better in the following areas: - Noise impact from 4,000t - Noise impact from 7,000t - Air Quality Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in States 3 and 4 of the	When compared to the 'do notifing scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn Better in the following areas: - Noise impact from 7.000t - Air Quality Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in solation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	When compared to the 'do nothi Worse in the following areas: - Greenhouse gas emissions - Fuel burn - Noise impact from 4,000t - Noise impact from 7,000t - Naise impact from 7,000t - Air Quality Equal/neutral in terms of the ren change when compared to today At this time, it is not possible to in isolation rather than as a set system. Addition analysis will
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 13 has been deerned the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 14 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology. Option 21 has been deemed the PREFERRED option within this design envelope.	envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	ACCEPTABLE	REJECTED	PREFERRED	FAVO

FAVOURABLE

Shortlist Assessment methodology, Option 22 he FAVOURABLE option within this design

is not possible for large data the safety this specific option as this option has been assesses ther than as a set of design options as part of a wider onal analysis will be required in Stage 3 and 4 of the sets to determine the cumulative impact of this option d to all the other options.

terms of the remaining criteria because there is no ompared to today's operation.

mitigations. ed to the 'do nothing' scenario, this option perform:

liers; however, these cannot be identified at this stage of the ACP process. Jealang to arrivals from the north was identified where obtainal for loss of horizontal and/or vertical separation ing aircraft conflicting with aircraft departing from EMA or easterly direction. This would require ATC tactical n and could result in an increase in ATCO workload. Could be further mitigated through the design process or procedurally if required. Sement will be conducted during Stages 3 and 4 of the rocess to confirm the exact nature of all hazards and mitigations.

erational costs are anticipated with respect to the tration of new procedures and training of air traffic aff at EMA; however, these cannot be identified at this stage of the ACP process. ployment costs are anticipated with respect to the on of the new departure procedures and training of air ers, however, these cannot be identified at this stage of the set of the

are no longer needed. erational costs are anticipated with respect to the

Increasing the frequency of air transport movements, passenger numbers and increasing cargo tonnage carried. supports continuous descent operations, reducing the th of fuel burnt. There is no requirement thin Stage 2 16 process to quantify fuel burnt, this will be conducted Therefore, to enable a comparison, the logic applied is the the track length, the less fuel is burnt. With regards n, it is 64.93 km (35.06 nm) long. When compared to g scenario, this solid is burnt. With regards at I will be of economic dis-benefit as more tuel will be the dhat no extra g policient training will be required to to fty the new PBN procedures as PBN has become morn anvigator standard across the world. Lincreased pilot the costs versus training etcl. It is not at this tage of the ACP for EBA to assess the 'other to commercial antifies of fying PBP procedures. o expected additional infrastructure costs. All options structure, in gardingar output of the required naise a throtouctar of PBN reduces the reliance on a structure. In gardstructure and have and any additional infrastructure as the introduction of PBN reduces the reliance on are no longer needed.

e of this ACP. All Visual Reference Points and existing generat pertaining to General Aviation access will be duptated (where applicable) prior to implementation to continued validity. Arispace classification requirements of Stage 3 activities. Outcion of PBN is expected to deliver benefits by ng airspace capacity which in turn will lead to more flight paths and fewer delays (oth in the air or on the . This is expected to facilitate economic benefit by increasing the frequency of air transport movements, g passenger numbers and increasing cargo tonnage carried.

opendix B, para B74, states that because of dispersion there is unlikely to be an impact on local air quality from we 1,000ft. Furthermore, CAP1616, Appendix B, para hat in general, airspace change proposals will not have on biodiversity as they do not involve ground-based ine. The change sponsor has amagned the designated ipecial Scientific Interest (SSSIs), Special Protection SPAs), Special Areas of Conservation (SACs) and sites, as identified on the DEFRA MAGIC Map and diges that any potential impact to the designated sites Null be assessed in Stage 3 of the ACP process by Subject Matter Experts. neral Aviation access is anticipated to be minimal as a e of this ACP. All Visual Reference Points and existing generent pertaining to General Aviation access will be

overflies no statutorily identified tranquillity receptors ational Parks), nor any identified through community ent and is therefore comparable to the 'do nothing' scenario and assessed as neutral. pendix B, para B74, states that because of dispersio

tion of PBN routes is expected to deliver benefits by auto or PEN routes is expected to deriver berlenis by inspace capacity which subsequently leads to more ght paths and fewer delays (both in the air and on the reduction of the reliance on outdated ground based aids will significantly increase operational resilience through the introduction of PBN.

IAF 2 Indirect R27 A M 022 his option is IAF2 and the style of the route is 'indirect as the distance to the final approach has not been ut has been designed to provide an alternative respite inter" route. It follows the same route as Option 21 but is durber and the style of the route as the distance south between Hearor and Eastwood and routing west has a IAF2 are Althout norm where it tracks south-south between Hearor and Eastwood and routing west d Nottingham. It then turns east to by over Long Eaton t continues on this track until south west of Cotgrave to a distance and the south of the start of the south and of Keywenth briefly following the line of the Ad6, bofore ingle to bijn the southed duraway centreline. 1 arrival connects the IAF is at 2,000t, which is the form the FAF (Smm whilt between 27 approaches and gradient to the FAF is at 2,000t, which is the ble range for CDAs defined within ICAO guidance. **Rumay 27** 0ft, this option is estimated to overfly approximately useholds with an approximate population of 6,700. Count of 8,250 patient dynomic south and and quality of life is assessed as likely to affect fever population of 18,900. Taking account of 3,600 patients, this satimated to overfly and Impact a total population of 18,900. Taking account of a dot patient of proper typic is, this option is estimated to overfly approximated to provimately 10,250 bottion is estimated to provimately 10,250 bottion is estimated to provimately 10,250 bottion is approaches carried. It is assessed as likely to affect fever paped to math and dile from 4,0000t is assessed as likely to affect fever people than the 'do nothing carrain. Ilikely to be a change in molition emissions by location

IAF 2

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In has been designed to support continuous descent s to EMA. An element of radar vectoring may slil be to manage aircraft separation distances. The track his option is 64.93 km (35.06 nm). When compared to hing scenario, his option is longer and is therefore o result in an increase in greenhouse gas emissions to the 'do nothing' scenario and is deemed to be of al dis-benefit. More in-depth analysis will take place at to confirm the exact volumes of greenhouse gases released.

			'DO NOTHING' BASELINE	IAF 3 Indirect R27_A_N_011	IAF 3 Indirect R27 A.N.O12	IAF 3 Direct R27_A_N_023	IAF 3 Direct R27_A_N_024
			For arrivals from the north, the 'do nothing' scenario in terms of today's	The IAF for this option is IAF3 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised	The IAF for this option is IAF3 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a		The IAF for this option is IAF3 and the style of the route is 'direct' whi means the distance to the final approach has been minimised. It follo
			operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs	but has been designed to provide an alternative respite option to a 'direct' route.	'direct' route. It follows the same route as Option 11 but routes further east before joining the final approach.	The IAF for this option is IAF3 and the style of the route is 'direct' which means the distance to the final approach has been minimised. The	the same route as Option 23 but routes further east before joining the final approach.
			today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold. In	The option starts at IAF3 west of Alfreton from where it tracks south-eas turning south between Heanor and Eastwood and routing west of Ilkeston and Nottingham. It then turns east to fly over Long Eaton and	t The option starts at IAF3 west of Alfreton from where it tracks south-eas turning south between Heanor and Eastwood and routing west of Ilkeston and Nottingham. It then turns east to fly over Long Eaton and	option starts at IAF3 west of Alfreton and initially tracks south-east over Eastwood, Kimberley, and central Nottingham. It continues on this trac until south of Gamston where the route turns south and routes east of	The option starts at IAF3 west of Alfreton and initially tracks south-ea k over Eastwood, Kimberley, and central Nottingham. It continues on t track until overhead Cotgrave to the south east of Nottingham when
			addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are	Clifton. To the south-east of Nottingham the route turns south and routes east of Keyworth before turning left to join the extended runway	Clifton. It continues on this track until south west of Cotgrave to the south east of Nottingham where the route turns south and routes east o	Keyworth before turning left to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as close a	the route turns south and routes east of Keyworth briefly following the line of the A46, before turning left to join the extended runway
			dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data	centreline. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	Keyworth briefly following the line of the A46, before turning left to join s the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	This RNAV 1 arrival connects the IAF to the IF which is placed as far
			from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude	The descent gradient to the FAF is 2.19° which is close to the optimum range for low noise approaches and is within the acceptable range for	possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitu- for the existing FAF for Runway 27 approaches.
			from the start of the modal track to the Arrival end (Touchdown point) of the runway.	The descent gradient to the FAF is 1.86° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1.71° which is below the optimum range for low noise approaches but is within the acceptable range for	CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2° which is below the optimum rar for low noise approaches but is within the acceptable range for CD/ defined within ICAO guidance.
Group	Impact	Level of Analysis	Runway 27	Runway 27	CDAs defined within ICAO guidance. Runway 27	Runway 27	Runway 27
Communities	Noise impact on health and quality of life	Initial Options Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the following.	From 7,000ft, this option is estimated to overfly approximately 49,550 households with an approximate population of 90,900. Taking account	From 7,000ft, this option is estimated to overfly approximately 51,250 households with an approximate population of 93,900. Taking account of 7,900 planned property developments, this option is estimated to	From 7,000ft, this option is estimated to overfly approximately 79,000 households with an approximate population of 160,600. Taking account of 3,500 planned property developments, this option is	From 7,000ft, this option is estimated to overfly approximately 82,15 households with an approximate population of 167,800. Taking account of 5,150 planned property developments, this option is
			From 7,000ft: is estimated to overfly approximately 221,550 households	of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 104,700. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	overfly and impact a total population of 108,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	estimated to overfly and impact a total population of 167,700. The potential noise impact on health and quality of life from 7,000ft is	estimated to overfly and impact a total population of 178,400. The potential noise impact on health and quality of life from 7,000ft is
			with an approximate population of 436,600. Taking account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100.	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 11,100 households with an	option is estimated to overfly approximately 10,150 households with an	assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 20,100 households with an approximate population of 38,000. Taking account	
			From 4,000ft: is estimated to overfly approximately 58,550 households	approximate population of 20,500. Taking account of 3,200 planned property developments, this option is estimated to overfly and impact a total population of 26,400. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 25,400. The potential noise impact on health and	of 2,300 planned property developments, this option is estimated to overfly and impact a total population of 42,300. The potential noise	of 3,900 planned property developments, this option is estimated to overfly and impact a total population of 31,200. The potential noise
			with an approximate population of 122,600. Taking account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	impact on health and quality of life from 4,000ft is assessed as likely affect fewer people than the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft,	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality
			other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothin scenario, this option is deemed to be beneficial as it overflies fewer
Wider Society	Greenhouse Gas impact	Initial Options Appraisal:	1,000ft.	AQMAs.	AQMAs.	AQMAs.	AQMAs.
		Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent
			procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 61.07 km (32.97 nm). When compared to the 'do nothing' scenario,	n to manage aircraft separation distances. The track mileage of this option		n to manage aircraft separation distances. The track mileage of this opt
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is dearmed to be of any incompared to hearth. More is death peakers will take	this option is longer and is therefore expected to result in an increase greenhouse gas emissions compared to the 'do nothing' scenario and
			a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. The track length of the 'do nothing' scenario for Runway 27 from the North is	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	s take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	place at Stage 3 to confirm the exact volumes of greenhouse gases released.	<ul> <li>deemed to be of environmental dis-benefit. More in-depth analysis w take place at Stage 3 to confirm the exact volumes of greenhouse gas released.</li> </ul>
Wider Society	Capacity and resilience	Initial Options Appraisal:	track length of the 'do nothing' scenario for Kunway 27 from the North is 55.06km (29.73nm).	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by
macrosociety	capacity and resilience	Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the
			could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community
			engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenari and assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	National Parks. The change sponsor has mapped the designated Sites of Special	CAD1616 Appendix B para B74 states that because of dispersion and	I CAP1616, Appendix B, para B74, states that because of dispersion and	CAD1616 Appendix B, para B74, states that because of dispersion and	CAD1616 Appandix B, page B74, states that because of dispersion a
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	t mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	<ul> <li>mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000fr. Furthermore, CAP1616, Appendix B, para B80, states</li> </ul>	t mixing, there is unlikely to be an impact on local air quality from aircr above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, state
			MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air wultity fore aircraft planua 1,000± Eurohamana CAP1616, Appendix B.	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change engages they append the deviagated Sites of Serial Scientific	biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change spaces have magned that designated Sites of Spacial Scientific	that in general, airspace change proposals will not have an impact or biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientif
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA
			infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACI process by Subject Matter Experts.
General	Access	Initial Options Appraisal:		Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a
Aviation		Qualitative	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to
			access under extant operational arrangements.		any additional airspace requirements will be reviewed as part of Stage 3	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	I ensure their continued validity. Airspace classification requirements a any additional airspace requirements will be reviewed as part of Stage
General Aviation /	Economic impact from increased effective	Initial Options Appraisal: Qualitative		activities. The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	octivities. The introduction of PBN is expected to deliver benefits by increasing	octivities. The introduction of PBN is expected to deliver benefits by increasing	activities. The introduction of PBN is expected to deliver benefits by increasing a airspace capacity which in turn will lead to more predictable flight pat
commercial airlines	capacity		No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and several elays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	
				transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.
General Aviation / commercial	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations from 7,000ft. Within Stage 2 of the CAP1616	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to avantify fuel burn, this will be conducted in	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 the CAP1616 process to augnitiv fuel burn, this will be conducted in
airlines			process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	e Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	e Stage 3. Therefore, to enable a comparison, the logic applied is that t shorter the track length, the less fuel is burnt. With regards to this
			theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track	option, it is 61.07 km (32.97 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More ir	option, it is 65.46 km (35.34 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in	option, it is 54.10 km (29.21 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in-	option, it is 57.93 km (31.28 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assume that it will be of economic dis-benefit as more fuel will be burnt. More
Commercial	Training costs	Initial Options Appraisal:	length is 55.06km (29.73nm). Standard training would be applicable for existing procedures which	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to
airlines Commercial	Other costs	Qualitative Initial Options Appraisal:	would be practised by crews through existing simulator exercises.	enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world. Other costs to commercial airlines may include updates to Flight
airlines	one cost	Qualitative	It is not proportionate at this stage for EWA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to riight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not
			but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	Proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	to commercial airlines of flying PBN procedures.
Airport / Air navigation service provider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	<ul> <li>There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground</li> </ul>	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	<ul> <li>There are no expected additional infrastructure costs. All options relation to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground</li> </ul>
			prior to the proposed removal date.	infrastructure, in particular ground-based navigation aids are no longer needed.		infrastructure, in particular ground-based navigation aids are no longer needed.	r infrastructure, in particular ground-based navigation aids are no long needed.
Airport / Air navigation	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	
service provider	Deployment costs	Initial Ontions Appraisal:	procedures.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACP process.
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of th	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of ai traffic controllers; however, these cannot be identified at this stage of
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		ACP process. A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between	ACP process.	ACP process. A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation between	ACP process.
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the	arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical	arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical	arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical	arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC tactical
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing navigational aid not be	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. Thi hazard could be further mitigated through the design process or procedurally if required.
			implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and
		Summary of Analysis		mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:
				Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace	Better in the following areas:	Better in the following areas:	- Greenhouse gas emissions - Fuel burn	Better in the following areas:
			modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a	- Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality	- Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's	Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no	change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no
			operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications
			EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional
				analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	the other options.	analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.
				Based on IOA Shortlist Assessment methodology, Option 11 has been	Based on IOA Shortlist Assessment methodology, Option 12 has been	Based on IOA Shortlist Assessment methodology, Option 23 has been	Based on IOA Shortlist Assessment methodology, Option 24 has bee
			IOA Shortlist Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	deemed the FAVOURABLE option within this design envelope. FAVOURABLE	deemed the PREFERRED option within this design envelope. PREFERRED	deemed the REJECTED option within this design envelope. REJECTED	deemed the ACCEPTABLE option within this design envelope. ACCEPTABLE

3 ct \_024 e style of the route is 'direct' which oach has been minimised. It follows outes further east before joining the orach. reton and initially tracks south-east al Nottingham. It continues on this e south east of Nottingham where s of Keyworth briefly following the eft to join the extended runway line.

eff to join the extended runway line. F to the IP which is placed as for as keeping the route whith existing 000ft, which is the platform althub immay 27 approaches. Phase 1 and 1 and 1 and 1 and 1 and 1 and 2AG guidance. **ay 27 ay 27 ay 27 ay 27 ay 28 ay 28 ay 28 ay 28 ay 29 ay 29 ay 29 ay 29 ay 20 by 20 cy 20** 

in aviation emissions by location 16, para B72 a full Air Quality ned not required. /hen compared to the 'do nothing' be beneficial as it overfiles fewer Vs.

to support continuous descent adar vectoring may still be required es. The track mileage of this option pored to the du onthing scenario, expected to result in an increase in to the 'do nothing' scenario and is benefit. More in-depth analysis will exact volumes of greenhouse gases ed.

y identified tranquillity receptors my identified through community arable to the 'do nothing' scenario d as neutral.

ates that because of dispersion and tact on local air quality from aircraft 10, Appendix B, prare BB0, states posside will not have an impact on ground-based infrastructure. The signined State of Special Scientific Areas (SPA), Special Areas of sites, as identified on the DEFRA that any potential impact to the e assessed in Stogg 3 of the ACP 1 Matter Expents.

is anticipated to be minimal as a ual Reference Points and existing O General Aviation access will be licable) prior to implementation to ace classification requirements and s will be reviewed as part of Stage 3 ties.

data classification requirements and will be reviewed and part of Stage 3 ties. d d adhiver benefits by increasing end to more predictable flight paths on the ground). This is expected to failing increasing the frequency of air sasenger numbers and increasing get carried. Becent operations, reducing the is no requirement whith Stage 2 of ue born, this will be conducted in parison, the logic applied is that the log. When compared to the do get and this ago, it is assumed to air Stage 3 to confirm. Varew training will be required to individuals to Flight has become a individuals to Flight has been data in Stage 3 to confirm. Varew training will be required to individuals to Flight lighting PNN procedures. If that boards were straining etc. It is not pling PNN procedures. Transtructure costs. All options nelled in a oudditional informatructure is a veduces the relations on and an ago and one mole congret defined and and and and and a seed navigation aids are no longer defined and a seed navigation aids are no longer defined and the set of the s

ed. nticipated with respect to the and training of air traffic controlling to be identified at this stage of the access.

not be eventhed at this stage of the coess. north was identified where there is ind/or vertical separation between incroft departing from EVA in a his would require ATC social necessie in ATC workdow. This it through the design process or if required. ted during Stages 3 and 4 of the exact nature of all hazards and ions.

thodology, Option 24 has been n this design envelope. NBLE

			'DO NOTHING' BASELINE	IAF 4 Direct R27_A_N_09	IAF 4 Direct R27_A_N_010	IAF 4 Indirect R27_A_N_025	IAF 4 Indirect R27_A_N_026
			For arrivals from the north, the 'do nothing' scenario in terms of	The IAF for this option is IAF4 and the style of the route is 'direct'	The IAF for this option is IAF4 and the style of the route is 'direct' which means the distance to the final approach has been	The IAF for this option is IAF4 and the style of the route is 'indirect' which means the distance to the final approach has not been	The IAF for this option is IAF4 and the style of the which means the distance to the final approa minimised but has been designed to provide an
			today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate	which means the distance to the final approach has been minimised.	minimised. It follows a similar route to Option 9 but routes further east before joining the final approach.	minimised but has been designed to provide an alternative respite option to a 'direct' route.	option to a 'direct' route. It follows the same rou routes further east before joining the fina
			representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based	This option starts at IAF4 north of Belper from where it tracks south east passing between Belper and Ripley, turning slightly left over likeston to over fly south-west Nottingham. Once south-east of	east passing between Belper and Ripley, turning slightly left over	The option starts at IAF4 north of Belper and tracks south-east between Belper and Ripley before turning south just west of	The option starts at IAF4 north of Belper and between Belper and Ripley before turning so
			upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where	Nottingham at a point south of Gamston the route turns south and routes east of Keyworth before turning left to join the extended	likeston to over fly south-west Nottingham. It continues on this track until overhead Cotgrave to the south east of Nottingham where the route turns south and routes east of Keyworth briefly	Ilkeston and routing to the west of Nottingham. It then turns east to fly over Long Eaton and Clifton. To the south-east of Nottingham the route turns south and routes east of Keyworth before turning	Ilkeston and routing to the west of Nottingham. fly over Long Eaton and Clifton. It continues south west of Cotgrave to the south east of No
			current operations and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The	runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as	following the line of the A46, before turning left to join the extended runway centreline.	left to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as	route turns south and routes east of Keyworth line of the A46, before turning left to join the
			overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2.000ft, which is the platform altitude for the existing FAF for	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5nm) whilst keeping the route within	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	centreline. This RNAV 1 arrival connects the IAF to the IF
			altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the distance of the track length of the distance of the distance from the distance of the track length of the distance of the distance from the distance of the distance of the distance of the distance of the distance of	Runway 27 approaches. The descent gradient to the FAF is 2.17° which is close to the	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	far as possible from the FAF (5nm) whilst keep existing controlled airspace. The FAF is at 2,
			from the start of the modal track to the Arrival end (Touchdown point) of the runway.	optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.97° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.95° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	platform altitude for the existing FAF for Runw The descent gradient to the FAF is 1.78° wi optimum range for low noise approaches I
Group	Impact	Level of Analysis	Runway 27	Runway 27	Runway 27	Runway 27	accentable range for CDAs defined within I Runway 27
ommunities	Noise impact on health and quality of life	Initial Options Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the	From 7,000ft, this option is estimated to overfly approximately 48,150 households with an approximate population of 94,900. Taking account of 3,650 planned property developments, this	From 7,000ft, this option is estimated to overfly approximately 57,150 households with an approximate population of 114,100. Taking account of 4.800 planned property developments, this	From 7,000ft, this option is estimated to overfly approximately 38,600 households with an approximate population of 71,100. Taking account of 5,450 planned property developments, this	From 7,000ft, this option is estimated to ove 40,050 households with an approximate pop Taking account of 5,850 planned property de
			following.	option is estimated to overfly and impact a total population of 102,100. The potential noise impact on health and quality of life	option is estimated to overfly and impact a total population of 123,600. The potential noise impact on health and quality of life	option is estimated to overfly and impact a total population of 81,200. The potential noise impact on health and quality of life from	option is estimated to overfly and impact a to 84,400. The potential noise impact on health ar
			From 7,000ft: is estimated to overfly approximately 221,550 households with an approximate population of 436,600. Taking	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly	7,000ft is assessed as likely to affect fewer p nothing scenario. From 4,000ft, this option is e
			account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100.	overfly approximately 11,950 households with an approximate population of 22,500. Taking account of 1,650 planned property developments, this option is estimated to overfly and impact a total	overfly approximately 14,200 households with an approximate population of 26,700. Taking account of 3,050 planned property developments, this option is estimated to overfly and impact a total	approximately 10,050 households with an approximate population of 18,500. Taking account of 3,400 planned property developments, this option is estimated to overfly and impact a total	approximately 10,350 households with an appr of 19,100. Taking account of 3,750 plan developments, this option is estimated to overfl
			From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 122,600. Taking	population of 25,700. The potential noise impact on the alth and quality of life from 4,000ft is assessed as likely to affect fewer	population of 32,400. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	population of 24,800. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	population of 26,000. The potential noise imp quality of life from 4,000ft is assessed as like
			account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.	people than the 'do nothing' scen
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1 000ft other than the areas in the immediate vicinity or final	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required	There is not likely to be a change in aviation er below 1,000 feet. As per CAP1616, para B7: Assessment is deemed not requ
			above 1,000t, other than the areas in the immediate vicinity or iniai approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it	This option overflies one AQMA. When com nothing' scenario, this option is deemed to b
Vider Society	Greenhouse Gas	Initial Options	when the aircraft is above 1,000ft. Current arrival options do not facilitate continuous descent	overflies fewer AQMAs.	overflies fewer AQMAs.	overflies fewer AQMAs.	overflies fewer AQMAs.
,	impact	Appraisal: Qualitative	approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of	This option has been designed to support continuous descent approaches to FMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support co approaches to EMA. An element of radar veo
			radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater within the second sec	required to mange aircraft separation distances. The track mileage of this option is 54.46 km (29.40 nm). When compared to	required to manage aircraft separation distances. The track mileage of this option is 58.53 km (31.60 nm). When compared to	required to manage aircraft separation distances. The track mileage of this option is 58.97 km (31.84 nm). When compared to	required to manage aircraft separation dista mileage of this option is 63.36 km (34.21 nm).
			environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions	the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions	the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions	the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions	the 'do nothing' scenario, this option is longer expected to result in an increase in greenhou
			analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that	compared to the 'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	compared to the 'do nothing' scenario and is environmental dis-benefit. More in-depth analys Stage 3 to confirm the exact volumes of gre
			the shorter the track mileage, the less greenhouse gases are emitted. The track length of the 'do nothing' scenario for Runway 27 from the North is 55.06km (29.73nm).	released.	released.	released.	released.
Vider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Retaining extant procedures would maintain current capacity;	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to increasing airspace capacity which subseque
			however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both ground). The reduction of the reliance on outd
			TNT DVOR and the requirement to adopt PBN procedures.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase op through the introduction of PB
Nider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tr
			and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified engagement and is therefore comparable to scenario and assessed as neul
Wider Society	Biodiversity	Initial Options	does not overfly any AONBs or National Parks. The change sponsor has mapped the designated Sites of Special	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion	CAP1616, Appendix B, para B74, states that be
,		Appraisal: Qualitative	Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B,	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B,	and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B,	and mixing, there is unlikely to be an impact of from aircraft above 1,000ft. Furthermore, CAP
			identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft.	para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the	para B80, states that in general, airspace chang have an impact on biodiversity as they do no based infrastructure. The change sponsor h
			Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs)	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs)	designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs)	designated Sites of Special Scientific Interest Protection Areas (SPAs), Special Areas of Co
			biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential	and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential inpact to the designated sites	and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	and RAMSAR sites, as identified on the DEFR acknowledges that any potential impact to the
Seneral	Access	Initial Options	impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	around EMA will be assessed in Stage 3 of th Subject Matter Experts.
Aviation		Appraisal: Qualitative	No change to existing airspace arrangements. Any General	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference
			Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	reviewed and updated (where applicable) prior to ensure their continued validity. Airspace
				requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace red reviewed as part of Stage 3 activ
Seneral wiation / ommercial	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to del increasing airspace capacity which in turn y predictable flight paths and fewer delays (both
irlines	capacity		No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate econ potentially increasing the frequency of air tran
				increasing passenger numbers and increasing cargo tonnage carried.	increasing passenger numbers and increasing cargo tonnage carried.	increasing passenger numbers and increasing cargo tonnage carried.	increasing passenger numbers and increasin carried.
Seneral Aviation / commercial	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations from 7,000ft. Within Stage 2 of the	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be	This option supports continuous descent opera overall amount of fuel burnt. There is no requir 2 of the CAP1616 process to quantify fuel I
airlines			CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in	conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt.	conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt.	conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt.	conducted in Stage 3. Therefore, to enable a complete is that the shorter the track length, the
			Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the	With regards to this option, it is 54.46 km (29.40 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at	With regards to this option, it is 58.53 km (31.60 nm) long. When compared to the 'do nothing' scenario, this option is longer and at	With regards to this option, it is 58.97 km (31.84 nm) long. When compared to the 'do nothing' scenario, this option is longer and at	With regards to this option, it is 63.36 km (34. compared to the 'do nothing' scenario, this opti
			less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 55.06km (29.73nm).	this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this stage, it is assumed that it will be of econo more fuel will be burnt. More in-depth analysis of Stage 3 to confirm.
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training
Commercial	Other costs	Initial Options	would be practised by crews through existing simulator exercises. It is not proportionate at this stage for EMA to assess potential	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across
airlines		Appraisal: Qualitative	other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating	Management Systems (FMS), navigation datab
			navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA costs' to commercial airlines of flying PBP
Airport / Air Navigation	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant	There are no expected additional infrastructure costs. All options	There are no expected additional infrastructure costs. All options	There are no expected additional infrastructure costs. All options	There are no expected additional infrastructure
service provider			conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the	relate to the implementation of PBN and infrastructure is required as the introduction of
			prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	reliance on ground infrastructure, in particula navigation aids are no longer ne
Airport / Air	Operational costs	Initial Options		Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated wit
navigation service		Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this	
provider Airport / Air navigation	Deployment costs	Initial Options Appraisal: Qualitative		stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with respect to the	stage of the ACP process. Some deployment costs are anticipated with
ervice		Appraidal. Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.		implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedure traffic controllers; however, these cannot be ide of the ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation	A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation	A hazard relating to arrivals from the north was identified where there is the potential for loss of horizontal and/or vertical separation	A hazard relating to arrivals from the north wa there is the potential for loss of horizontal and/o
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft	between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	between arriving aircraft conflicting with aircraft departing from EMA in a northerly or easterly direction. This would require ATC	between arriving aircraft conflicting with aircra EMA in a northerly or easterly direction. This
			CAP1781 or a commercial agreement to maintain the existing	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	tactical intervention and could result in an in workload. This hazard could be further mitig
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	design process or procedurally if re Further assessment will be conducted during SI CAP1616 process to confirm the exact nature
		Summary of Analysis		mitigations.	mitigations.	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations.
				Better in the following areas:	Worse in the following areas:	Worse in the following areas:	Worse in the following areas:
			The 'do nothing' scenario in relation to this ACP is not a viable	- Noise impact from 4,000ft - Noise impact from 7,000ft - Greenhouse gas emissions	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn
			option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not	- Greenhouse gas emissions - Fuel bur - Air Quality	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft
			enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower leader by the transmitting individual constraints of which and the second secon	Equal/neutral in terms of the remaining criteria because there is no	- Noise impact from 7,000ft	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality
			levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are	change when compared to today's operation. At this time, it is not possible to fully determine the safety	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria l change when compared to today's operation.
			very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	At this time, it is not possible to fully determine the safety	At this time, it is not possible to fully determine the safety	At this time, it is not possible to fully determine
			safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	implications of this specific option as this option assessed in isolation rather than as a set of des
				of this option when compared to all the other options.	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	of a wider system. Additional analysis will be re- and 4 of the CAP1616 process to determine the of this option when compared to all the other op
			IOA Shortlist	Based on IOA Shortlist Assessment methodology, Option O9 has been deemed the FAVOURABLE option within this design	Based on IOA Shortlist Assessment methodology, Option 10 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 25 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodolo been deemed the ACCEPTABLE option within
							envelope.
			Assessment	envelope.			envelope.

IAF 4 Indirect I A N C28 Fab the style of the route is indirect to the final approach has not been profe to provide an alternative respite ows the same route as Option 25 but we joining the final approach. the of beiper and tracks south-east the of beiper and tracks south-east the of beiper and tracks south-east to find the final approach. the of the same route as of the south east of Networks while the south east of Networks while the g left to join the extended runway the final.

The intermediate of the second second

e in aviation emissions by location 1616, para B72 a full Air Quality eremd not required. MA. When compared to the 'do is deemed to be beneficial as it wer AQMAs.

d to support continuous descent int of radar vectoring may still be tegaration distances. The track m (34.21 nm). When compared to option is longer and is therefore se in greenhouse gas emissions conario and is deemed to be of in-depth analysis will take place at volumes of greenhouse gases ased.

is expected to deliver benefits by hich subsequently leads to more or delays (both in the air and on the eliance on outdated ground based ity increase operational resilience roduction of PBN.

ly identified tranquillity receptors any identified through community comparable to the 'do nothing' essed as neutral.

a states that because of dispersion be an impact on local air quality thermore, CAP1616, Appendix B, airspace change proposals will not ange sponsor has mapped the ange sponsor has an advantage and hard the designated sites in Stage 3 of the ACP process by atter Experts. so an advantage sponsor has a state and respect on the provident and airspace requirements will be of Stage 3 activities. Suppected to deliver benefits by which in turn will lead to more er delays (both we benefit by ency of air transport movements, is and increasing cargo tonnage rind. I descent operations, reducing the ere is an requirement within Stage ends in (34.21 nm) long. When endro, this option is longer and at will be of economic dis-benefit as lepth analysis will be carried out in to confirm. Outrow training will be required to procedures as PBN has become a andard across the workd. Test may include updates to Flight oxist versus training etc. 1 is not ACP for EMA to assess the other is of flying PBN procedures.

al infrastructure costs. All options on of PBN and no additional i introduction of PBN reduces the ture, in particular ground-based e no longer needed.

anticipated with respect to the edures and training of air traffic with the second of the second training of air traffic ACP process. anticipated with respect to the rive procedures and training of air e cannot be identified at this stage 2P process. The north was identified where norizontal and/or vertical separation icting with aircraft departing from direction. This would require ATC d result in an increase in ATCO be further mitgages 3 and 4 of the exoaduraly if required. Lucied during Stages 3 and 4 of the te exact nature of all hazards and jations.

ining criteria because there is no operation.

uly determine the safety as this option has been as a set of design options as part lysis will be required in Stage 3 o determine the cumulative impac-all the other options.

nt methodology, Option 26 has option within this design

				IAF 5 Direct	IAF 5 Direct	IAF 5 Indirect	IAF 5 Indirect
			'DO NOTHING' BASELINE	R27_A_N_015 The IAF for this option is IAF5 and the style of the route is 'direct'	R27_A_N_016 The IAF for this option is IAF5 and the style of the route is 'direct'	R27_A_N_027 The IAF for this option is IAF5 and the style of the route is 'indirect'	
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate	which means the distance to the final approach has been minimised.	which means the distance to the final approach has been minimised. It follows a similar route as Option 15 but routes furthe east before joining the final approach.	which means the distance to the final approach has not been	minimised but has been designed to provide an alternative respite
			representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by	This option starts at IAF5 north of Duffield and initially tracks south- east passing south of likeston and routing over south west Nottingham. It continues on this track until south of Gamston	This option starts at IAF5 north of Duffield and initially tracks south east passing south of likeston and routing over south west Notlingham. It continues on this track until Cotaraye to the south	The option starts at IAF5 north of Duffield and initially tracks south- east, just north of Derby. Close to Draycott the route turns left to	This option starts at IAF5 north of Duffield and initially tracks south- east, just north of Derby. Close to Draycott the route turns left to
			air traffic controllers from the Hold. In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar	where the route turns south and routes east of Keyworth before turning left to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as	east of Nottingham where the route turns south and routes east of Keyworth briefly following the line of the A46, before turning left to	Keyworth before turning left to join the extended runway centreline.	head east passing over Long Eaton and Ruddington. It continues on this track until south west of Cotgrave to the south east of Nottingham where the route turns south and routes east of
			vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5nm) whilst keeping the route within	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	Keyworth briefly following the line of the A46, before turning left to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as
			modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance	2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 2.19° which is close to the	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1,98° which is below the	2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	far as possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the
			from the start of the modal track to the Arrival end (Touchdown point) of the runway.	optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.09° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1.89° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.
Group Communities	Impact Noise impact on health	Level of Analysis Initial Options	Runway 27 For comparison purposes in the IOA, in terms of potential noise	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately
	and quality of life	Appraisal: Qualitative	impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 27 is estimated to overfly the following.	42,350 households with an approximate population of 83,800. Taking account of 8,050 planned property developments, this option is estimated to overfly and impact a total population of	45,700 households with an approximate population of 91,700. Taking account of 7,750 planned property developments, this option is estimated to overfly and impact a total population of	42,850 households with an approximate population of 78,600. Taking account of 5,050 planned property developments, this option is estimated to overfly and impact a total population of	44,250 households with an approximate population of 81,000. Taking account of 5,400 planned property developments, this option is estimated to overfly and impact a total population of
			From 7,000ft: is estimated to overfly approximately 221,550	99,700. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do	107,200. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the	87,800. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do	90,900. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do
			households with an approximate population of 436,600. Taking account of 18,000 planned property developments, this option is estimated to overfly and impact a total population of 472,100.	nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 10,500 households with an approximate population of 20,300. Taking account of 2,050 planned property	'do nothing' scenario. From 4,000/t, this option is estimated to overfly approximately 12,650 households with an approximate population of 24,100. Taking account of 2,750 planned property	nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 10,350 households with an approximate population of 19,100. Taking account of 3,650 planned property	nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 9,550 households with an approximate population of 17,700. Taking account of 1,800 planned property developments,
			From 4,000ft: is estimated to overfly approximately 58,550 households with an approximate population of 122,600. Taking account of 7,500 planned property developments, this option is estimated to overfly and impact a total population of 138,300.	developments, this option is estimated to overfly and impact a total population of 24,300. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	developments, this option is estimated to overify and impact a tota population of 29,300. The potential noise impact on health and quality of life from 4,000 k is assessed as likely to affect fever people than the 'do nothing' scenario.	I developments, this option is estimated to overify and impact a total population of 25,800. The potential noise impact on health and quality of life from 4,000 is assessed as likely to affect fewer people than the 'do nothing' scenario.	I this option is estimated to overfy and impact a total population of 21,000. The potential noise impact on health and quality of life fors 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	below 1,000 feet. As per CAP1616, para B72 a full Air Quality	below 1,000 feet. As per CAP1616, para B72 a full Air Quality
Wider Society	Greenhouse Gas	Initial Options	above 1,000ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overfiles 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000ft. Current arrival options do not facilitate continuous descent	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	Assessment is deemed not required. This option overflies three AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overflies the same number of AQMAs.	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	Assessment is deemed not required. This option overflies on AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.
,	impact	Appraisal: Qualitative	approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be
			radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within	required to manage aircraft separation distances. The track mileage of this option is 54.13 km (29.23 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore	required to manage aircraft separation distances. The track mileage of this option is 58.33 km (31.50 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	required to manage aircraft separation distances. The track mileage of this option is 56.02 km (30.25 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	required to manage aircraft separation distances. The track mileage of this option is 60.42 km (32.62 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore
			Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis: this will be conducted in Stage 3. In order to make a	expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of
			comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. The track length of the 'do nothing' scenario for Runway	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	t environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	t environmental dis-benefit. More in-depth analysis will take place a Stage 3 to confirm the exact volumes of greenhouse gases released.
Wider Society	Capacity and resilience	e Initial Options Appraisal: Qualitative	27 from the North is 55.06km (29.73nm). Retaining extant procedures would maintain current capacity;	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more
Wider Society	Tranquillity	Initial Options	however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.		predictable flight paths and fewer delays (both in the air and on th ground). The reduction of the reliance on outdated ground basec navigational aids will significantly increase operational resilience through the introduction of PBN.
		Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified theorem.	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community
Wider Society	Diadharaita	Initial Options	through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.
Widel Occety	Diodiversity	Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs),	and mixing, there is unlikely to be an impact on local air quality	and mixing, there is unlikely to be an impact on local air quality	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality	and mixing, there is unlikely to be an impact on local air quality
			Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will no have an impact on biodiversity as they do not involve ground-	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, t para B80, states that in general, airspace change proposals will no have an impact on biodiversity as they do not involve ground-	from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, t para B80, states that in general, airspace change proposals will n have an impact on biodiversity as they do not involve ground-
			to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in	based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special	based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special
			general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites	acknowledges that any potential impact to the designated sites	Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites
			impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.
General Aviation	Access	Initial Options Appraisal: Qualitative		consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual Reference Points and existing	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual Reference Points and existin
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification	
				requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.
General Aviation / commercial	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the
airlines			extant procedures, therefore no economic benefit for GA/airlines.	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage
General Aviation /	Fuel burn	Initial Options Appraisal: Qualitative		carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing the	carried. This option supports continuous descent operations, reducing the
commercial airlines		Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations from 7,000ft. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic		2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the log
			conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 54.13 km (29.23 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 58.33 km (31.50 nm) long. When compared to the 'do nothing' scenario, this option is longer and at	applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 56.02 km (30.25 nm) long. When compared to the 'do nothing' scenario, this option is longer and at	
			less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 55.06km (29.73nm).	this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in	this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in	this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	a enable pilots to fly the new PBN procedures as PBN has become a	a enable pilots to fly the new PBN procedures as PBN has become a
Commercial	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operatin
			with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not	procedures, increased pilot hire costs versus training etc. It is not
Airport / Air navigation service	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of DBN reduces the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the intraduction of DBN enduces the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required on the introduction of DBN enduces the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is expected as the intraduction of DBN additional
provider			current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at thi stage of the ACP process.
Airport / Air navigation service	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air terffic actualizes have seened by identified at this state.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of ai traffic activity of the second be identified at this store.	Some deployment costs are anticipated with respect to the r implementation of the new departure procedures and training of air	
provider Safety	Safety Assessment	Initial Options		traffic controllers; however, these cannot be identified at this stage of the ACP process. A hazard relating to arrivals from the north was identified where	traffic controllers; however, these cannot be identified at this stage of the ACP process. A hazard relating to arrivals from the north was identified where	<ul> <li>traffic controllers; however, these cannot be identified at this stage of the ACP process.</li> <li>A hazard relating to arrivals from the north was identified where</li> </ul>	traffic controllers; however, these cannot be identified at this stag of the ACP process. A hazard relating to arrivals from the north was identified where
Assessment	,	Appraisal: Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures.	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from	there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from	there is the potential for loss of horizontal and/or vertical separatio between arriving aircraft conflicting with aircraft departing from
			Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	EMA in a northerly or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	EMA in a northerly or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	EMA in a northerly or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the	EMA in a northerly or easterly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	
		Summary of Analysis	5	when compared to the 'do nothing' scenario, this option performs:	when compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
				Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not	- Greenhouse gas missions - Fuel burn - Air Quality	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft
			enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower	Equal/neutral in terms of the remaining criteria because there is no	- Noise impact from 7,000ft	- Noise impact from 4,000ft - Noise impact from 7,000ft - Air Quality	- Noise impact from 4,000tt - Noise impact from 7,000ft - Air Quality
			access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are	change when compared to today's operation. At this time, it is not possible to fully determine the safety	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is n change when compared to today's operation.
			very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part	At this time, it is not possible to fully determine the safety	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been
			due to the enduring requirement for radar vectoring.	or a worder system. Adductional analysis will be required in Stage 3 and 4 of the CAP1616 process to determine the cumulative impact of this option when compared to all the other options.	of a wider system. Additional analysis will be required in Stage 3	assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3	
			IOA Shortlist	Based on IOA Shortlist Assessment methodology, Option 15 has been deemed the FAVOURABLE option within this design	Based on IOA Shortlist Assessment methodology, Option 16 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 27 has been deemed the ACCEPTABLE option within this design	Based on IOA Shortlist Assessment methodology, Option 28 has been deemed the PREFERRED option within this design envelop
			Assessment	envelope.		envelope.	and the option shows the design of the
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	FAVOURABLE	REJECTED	ACCEPTABLE	PREFERRED

				JUNCK Direct	JUNCK Direct	JUNCK Indirect	JUNCK Direct	JUNCH
			'DO NOTHING' BASELINE	R27_A_S_01 The IAF for this option is JUNCK and the style of the route is 'direct	R27_A_S_02	R27_A_S_O4 The IAF for this option is JUNCK and the style of the route is	R27_A_S_07	R27_A_S
			For arrivals from the south, the 'do nothing' scenario for in terms of today's operation is based around the existing PIGOT Hold. A modal track has been derived to provide an accurate representation	which means the distance to the final approach has been minimised.	which means the distance to the final approach has been minimized. It follows a similar route to Ontion 1 but route further	'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct' route. It follows a similar profile to Option	The IAF for this option is JUNCK and the style of the route is 'direct which means the distance to the final approach has been	The IAF for this option is JUNCK and which means the distance to the
			of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current	tracks north following the M1 motorway over west Leicester and initial	east before joining the final approach	3 but routes further east before joining the final approach. The option starts at IAF JUNCK, southwest of Leicester and initially	minimised. The option starts at IAF JUNCK, southwest of Leicester and initially tracks north east over central Leicester and Syston Just north of	minimised. It follows the same route east before joining the
			operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In	turning right to head north-east over north west Leicester, Rothley and Sileby. It turns left to head north and parallel the A46 just north of Seagrave to the east of Loughborough, before turning left to join	turning right to head north-east over north west Leicester, and north	before turning north to pass the eastern edge of Coalville. To the	tracks north east over central Leicester and Syston. Just north of Syston the route turns north and continues on this heading over the A46 before turning left to join the extended runway centreline north	tracks north east over central Leicest
			addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people	the extended runway centreline north east of the Wymeswold solar farm.	west of Syston. To the west of Melton Mowbray the route turns north before turning left to join the extended runway centreline close to Upper Broughton.	south-west of Shepshed the route turns east passing over Shepshed and central Loughborough and it continues on this track until west of Melton Mowbray where it turns left and then left again	east of the Wymeswold solar farm. This RNAV 1 route connects the IAF to the IF which is placed as	route turns north before turning left centreline close to Up
			on the ground. All data is based on current aircraft performance data. The overflight analysis conducted on this transition was	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.3nm) whilst keeping the route within	to join the extended runway centreline close to Upper Broughton. This RNAV 1 arrival connects the IAF to the IF which is placed as	close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2.000ft, which is the platform altitude for the existing FAF for	This RNAV 1 arrival connects the IA far as possible from the FAF (6.3nm) existing controlled airspace. The F
			based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on	2,000ft which is the plotform altitude for the swisting EAE for	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 2.23° which is close to the	far as possible from the FAF (6.3nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	Runway 27 approaches. The descent gradient to the FAF is 2.78° which is close to the	platform altitude for the existing FAI The descent gradient to the FAF
			the distance from the start of the modal track to the Arrival end (Touchdown point) of the Runway.	The descent gradient to the FAF is 2.77° which is close to the optimum range for low noise approaches and is within the	optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.53° which is below the optimum range for low noise approaches but is within the	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	optimum range for low noise app acceptable range for CDAs defin
Group	Impact	Level of Analysis	Runway 27	acceptable range for CDAs defined within ICAO guidance. Runway 27	Runway 27	acceptable range for CDAs defined within ICAO guidance. Runway 27	Runway 27	Runway
Communities	Noise impact on healt and quality of life		For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the PIGOT 'do	From 7,000ft, this option is estimated to overfly approximately 41,450 households with an approximate population of 78,500.	From 7,000ft, this option is estimated to overfly approximately 42,250 households with an approximate population of 80,600.	From 7,000ft, this option is estimated to overfly approximately 55,300 households with an approximate population of 113,200.	From 7,000ft, this option is estimated to overfly approximately 78,350 households with an approximate population of 168,000.	From 7,000ft, this option is estimat 79,950 households with an approxi
			nothing' scenario for Runway 27 is estimated to overfly:	Taking account of 11,500 planned property developments, this option is estimated to overfly and impact a total population of 100,300. The potential noise impact on health and quality of life	Taking account of 8,650 planned property developments, this option is estimated to overfly and impact a total population of 97,100. The potential noise impact on health and quality of life from	Taking account of 10,300 planned property developments, this option is estimated to overfly and impact a total population of 134,300. The potential noise impact on health and quality of life	Taking account of 5,950 planned property developments, this option is estimated to overfly and impact a total population of 180,700. The potential noise impact on health and quality of life	Taking account of 4,600 planned p option is estimated to overfly and i 181,300. The potential noise impact
			From 7,000ft: is estimated to overfly approximately 166,150 households with an approximate population of 355,300. Taking account of 19,250 planned property developments, this option is	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	7,000 frie poenda noise impact on ream and quarky of me noise 7,000 ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000 ft, this option is estimated to overfly	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to	from 7,000ft is assessed as likely to 'do nothing' scenario. From 4,000f
			estimated to overfly and impact a total population of 396,400.	overfly approximately 1,650 households with an approximate population of 3,300. Taking account of 1,600 planned property	approximately 1,450 households with an approximate population of 2,900. Taking account of 0 planned property developments, this	overfly approximately 4,550 households with an approximate population of 8,300. Taking account of 1,500 planned property developments, this option is estimated to overfly and impact a total	overfly approximately 1,500 households with an approximate population of 3,000. Taking account of 1,600 planned property	overfly approximately 1,450 house population of 2,800. Taking accordevelopments, this option is estimate
			From 4,000ft: is estimated to overfly approximately 3,100 households with an approximate population of 6,200. Taking	developments, this option is estimated to overfly and impact a total population of 6,500. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	The potential noise impact on health and upact a total population of 2,900 The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing'		developments, this option is estimated to overfly and impact a total population of 6,200. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer	population of 2,800. The potential quality of life from 4,000ft is asses
		1 2 1 2 2	account of 1,750 planned property developments, this option is estimated to overfly and impact a total population of 9,700.	people than the 'do nothing' scenario.	scenario.	people than the 'do nothing' scenario.	people than the 'do nothing' scenario.	people than the 'do no
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1 000ft other than the areas in the immediate vicinity or final	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in below 1,000 feet. As per CAP1610 Assessment is deeme
			approach to EMA. In terms of AQMAs, the PIGOT 'do nothing' scenario overflies 4 AQMAs. Overflight of these AQMAs occurs	This option overflies five AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it	This option overflies five AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it	This option overflies seven AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it	This option overflies five AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it	This option overflies five AQMAs. nothing' scenario, this option is dee
Wider Society	Greenhouse Gas	Initial Options Appraisal: Qualitative	when the aircraft is above 1,000ft. Current arrival options do not facilitate continuous descent	overflies more AQMAs.	overflies more AQMAs.	overflies more AQMAs.	overflies more AQMAs.	overflies more
	Impact	Appraisal, Qualitative	approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be	This option has been designed to approaches to EMA. An element of
			performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within State 2 of the CAP1616 process, there is no requirement for a	required to manage aircraft separation distances. The track mileage of this option is 45.81 km (24.73 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore	required to manage aircraft separation distances. The track mileage of this option is 53.29 km (28.78 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	required to manage aircraft separation distances. The track mileage of this option is 71.30 km (38.50 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore	required to manage aircraft separation distances. The track mileage of this option is 45.60 km (24.62 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore	required to manage aircraft sepa mileage of this option is 51.66 km (2 the 'do nothing' scenario, this option
			Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a	expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of	expected to result in a reduction in compared to the 'do nothing' scen
			comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	environmental benefit. More in-dep Stage 3 to confirm the exact volu release
Wider Society	Capacity and resilience	e Initial Ontions	emitted. With regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do nothing' scenario track is 52.68km (28.44nm) long.					
macr occivity	oupdoity and roomone	Appraisal: Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is ex increasing airspace capacity which predictable flight paths and fewer de
			resilience could be adversely affected due to the requirement to adopt PBN procedures.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliant navigational aids will significantly in
Wider Society	r Tranquillity	Initial Options	As per CAP1616, Appendix B, para B76, change sponsors are	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.	through the introduc
		Appraisal: Qualitative	required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily id (AONBs or National Parks), nor any engagement and is therefore corr
			identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	scenario and assessed as neutral.	scenario and assessed as neutral.	scenario and assessed as neutral.	scenario and assessed as neutral.	scenario and assess
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites. as	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para	n and mixing, there is unlikely to be an impact on local air quality from	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.000ft. Furthermore. CAP1616, Appendix B, para	and mixing, there is unlikely to be an impact on local air quality from	and mixing, there is unlikely to be an
			identified on the DEFRA MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely	B80, states that in general, airspace change proposals will not have	<ul> <li>B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based</li> </ul>	B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	B80, states that in general, airspace of an impact on biodiversity as they d
			to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and	infrastructure. The change sponsor Sites of Special Scientific Interest Areas (SPAs), Special Areas of
			biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential	RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites	RAMSAR sites, as identified on th acknowledges that any potential in
General		Initial Options	impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	around EMA will be assessed in St Subject Matter
Aviation	Access	Appraisal: Qualitative	No change to existing airspace arrangements. Any General	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	a Impact to General Aviation access is anticipated to be minimal as a g consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing	consequence of this ACP. All Visual
			Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements	<ul> <li>reviewed and updated (where applicable) prior to implementation to s ensure their continued validity. Airspace classification requirements</li> </ul>	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements	reviewed and updated (where applica ensure their continued validity. Airspa
General	Economic impact from	Initial Options		and any additional airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	and any additional airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	and any additional airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	and any additional airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by	of Stage 3 ac The introduction of PBN is exper-
Aviation / commercial	increased effective capacity	Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the	increasing airspace capacity whi predictable flight paths and fewer de
airlines			extant procedures, therefore no economic benefit for GA/airlines.	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements,	ground). This is expected to faci potentially increasing the frequency increasing passenger numbers and
General	Fuel burn	Initial Options		increasing passenger numbers and increasing cargo tonnage carried. This option supports continuous descent operations, reducing the	increasing passenger numbers and increasing cargo tonnage carried. This option supports continuous descent operations reducing the	increasing passenger numbers and increasing cargo tonnage carried. This option supports continuous descent operations, reducing the	increasing passenger numbers and increasing cargo tonnage carried. This option supports continuous descent operations reducing the	carried
Aviation / commercial		Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted	2 overall amount of fuel burnt. There is no requirement within Stage 2 d of the CAP1616 process to quantify fuel burn, this will be conducted	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted	overall amount of fuel burnt. There is of the CAP1616 process to quantify f
airlines			process, there is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used,	in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 45.81 km (24.73 nm) long. When compared to		in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 71.30 km (38.50 nm) long. When compared to	that the shorter the track length, the less fuel is burnt. With regards	that the shorter the track length, the
			based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing'	the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be	s the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be	the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be	the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be	the 'do nothing' scenario, this option i assumed that it will be of economi
Commercial	Training costs	Initial Options	baseline scenario, the track length is 52.68km (28.44nm).	burnt. More in-depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	burnt. More in-depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	burnt. More in-depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to	burnt. More in-depth analysis will confirm
airlines	maining coata	Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	<sup>1</sup> enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	a enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.		
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional	r Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines a Management Systems (FMS), naviga procedures, increased pilot hire cost
			navigation but there are too many variables (e.g. aircraft types, on- board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.		proportionate at this stage of the AC costs' to commercial airlines of
Airport / Air navigation	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure	There are no expected additional infrastructure costs. All options e relate to the implementation of PBN and no additional infrastructure	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure	
service provider			current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	is required as the introduction of P ground infrastructure, in particular g are no longer i
Airport / Air navigation	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic	Some operational costs are antio implementation of new procedure
service provider Airport / Air	Deployment costs	Initial Options	extant procedures.	controlling staff at EMA; however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the	s controlling staff at EMA; however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the	controlling staff at EMA; however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the	controlling staff at EMA; however, these cannot be identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the	controlling staff at EMA; however, the stage of the ACF Some deployment costs are anti
navigation service		Appraisal: Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage	traffic controllers; however, these cannot be identified at this stage	traffic controllers; however, these cannot be identified at this stage		traffic controllers; however, these ca
provider Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		of the ACP process. A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	of the ACP process. A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	of the ACP process. A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	of the ACP process. A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	of the ACP po A hazard relating to arrivals from the there is the potential for loss of horizon
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical	between arriving aircraft conflicting EMA in a southerly direction. This
			arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	intervention and could result in an This hazard could be further mitigate or procedurally if
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted CAP1616 process to confirm the ex
		Summary of Analysis	s	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigation When compared to the 'do nothing' se
				Worse in the following areas: - Air Quality	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Noise impact from 4,000ft	Worse in the following areas: - Air Quality	Worse in the following areas: - Air Quality
			The 'do nothing' scenario in relation to this ACP is not a viable	Better in the following areas:	- Fuel burn - Air Quality	- Greenhouse gas emissions - Fuel burn	Better in the following areas:	Better in the following areas:
			option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could	Noise impact from 4,000ft     Noise impact from 7,000ft     Greenhouse gas emissions	Better in the following areas: - Noise impact from 4,000ft	- Air Quality Better in the following areas:	- Noise impact from 4,000ft - Noise impact from 7,000ft - Greenhouse gas emissions	Noise impact from 4,000ft     Noise impact from 7,000ft     Greenhouse gas emissions
			lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access	- Fuel burn	- Noise impact from 7,000ft	- Noise impact from 7,000ft	- Fuel burn	- Fuel burn
			and Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are verv limited costs incurred as a result of this scenario. From a	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining change when compared to today's op
			safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed		At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed		At this time, it is not possible to fully d implications of this specific option as
			due to the enduring requirement for radar vectoring.	in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this		in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this		
				option when compared to all the other options.	option when compared to all the other options.	option when compared to all the other options.	option when compared to all the other options.	option when compared to all the othe
			IOA Shortlist	Based on IOA Shortlist Assessment methodology, Option O1 has been deemed the FAVOURABLE option within this design	Based on IOA Shortlist Assessment methodology, Option O2 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option O4 has been deemed the ACCEPTABLE option within this design	Based on IOA Shortlist Assessment methodology, Option O7 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment r
			Assessment	envelope.	eter seemen mer ner enneb opron within this design envelope.	been deemed the ACCEPTABLE option within this design envelope.	envelope.	Contracting the research point
			ASSESSITIETTL OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	FAVOURABLE	PREFERRED	ACCEPTABLE	REJECTED	REJECTE

ICK	JUNCK
ect	Indirect
_S_08	R27_A_S_09
_0_00	The IAF for this option is JUNCK and the style of the route is 'indirect' which means the distance to the final approach has not
and the style of the route is 'direct'	been minimised but has been designed to provide an alternative
the final approach has been	respite option to a 'direct' route.
ute as Option 7 but routes further the final approach.	The option starts at IAF JUNCK, southwest of Leicester and follows the line of the M1 north, turning slightly right to the west of Ratby to
outhwest of Leicester and initially	remain east of Coalville. To the north-east of the M1 Junction 22
cester and Syston. It continues on	the route turns north-east, passing south of Loughborough and
est of Melton Mowbray where the	over Barrow upon Soar and continues on this track until just north
left to join the extended runway	of Seagrave to the east of Loughborough. Here it turns left and
Upper Broughton.	then left again to join the extended runway centreline north east of
a IAF to the IF which is placed as	the Wymeswold solar farm.
am) whilst keeping the route within	This RNAV 1 route connects the IAF to the IF which is placed as
a FAF is at 2,000ft, which is the	close as possible to the FAF (3.85nm) when PANS OPS criteria
FAF for Runway 27 approaches.	and MSD for a 90° turn is taken into consideration. The FAF is at
AF is 2.33° which is within the	2,000ft, which is the platform altitude for the existing FAF for
approaches and is within the	Runway 27 approaches.
efined within ICAO guidance.	The descent gradient to the FAF is 2.25° which is close to the
	optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.
mated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately
roximate population of 171,500.	25,750 households with an approximate population of 48,100.
ed property developments, this	Taking account of 8,750 planned property developments, this
nd impact a total population of	option is estimated to overfly and impact a total population of
pact on health and quality of life	64,500. The potential noise impact on health and quality of life from
y to affect fewer people than the 00ft, this option is estimated to	7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly
useholds with an approximate account of 0 planned property	approximately 5,400 households with an approximate population of 10,100. Taking account of 1,550 planned property developments,
hated to overfly and impact a total tial noise impact on health and	this option is estimated to overfly and impact a total population of 13,000. The potential noise impact on health and quality of life from 4,000 the potential noise impact on health and quality of life from
sessed as likely to affect fewer	4,000ft is assessed as likely to affect more people than the 'do
nothing' scenario.	nothing' scenario.
in aviation emissions by location	There is not likely to be a change in aviation emissions by location
616, para B72 a full Air Quality	below 1,000 feet. As per CAP1616, para B72 a full Air Quality
emed not required.	Assessment is deemed not required.
As. When compared to the 'do	This option overflies four AQMAs. When compared to the 'do
deemed to be of dis-benefit as it	nothing' scenario, this option scenered to be equal as it overflies
ore AQMAs.	the same number of AQMAs.
to support continuous descent	This option has been designed to support continuous descent
at of radar vectoring may still be	approaches to EMA. An element of radar vectoring may still be
eparation distances. The track	required to manage aircraft separation distances. The track
n (27.89 nm). When compared to	mileage of this option is 53.13 km (28.69 nm). When compared to
ption is shorter and is therefore	the 'do nothing' scenario, this option is longer and is therefore
n in greenhouse gas emissions	expected to result in an increase in greenhouse gas emissions
cenario and is deemed to be of	compared to the 'do nothing' scenario and is deemed to be of
depth analysis will take place at	environmental dis-benefit. More in-depth analysis will take place at
volumes of greenhouse gases	Stage 3 to confirm the exact volumes of greenhouse gases
used.	released.
s expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by
ich subsequently leads to more	increasing airspace capacity which subsequently leads to more
delays (both in the air and on the iance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based paying the state of the s
y increase operational resilience	navigational aids will significantly increase operational resilience
duction of PBN.	through the introduction of PBN.
ly identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors
any identified through community	(AONBs or National Parks), nor any identified through community
comparable to the 'do nothing'	engagement and is therefore comparable to the 'do nothing'
essed as neutral.	scenario and assessed as neutral.
states that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion
an impact on local air quality from	and mixing, there is unlikely to be an impact on local air quality from
yea. CAP1616 Appendix B, para	aircraft above 1.000/ff. Europerance. CAP1616, Appendix B, para
ore, CAP1616, Appendix B, para	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para
ce change proposals will not have	B80, states that in general, airspace change proposals will not have
ey do not involve ground-based	an impact on biodiversity as they do not involve ground-based
sor has mapped the designated	infrastructure. The change sponsor has mapped the designated
est (SSSIs), Special Protection	Sites of Special Scientific Interest (SSSIs), Special Protection
of Conservation (SACs) and	Areas (SPAs), Special Areas of Conservation (SACs) and
n the DEFRA MAGIC Map and	RAMSAR sites, as identified on the DEFRA MAGIC Map and
I impact to the designated sites	acknowledges that any potential impact to the designated sites
Stage 3 of the ACP process by	around EMA will be assessed in Stage 3 of the ACP process by
ter Experts.	Subject Matter Experts.
s is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a
ual Reference Points and existing	consequence of this ACP. All Visual Reference Points and existing
o General Aviation access will be	Letters of Agreement pertaining to General Aviation access will be
blicable) prior to implementation to	reviewed and updated (where applicable) prior to implementation to
space classification requirements	ensure their continued validity. Airspace classification requirements
irements will be reviewed as part	and any additional airspace requirements will be reviewed as part
pected to deliver benefits by	of Stage 3 activities. The introduction of PBN is expected to deliver benefits by
which in turn will lead to more	increasing airspace capacity which in turn will lead to more
r delays (both in the air or on the	predictable flight paths and fewer delays (both in the air or on the
facilitate economic benefit by	ground). This is expected to facilitate economic benefit by
ency of air transport movements,	potentially increasing the frequency of air transport movements,
and increasing cargo tonnage ied.	increasing passenger numbers and increasing cargo tonnage carried.
descent operations, reducing the	This option supports continuous descent operations, reducing the
e is no requirement within Stage 2	overall amount of fuel burnt. There is no requirement within Stage 2
fy fuel burn, this will be conducted	of the CAP1616 process to quantify fuel burn, this will be conducted
a comparison, the logic applied is	in Stage 3. Therefore, to enable a comparison, the logic applied is
he less fuel is burnt. With regards 89 nm) long. When compared to	that the shorter the track length, the less fuel is burnt. With regards to this option, it is $53.13$ km (28.69 nm) long. When compared to
on is shorter and at this stage, it is omic benefit as less fuel will be	assumed that it will be of economic dis-benefit as more fuel will be
will be carried out in Stage 3 to firm.	burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
t/crew training will be required to	It is anticipated that no extra pilot/crew training will be required to
rocedures as PBN has become a	enable pilots to fly the new PBN procedures as PBN has become a
ndard across the world.	Common navigation standard across the world.
es may include updates to Flight	Other costs to commercial airlines may include updates to Flight
vigation databases and operating	Management Systems (FMS), navigation databases and operating
costs versus training etc. It is not	procedures, increased pilot hire costs versus training etc. It is not
ACP for EMA to assess the 'other	proportionate at this stage of the ACP for EMA to assess the 'other
s of flying PBN procedures.	costs' to commercial airlines of flying PBN procedures.
I infrastructure costs. All options	There are no expected additional infrastructure costs. All options
IN and no additional infrastructure	relate to the implementation of PBN and no additional infrastructure
of PBN reduces the reliance on	is required as the introduction of PBN reduces the reliance on
ar ground-based navigation aids	ground infrastructure, in particular ground-based navigation aids
er needed.	are no longer needed.
Inticipated with respect to the	Some operational costs are anticipated with respect to the
dures and training of air traffic these cannot be identified at this	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this
ACP process.	stage of the ACP process.
anticipated with respect to the	Some deployment costs are anticipated with respect to the
ure procedures and training of air	implementation of the new departure procedures and training of air
cannot be identified at this stage	traffic controllers; however, these cannot be identified at this stage
P process.	of the ACP process.
In the south was identified where	A hazard relating to arrivals from the south was identified where
rizontal and/or vertical separation	there is the potential for loss of horizontal and/or vertical separation
ting with aircraft departing from	between arriving aircraft conflicting with aircraft departing from
his would require ATC tactical	EMA in a southerly direction. This would require ATC tactical
an increase in ATCO workload.	intervention and could result in an increase in ATCO workload.
gated through the design process	This hazard could be further mitigated through the design process
lly if required.	or procedurally if required.
cted during Stages 3 and 4 of the	Further assessment will be conducted during Stages 3 and 4 of the
exact nature of all hazards and	CAP1616 process to confirm the exact nature of all hazards and
tions.	mitigations.
g' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
-	Worse in the following areas:
	- Noise impact from 4,000ft - Greenhouse gas emissions
	- Fuel burn
	Better in the following areas: - Noise impact from 7,000ft
later address in the second	Equal/neutral in terms of the remaining criteria because there is no
ining criteria because there is no s operation.	change when compared to today's operation.
ly determine the safety	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed to be the active at the same set of detailed at the same set of an ideal.
as this option has been assessed design options as part of a wider	in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the OR 0400 concerns to determine the providence of the the set of the the set of
required in Stage 3 and 4 of the ne cumulative impact of this ther entions	CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.
ther options.	
nt methodology, Option O8 has	Based on IOA Shortlist Assessment methodology, Option O9 has
ion within this design envelope.	been deemed the REJECTED option within this design envelope.

				EYEHO Indirect	EYEHO Indirect	EYEHO Direct	EYEHO Direct
			To NOTHING' BASELINE For arrivals from the south, the 'do nothing' scenario for in terms of today's operation is based around the existing PIGOT Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for	R27_A_S_013 The IAF for this option is EYEHO and the style of the route is indirect which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct route.	R27_A_S_014 The IAF for this option is EVEHO and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct' route. It follows the same route as Option 13 initially but routes further east after the turn north at	R27_A_S_021 The IAF for this option is EYENO and the style of the route is 'direct' which means the distance to the final approach has been minimised. This option starts at IAF EYENO, south east of Hinkley from where	R27 A S O22 The IAF for this option is EVEHO and the style c direct which means the distance to the final appr minimised. It follows the same route as Option 2 routes further east before joining the final ag This option starts at IAF EVEHO, south east of Hin
			arrivals consists of modal tracks that have been created based upon current operations where most arrivals are nadar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are	This option starts at IAF EYEHO, south east of Hinkley from where it routes east to remain south of Leicester. At a point south of Leicester Airport it turns left to head north to by-pass Leicester and Syston to the east. It continues on this heading over the A46 before turning left to join the extended runway centreline north east of the Wymeswold solar fam.	Leicester Airport. This option starts at IAF EYEHO, south east of Hinkley from where it routes east to remain south of Leicester. At a point south of Leicester Airport it turns left to head north to by-pass Leicester and Systom to the east and passing close to Gaddesby and Hoby before turning left to join the extended runway contrellen close to	It heads north initially until Desford where the route turns right to head north east passing over the M1 at Groby and remaining north of Leicester and south of Loughborough. It continues on this track until just north of Seagrave to the east of Loughborough where it turns left and then left again to join the extended rurway contreline north east of the Wymesovid Solar farm.	it heads north initially until east of Desford where right to head north east passing over the M1 a remaining north of Leicester and south of Loug continues on this heading until Mountsorrel where right turn and heads to a point to the west of Me
			dispersed due to radar vectoring and potentially may affect people on the ground. All data is based on current aircraft performance data. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000t with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85m) when PANS OPS criteria and MSD for a 90 <sup>°</sup> turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 1.72 <sup>°</sup> which is below the	Upper Broghton are extended numary centrement duce to Upper Broghton. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.3m) while keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85m) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradient to the FAF is 2.13° which is below the	where the route turns north. It turns left to join runway centreline close to Upper Broug This RNAV 1 arrival connects the IAF to the IF wh far as possible from the FAF (6.3m) whils the within existing controlled airspace. The FAF is a 1 the platform altitude for the existing FAF for F approaches.
Group	Impact Noise impact on health	Level of Analysis	Arrival end (Touchdown point) of the Runway. Runway 27	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance. Runway 27	The descent gradient to the FAF is 1.57° which is below the optimum range for low noise approaches but is within the Runway 27	optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance. Runway 27	The descent gradient to the FAF is 1.79° which optimum range for low noise approaches but is Runway 27
Communities	and quality of life	Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the PIGOT 'do nothing' scenario for Runway 27 is estimated to overfly: From 7,000ft: is estimated to overfly approximately 166,150	From 7,000ft, this option is estimated to overfly approximately 19,150 households with an approximate population of 36,200. Taking account of 4,600 planned property developments, this option is estimated to overfly and impact a total apopulation of 44,900. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do	From 7,000ft, this option is estimated to overfly approximately 17,100 households with an approximate population of 32,100. Taking account of 1,950 planned property developments, this option is estimated to overfly and impact a total apopulation of 35,700. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do	From 7,000ft, this option is estimated to overfly approximately 23,250 households with an approximate population of 43,100. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 51,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do	From 7.000ft, this option is estimated to overfly a 23,300 households with an approximate populat Taking account of 3,300 planned property devel option is estimated to overfly and impact a total 149,900. The potential noise impact on health and q 7,000ft is assessed as likely to affect fewer peop
			households with an approximate population of 355,300. Taking account of 19,250 planned property developments, this option is estimated to overfly and impact a total population of 396,400. From 4,000ft is estimated to overfly approximately 3,100 households with an approximate population of 6,200. Taking account of 1,750 planned property developments, this option is estimated to overfly and impact a total appoulation of 6,700.	7,00016 a assessed as itery to artic, rewin people that the do nothing scenario. From 4,00011 (his option is estimated to overfly approximately 3,500 households with an approximate population of 6,900. Taking account of 2,200 planned property developments, this option is estimated to overfly and impact a total population of 11,200. The potential noise impact on health and quality of life from 4,0001t is assessed as likely to affect more people than the 'do nothing' scenario.	nothing' scenario. From 4,000ft, this option is estimated to overfly	7,000116 assessed as likely to affect rever people that the optimal problem of the second	nothing' scenario. From 4,000ft, this option is estin f approximately 2,450 households with an approxima 4,700. Taking account of 650 planned property dev option is estimated to overfly and impact a total
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline contitions. The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AdMas, the PIGOT of onothing scenario overflight is above 1,000ft.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para 872 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies feerer AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles on e AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overfiles ferver AQMAs.	There is not likely to be a change in aviation emiss below 1,000 feet. As per CAP1616, para B72 a 1 Assessment is deemed not require This option overflles no ACMAs. When compar nothing' scenario, this option is deemed to be overflies fewer AQMAs.
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current annual options do not facilitate continuous descent approaches to EMA from 7.0001. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel tour or emissions analysis, this will be conducted in Stage 3. In order to make a flast the shorter the tack mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the PIGOT 27' do nothing scenario track is 52.68M res.	This option has been designed to support continuous descent approaches to EMA. An element of rater vectoring may still be required to manage aircraft separation distances. The track- mileage of this option is 64.94 km (35.07 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is derefore environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact outures of greenhouse gases released.	This option has been designed to support continuous descent approaches to EMA. An element of ratar vectoring may still be required to manage aircraft separation distances. The track- miteage of this option is 60.88 km (37.73 nm). When compared to the do nothing scenario, this sepon is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is demed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	This option has been designed to support continuous descent approaches to EMA. An element of ratar vectoring may still be required to manage aircraft apparation distances. The track- nileage of this option is 55.33 km (28.47 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is derefore environmental dis-benefit. More in-depit analysis will take place at Stage 3 to confirm the exact outomes of greenhouse gases released.	This option has been designed to support contin- approaches to EMA. An element of natur vectori required to manage aircraft separation distance mileage of this option is 50.08 km (34.07 nm). Wh the 'do nothing' scenario, this option is longer an expected to result in an increase in greenhouse compared to the 'do nothing' scenario and is de environmental dis-benefit. More in-depth analysis Stage 3 to confirm the exact volumes of green released.
	Capacity and resilience	Appraisal: Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected due to the requirement to adopt PBN procedures.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predicable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airpapace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of FBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predicable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of FBN.	The introduction of PBN routes is expected to dell increasing airspace capacity which subsequently predictable flight paths and fewer delays (both in th ground). The reduction of the reliance on outdates navigational aids will significantly increase operat through the introduction of PBN.
Wider Society Wider Society		Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overfiles no statutorily identified tranquility receptors (ACNBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutorily identified tranq (AONBs or National Parks), nor any identified thro engagement and is therefore comparable to the scenario and assessed as neutral.
when obcery		Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas O Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,0001. Furthermore, CAP1616, Appendix B, para B08, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000F. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will no have an impact on biodiversity as they do not loxole ground- based infrastructure. The change sponsor has mapped the designated States of Special Scientific Interest (SSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000F. Leruhermore, CAP1616, Appendix B, tpara B0, states that in general, airspace change proposals will no have an impact on biodiversity as they do not loxicle are designated States of Special Scientific Interest (SSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000F. Eurhermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will no have an impact on biodiversity as they do not involve ground- based infrastructure. The change sponsor has mapped the designated States of Special Scientific Interest (SSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	and mixing, there is unlikely to be an impact on h from aircraft above 1,000t. Furthermore, CAP161 t para B80, states that in general, airspace change p have an impact on biodiversity as they do not im based infrastructure. The change sponsor has designated Sites of Special Scientific Interest (SP Protection Areas (SPAs), Special Areas of Conse
General Aviation	Access	Initial Options Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.		Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Slage 3 activities.		consequence of this ACP. All Visual Reference Po Letters of Agreement pertaining to General Aviatio
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PEN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing alrepace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver increasing airspace capacity which in turn will in predictable flight paths and fewer delays (both in t ground). This is expected to facilitate economi potentially increasing the frequency of air transpo- increasing passenger numbers and increasing or carried.
General Aviation / commercial airlines	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no regularment for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track milleage is used. based on the theory that the shorter the track milleage is used. based on the theory that the shorter the track milleage is used. based on the theory that the shorter the track milleage is used. based so the theory that the shorter the track milleage is used. based on the theory that the shorter the track milleage is used. based on the track length is 52.68km (28.44nm).	This option supports continuous descent operations, reducing the overall amount of luel burrt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 64.94 km (53.07 mm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.		This option supports continuous descent operations, reducing the overall amount of fuel burrt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burr, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burrt. With regards to this option, it is \$53.3 km (28 7 m) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burrt. More in-depth analysis will be carried out in Stage 3 to confirm.	This option supports continuous descent operation overail amount of luel burnt. There is no requirem 2 of the CAP1616 process to quantify luel burn conducted in Stage 3. Therefore, to enable a comp applied is that the shorter the track length, the let With regards to this option, it is 63.09 km (34.07 compared to the 'do nothing' scenario, this option this stage, it is assumed that it will be of economi
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training wil
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial altrines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. alteraft types, on- board system capability etc.) to consider these effectively.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the other costs to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the other costs to commercial airlines of flying PBN procedures.	Management Systems (FMS), navigation database procedures, increased pilot hire costs versus train proportionate at this stage of the ACP for EMA to a costs' to commercial airlines of flying PBN pr
Airport / Air navigation service provider Airport / Air	Operational costs	Initial Options Appraisal: Qualitative Initial Options	No additional infrastructure is required at EMA to maintain extant conventional procedures, however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and and additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure co- relate to the implementation of PBN and no- infrastructure is required as the introduction of PE reliance on ground infrastructure, in particular g navigation aids are no longer neede Some operational costs are anticipated with re
navigation service provider		Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training controlling staff at EMA; however, these cannot be stage of the ACP process.
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.		Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1761 or a commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	A hazard relating to amivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a southery direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	CAP1616 process to confirm the exact nature of all hazards and mitigations.	A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tacical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	there is the potential for loss of horizontal and/or ve between anvirong aircraft conflicting with aircraft. EMA in a southerly direction. This would require intervention and could result in an increase in AT This hazard could be further mitigated through the or procedurally if required. Further assessment will be conducted during Stage CAP1616 process to confirm the exact nature of a mitigations.
		Summary of Analysis	The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing antival arrangements do not	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas: - Noise impact from 4.0001 - Greenhouse gas emissions - Fuel burn Better in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas: - Greenhouse gas emissions - Fuel burn Better in the following areas: - Noise impact from 4.000t	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas: - Noise impact from 4.0001 - Greenhouse gas emissions - Fuel burn Better in the following areas:	When compared to the 'do nothing' scenario, this o Worse in the following areas: - Greenhouse gas emissions - Fuel burn Better in the following areas: - Noise impact from 4.000ft
			enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillty, Biodiversity, General Aviation access and Economic impact, the 'do nothing baseline provides minimalho: change to today's operations. Furthermore, there are very limited costs incurred as a result of this scanation. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workhoad is likely to increase due to the enduring requirement for radar vectoring.	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3	-Noise impact from 7,000ft     -Air Qualify     Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.     At this time, it is not possible to fully determine the safety     implications of this specific option as this option has been     assessed in isolation rather than as a set of design options as part     of a wider system. Additional analysis will be required in Stage 3	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3	change when compared to today's operation. At this time, it is not possible to fully determine the simplications of this specific option as this option has assessed in isolation rather than as a set of design of a wider system. Additional analysis will be requir
			IOA Shortlist	and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options. Based on IOA Shortlist Assessment methodology, Option 13 has been deemed the ACCEPTABLE option within this design envelope.	and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options. Based on IOA Shortlist Assessment methodology. Option 14 has been deemed the PREFERRED option within this design envelope	and 4 of the CAP 1616 process to determine the cumulative impac of this option when compared to all the other options. Based on IOA Exhertist Assessment methodology Option 21 has been deemed the REJECTED option within this design envelope.	and 4 of the CAP 1616 process to determine the c of this option when compared to all the other option Based on IOA Shortlist Assessment methodology, been deemed the FAVOURABLE option within this envelope.
			Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	ACCEPTABLE	PREFERRED	REJECTED	FAVOURABLE

YEHO Direct A S 022 EHO and the style of the route is note to the final approach has been the route as Option 21 initially but regioning the final approach. O, south east of Hinkley from where is O Desford where the route turns sang over the M1 at Croby and Mountsorel where it makes a slight in to the west of Melion Mowbray I. turns left login the extended ose to Upper Broughton. It us for the which is placed as (6.3m) whilst keeping the route cost. The FAF is at 2,000f, which is the approaches but is within the mway 27 stimate to overfly approximately proximate population of 43,700. Index on health and quality of life from a office flewer people than the 'do a for the flewer people than the 'do a for the roughtion. Stimated to a logination of a many approximate population of a of the negative developments, this r and impact a total population of a often health and quality of life from a force flewer people than the 'do is con health and quality of life from o a fact flewer people than the 'do is con health and quality of life from a flext flewer people than the 'do is con health and quality of life from o affect flewer people than the 'do is connario.

ge in aviation emissions by location 1616, para B72 a full Air Quality eemed not required. MAs. When compared to the 'do is deemed to be beneficial as it ewer AQMAs.

ed to support continuous descent ent of radar vectoring may still be separation distances. The track km (34.07 nm). When compared to option is longer and is therefore ase in greenhouse gas emissions scenario and is deemed to be of in-depth analysis will take place at volumes of greenhouse gases ased.

s is expected to deliver benefits by which subsequently leads to more er delays (both in the air and on the eliance on outdated ground based thy increase operational resilience troduction of PBN.

rily identified tranquillity receptors any identified through community comparable to the 'do nothing' sessed as neutral.

4. states that because of dispersion be an impact on local air quality themmore, CAP1616, Appendk 8. Ja , airspace change proposals will not it yas they do not linvolve ground-nange sponsor has mapped the cientific Interest (SSIs), Special cial Areas of Conservation (SACs) do not he DEFRA MAGIC Map and lail impact to the designated sites in Stage 3 of the ACP process by atter Experts.

is is anticipated to be minimal as a isual Reference Points and existing to General Aviation access will be applicable jorto implementation ralidity. Airspace classification mail airspace requirements will be of Stage 3 activities. expected to deliver benefits by ty which in turn will lead to more wer delays (bother benefit by upency of air transport movements, ers and increasing cargo tonnage arried.

viried. Second operations, reducing the error is no requirement within Stage to quantify the lown, this will be the oreanity the lown is hown and second the lown of the logic track length, the logic logic track length, the logic logic track length, the logic logic logic track length, the logic logic logic track length, the logic logic logic logic track length, the logic log

aining criteria because there is no 's operation.

fully determine the safety on as this option has been n as a set of design options as part alysis will be required in Stage 3 to determine the cumulative impar all the other options.

ent methodology, Option 22 has option within this design

				LEICE	LEICE	LEICE	LEICE	LEICE
			'DO NOTHING' BASELINE	Indirect R27_A_S_05	Indirect R27_A_S_06	Indirect R27_A_S_011	Indirect R27_A_S_012	Direct R27_A_S_023
			For arrivals from the south, the 'do nothing' scenario for in terms of todav's operation is based around the existing PIGOT Hold. A	The IAF for this option is LEICE and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite	The IAF for this option is LEICE and the style of the route is 'indirect which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite	The IAF for this option is LEICE and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite	The IAF for this option is LEICE and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite	The IAF for this option is LEICE and the style of the ro
			modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists	option to a 'direct' route. This option starts at IAF LEICE, near the King Power Stadium from	option to a 'direct' route. It follows a similar profile to Option 5 but routes further east before joining the final approach.	option to a 'direct' route. The option starts at IAF LEICE, near the King Power Stadium and initially heads north-west before turning slightly right to head north to	option to a 'direct' route. It follows the same route as Option 11 initially but routes further east before joining the final approach.	which means the distance to the final approach has been This option starts at IAF LEICE, near the King Power S where the route heads north east over central Leicester
			of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In	where it initially tracks north-west to pass just east of Groby where it turns to a north-east heading passing over Mountsorrel. It continues on this track until just north of Seagrave to the east of	initially tracks north-west to pass over Anstey where it turns right to a north-east heading and follows a line just north of the Leicester	remain east of Coalville. To the north-east of the M1 Junction 22 the route turns north-east, passing south of Loughborough and over Barrow upon Soar and continues on this track until just north of	initially heads north-west before turning slightly right to head north to remain east of Coalville. To the north-east of the M1 Junction 22 the	the route turns slightly left to head north and continues
			addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people	Loughborough, where it turns left and then left again to join the extended runway centreline north east of the Wymeswold solar farm.	western bypass. It continues on this heading, passing between Syston and Mountsorrel and to the west of Melton Mowbray the route turns north before turning left to join the extended runway	Seagrave to the east of Loughborough. Here it turns left and then left again to join the extended runway centreline north east of the	route turns north-east, passing south of Loughborough and over Barrow upon Soar. It continues on this heading until a point to the west of Melton Mowbray where the route turns north before turning	centreline north east of the Wymeswold solar f This RNAV 1 route connects the IAF to the IF which i
			on the ground. All data is based on current aircraft performance data. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	centreline close to Upper Broughton. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.3nm) whilst keeping the route within	Wymeswold solar farm. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and	left to join the extended runway centreline close to Upper Broughton.	close as possible to the FAF (3.85nm) when PANS OP MSD for a 90° turn is taken into consideration. The 2,000ft, which is the platform altitude for the existing
			from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the	2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	Runway 27 approaches. The descent gradient to the FAF is 3.22* which is a optimum range for low noise approaches but is w
			distance from the start of the modal track to the Arrival end (Touchdown point) of the Runway.	The descent gradient to the FAF is 2.78* which is close to the optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.29° which is within the optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.25° which is close to the optimum range for low noise approaches and is within the acceptable range for CDAs defined within ICAO quidance.	The descent gradient to the FAF is 1.84° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	acceptable range for CDAs defined within ICAO g
Group	Impact Noise impact on health	Level of Analysis	Runway 27	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly approximately	Runway 27 From 7,000ft, this option is estimated to overfly appr
	and quality of life	Appraisal: Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the PIGOT 'do nothing' scenario for Runway 27 is estimated to overfly:	54,250 households with an approximate population of 110,500. Taking account of 3,500 planned property developments, this option	54,600 households with an approximate population of 112,300. Taking account of 4,550 planned property developments, this option	50,300 households with an approximate population of 103,500. Taking account of 5,550 planned property developments, this option	49,800 households with an approximate population of 102,500. Taking account of 4,150 planned property developments, this option	75,750 households with an approximate population of Taking account of 5,950 planned property development
			From 7,000ft: is estimated to overfly approximately 166,150 households with an approximate population of 355,300. Taking	potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	is estimated to overfly and impact a total population of 111,000. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing'	potential noise impact on health and quality of life from assessed as likely to affect fewer people than the 'c
			account of 19,250 planned property developments, this option is estimated to overfly and impact a total population of 396,400.	scenario. From 4,000ft, this option is estimated to overfly approximately 1,650 households with an approximate population of 3,300. Taking account of 1,600 planned property developments, this	scenario. From 4,000ft, this option is estimated to overfly approximately 1,400 households with an approximate population of 2,800. Taking account of 0 planned property developments, this	scenario. From 4,000ft, this option is estimated to overfly approximately 5,350 households with an approximate population of 10.000. Taking account of 1.550 planned property developments.	scenario. From 4,000ft, this option is estimated to overfly approximately 1,300 households with an approximate population of 2,600. Taking account of 0 planned property developments, this	scenario. From 4,000ft, this option is estimated to approximately 1,650 households with an approximate p 3,300. Taking account of 1,600 planned property development
			From 4,000ft: is estimated to overfly approximately 3,100 households with an approximate population of 6,200. Taking		option is estimated to overfly and impact a total population of 2,800. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing'	this option is estimated to overfly and impact a total population of 12,900. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect more people than the 'do	option is estimated to overfly and impact a total population of 2,600. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing'	
-			account of 1,750 planned property developments, this option is estimated to overfly and impact a total population of 9,700.	scenario.	scenario.	nothing' scenario.	scenario.	scenario.
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	below 1,000 feet. As per CAP1616, para B72 a full A Assessment is deemed not required.
			approach to EMA. In terms of AQMAs, the PIGOT 'do nothing' scenario overflies 4 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000ft.	This option overflies four AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overflies the same number of AQMAs.	This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies three AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies four AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be equal as it overflies the same number of AQMAs.	This option overflies three AQMAs. When compared nothing' scenario, this option is deemed to be bene overflies fewer AQMAs.
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact					
			track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage	This option has been designed to support continuou approaches to EMA. An element of radar vectoring r required to manage aircraft separation distances. The t
			environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions	of this option is 45.66 km (24.66 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to partill be reducting the production of the scenario of	of this option is 52.34 km (28.26 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the	of this option is 53.11 km (28.68 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the	of this option is 61.82 km (33.38 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to	of this option is 41.38 km (22.34 nm). When compare nothing' scenario, this option is shorter and is therefore
			analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that	'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the	'do nothing' scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the	'do nothing' scenario and is deemed to be of environmental dis- benefit. More in-depth analysis will take place at Stage 3 to confirm	'do nothing' scenario and is deemed to be of environmental dis- benefit. More in-depth analysis will take place at Stage 3 to confirm	'do nothing' scenario and is deemed to be of environme More in-depth analysis will take place at Stage 3 to c
			the shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do nothing' scenario track is 52.68km (28.44nm) long.	exact volumes of greenhouse gases released.	exact volumes of greenhouse gases released.	the exact volumes of greenhouse gases released.	the exact volumes of greenhouse gases released.	exact volumes of greenhouse gases release
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Retaining extant procedures would maintain current capacity;	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver increasing airspace capacity which subsequently lea
			however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected due to the requirement to adopt PBN procedures.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	predictable flight paths and fewer delays (both in the a ground). The reduction of the reliance on outdated gn navigational aids will significantly increase operational
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.	through the introduction of PBN.
		Appraisal: Qualitative	required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing'	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothino'	This option overflies no statutorily identified tranquilit (AONBs or National Parks), nor any identified through engagement and is therefore comparable to the 'do
			identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.		scenario and assessed as neutral.	scenario and assessed as neutral.	scenario and assessed as neutral.	scenario and assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on	and mixing, there is unlikely to be an impact on local air quality from	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from	and mixing, there is unlikely to be an impact on local air quality from	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from	and mixing, there is unlikely to be an impact on local ai
			the DEFRA MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based	aircraft above 1,000ft. Furthermore, CAP1616, Apper B80, states that in general, airspace change proposals an impact on biodiversity as they do not involve grou
			impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites,	infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas	infrastructure. The change sponsor has mapped the designated	infrastructure. The change sponsor has mapped the Sites of Special Scientific Interest (SSSIs), Special Pro
			not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process	as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be	as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be	as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be	as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be	as identified on the DEFRA MAGiC Map and acknowle potential impact to the designated sites around EM
General	Access	Initial Options	by Subject Matter Experts.	assessed in Stage 3 of the ACP process by Subject Matter Experts.	assessed in Stage 3 of the ACP process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a		assessed in Stage 3 of the ACP process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	
Aviation		Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points Letters of Agreement pertaining to General Aviation and
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of	ensure their continued validity. Airspace classification r and any additional airspace requirements will be review
General	Economic impact from	Initial Options		Stage 3 activities.	Stage 3 activities.	Stage 3 activities.	Stage 3 activities.	Stage 3 activities.
Aviation / commercial airlines	increased effective capacity	Appraisal: Qualitative		airspace capacity which in turn will lead to more predictable flight	airspace capacity which in turn will lead to more predictable flight	airspace capacity which in turn will lead to more predictable flight	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight	airspace capacity which in turn will lead to more predi
anni oo			No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	frequency of air transport movements, increasing passenger	paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger	frequency of air transport movements, increasing passenger	paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger	frequency of air transport movements, increasing p
General	Fuel burn	Initial Options		numbers and increasing cargo tonnage carried.	numbers and increasing cargo tonnage carried.	numbers and increasing cargo tonnage carried.	numbers and increasing cargo tonnage carried.	numbers and increasing cargo tonnage carri
Aviation / commercial airlines		Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAR1616 process to granulfit fuel hours. This will be conducted	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted	This option supports continuous descent operations, r overall amount of fuel burnt. There is no requirement w
annes			is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a	in Stage 3. Therefore, to enable a comparison, the logic applied is	of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards	in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards	in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards	in Store 3. Therefore, to enable a comparison, the loss
			comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track	the 'do nothing' scenario, this option is shorter and at this stage, it is	to this option, it is 52.34 km (28.26 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be burnt	assumed that it will be of economic dis-benefit as more fuel will be	to this option, it is 61.82 km (33.38 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be	to this option, it is 41.38 km (22.34 nm) long. When o
			length is 52.68km (28.44nm).	More in-depth analysis will be carried out in Stage 3 to confirm.	More in-depth analysis will be carried out in Stage 3 to confirm.	burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	More in-depth analysis will be carried out in Stage 3
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a		It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	enable pilots to fly the new PBN procedures as PBN has become a	enable pilots to fly the new PBN procedures as PBN ha
Commercial	Other costs	Initial Options	It is not proportionate at this stage for EMA to assess potential other	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	Common navigation standard across the wor Other costs to commercial airlines may include updat
airlines		Appraisal: Qualitative	costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Management Systems (FMS), navigation databases a procedures, increased pilot hire costs versus training
Airport / Air	Infrastructure costs	Initial Options	board system capability etc.) to consider these effectively. No additional infrastructure is required at EMA to maintain extant	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options	costs' to commercial airlines of flying PBN proce There are no expected additional infrastructure costs.
navigation service provider		Appraisal: Qualitative	conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are	is required as the introduction of PBN reduces the reliance on	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are	relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are	relate to the implementation of PBN and no additional i is required as the introduction of PBN reduces the n ground infrastructure, in particular ground-based naviga
Airport / Air	Operational costs	Initial Options	implemented prior to the proposed removal date.	no longer needed. Some operational costs are anticipated with respect to the	no longer needed. Some operational costs are anticipated with respect to the	no longer needed. Some operational costs are anticipated with respect to the	no longer needed. Some operational costs are anticipated with respect to the	no longer needed. Some operational costs are anticipated with respe
navigation service provider		Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of controlling staff at EMA; however, these cannot be ide stage of the ACP process.
Airport / Air navigation	Deployment costs	Initial Options Appraisal: Qualitative		Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respe
service provider			No deployment costs applicable to extant procedures.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified of the ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative		A hazard relating to arrivals from the south was identified where	A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	A hazard relating to arrivals from the south was identified where	A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation	A hazard relating to arrivals from the south was ident
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical intervention	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical intervention	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical intervention	between arriving aircraft conflicting with aircraft departing from EMA in a southerly direction. This would require ATC tactical intervention	between arriving aircraft conflicting with aircraft departi in a southerly direction. This would require ATC tactica
			arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing	and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and could result in an increase in ATCO workload. T could be further mitigated through the design pro procedurally if required.
			navigational aid not be implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 CAP1616 process to confirm the exact nature of all h mitigations.
		Summary of Analysi	is a second s	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option
				Better in the following areas: - Noise impact from 4.000ft	Better in the following areas: - Noise impact from 4.000ft	Worse in the following areas: - Noise impact from 4.000ft	Worse in the following areas: - Greenhouse gas emissions	Better in the following areas: - Noise impact from 4,000ft
			The 'do nothing' scenario in relation to this ACP is not a viable	- Noise impact from 7,000ft - Greenhouse gas emissions	- Noise impact from 7,000ft - Greenhouse gas emissions	- Noise impact from 4,000ft - Greenhouse gas emissions - Fuel burn	- Fuel burn	<ul> <li>Noise impact from 7,000ft</li> <li>Greenhouse gas emissions</li> </ul>
			option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could	- Fuel burn Equal/neutral in terms of the remaining criteria because there is no	- Fuel burn - Air Quality	Better in the following areas: - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	- Fuel burn - Air Quality
			lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no	change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because change when compared to today's operation.
			change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed	change when compared to today's operation.	At this time, it is not possible to fully determine the safety	At this time, it is not possible to fully determine the safe implications of this specific option as this option has be
			perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.		in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider	implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the	system. Additional analysis will be required in Stage 3 a CAP 1616 process to determine the cumulative impact
			ang a qualantan na rada radabiling.	,	when compared to all the other options.	system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option	CAP 1616 process to determine the cumulative impact of this option	when compared to all the other options.
						when compared to all the other options.		
			IOA Shortlist	Based on IOA Shortlist Assessment methodology, Option O5 has been deemed the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option O6 has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 11 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 12 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Optio been deemed the REJECTED option within this design
			Assessment					
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	ACCEPTABLE	FAVOURABLE	KEJECTED	PKEFERRED	REJECTED

3	LEICE Direct R27_A_S_024
a style of the route is 'direct' proach has been minimised. King Power Stadium from entral Leicester. At System and confinues on this track and confinues on this track and confinues on this track and confinues on this track pin the extended runway pin the extended runwa	The IAF for this option is LEICE and the style of the route is 'direct' which means the distance to the final approach has been minimised. This option starts at IAF ELICE, near the King Power Stadium from where the route hands north east over cantral Leicester. It continues on this track until a point to the west of Meton Mowbray where the route turns north. It turns left to join the extended runway centreline close to Upper Broughton. This RNAV 1 arrival connects the IAF to the IF which is placed as fra as possible from the FAF (d.3m) whils keeping the route within existing controlled airspace. The FAF is at 2000t, which is the platform altitude for the existing FAF for Runway 27 approaches. The descent gradent to the FAF is 2.81" which is within the optimum tange for korn obseig proaches and is within the acceptable range for CDAs defined within ICAO guidance.
to overfly approximately te population of 168,800. ty developments, this option population of 182,100. The aulity of life from 7,000f its joe than the 'do nothing' is estimated to overfly approximate population of property developments, this a total population of 6,500. d quality of life from 4,000ft oxple than the 'do nothing'	Term 7.000ft, this option is estimated to overfly approximately 78.300 households with an approximate population of 174,100. Taking account of 4500 planned orperdy developments, this option is estimated to overfly and impact a lotal population of 185,100. The potential noise impact on health and quality of life form 7.0001 is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4.000t, this option is estimated to overfly approximately 1.600 households with an approximate population of 3.200. Taking account of 0 planned property developments, this option is estimated to overfly and impact a total population of 3.200. Taking estimated to everfly and impact a total population of 3.200. Taking estimated to everfly and impact a total population of 3.200. Taking estimated to everfly and impact a total population of 3.200.
ation emissions by location	There is not likely to be a change in aviation emissions by location
ara B72 a full Air Quality	below 1,000 feet. As per CAP1616, para B72 a full Air Quality
not required.	Assessment is deemed not required.
/hen compared to the 'do	This option overflies three ADMAs. When compared to the do
ned to be beneficial as it	nothing scenario, this option is deemed to be beneficial as it
MAs.	overflies fewer AQMAs.
oport continuous descent	This option has been designed to support continuous descent
dar vectoring may still be	approaches to EMA. An element of radar vectoring may still be
istances. The track mileage	required to manage aircraft separation distances. The track mileage
When compared to the 'do	of this option is 77 Jrm (257 Am). When compared to the
and is therefore expected to	onching scenario, this option is shorter and is therefore expected to
emissions compared to the	result in a reduction in greenhouse gas emissions compared to the
e of environmental benefit.	"do nothing scenario and is deemed to be of environmental benefit.
at Stage 3 to confirm the	More in-depth analysis will kake place at Stage 3 to confirm the
gases released.	exact volumes of greenhouse gases released.
cted to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by
bsequently leads to more	increasing airspace capacity which subsequently leads to more
s (both in the air and on the	predicable light paths and fever delays (both in the air and on the
on outdated ground based	ground). The reduction of the reliance on outdated ground based
ase operational resilience	navigational aits will significantly increase operational resilience
n of PBN.	through the introduction of PBN.
tified tranquillity receptors	This option overflies no statutorily identified tranquility receptors
entified through community	(AONBs or National Parks), nor any identified through community
trable to the 'do nothing'	engagement and is therefore comparable to the 'do nothing'
as neutral.	scenario and assessed as neutral.
that because of dispersion	CAP1616, Appendix B, para B74, states that because of dispersion
pact on local air quality from	and mixing, there is unlikely to be an impact on local air quality from
AP1616, Appendix B, para	aircraft above 1.000fF. Furthermore, CAP1616, Appendix B, para
inge proposals will not have	B80, states that in general, airpace change proposals will not have
to involve ground-based	an impact on biodiversity as they do not involve ground-based
is mapped the designated	infrastructure. The change sponsor has mapped the designated
s), Special Protection Areas	isset of Spocial Scientific Interest (SSS), Spocial Practicon Areas
(SACs) and RAMSAR sites,	(SPAs), Spocial Areas of Conservation (SAc3) and FAMSAR sites,
and acknowledges that any	a identified on the DEFRA MAGE Mag and acknowledges that any
tes around EMA will be	potential impact to the designated sites arround EMA will be
by Subject Matter Experts.	assessed in Stage 3 of the ACP process by Subject Matter Experts.
ticipated to be minimal as a ference Points and existing eral Aviation access will be b) prior to implementation to classification requirements s will be reviewed as part of ss.	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Laters of Argement potenting to General Aviation access will be ensure their continued viality. Airspace classification requirements and any additional singuace requirements will be reviewed as part of Slage 3 activities.
eliver benefits by increasing	The introduction of PBN is expected to deliver benefits by increasing
d to more predictable flight	airspace capacity which in turn will lead to more predictable flight
or on the ground). This is	paths and flever delays (bith in the air or on the ground). This is
yp otentially increasing the	expected to facilitate economic benefit by potentially increasing the
s, increasing passenger	frequency of all transport movements, increasing passenger
to nage carried.	numbers and increasing cargo tonnage carried.
nt operations, reducing the requirement within Stage 2 burn, this will be conducted parison, the logic applied is a fuel is burnt. With regards ) long. When compared to horter and at this stage, it is affit as less fuel will be burnt. out in Stage 3 to confirm.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify tuel burnt, this will be conducted in Stage 3. Therefore, to enable a comparison, the topic applied as the topic of the CAP1616 process to quantify the topic applied as the topic of the
training will be required to	It is anticipated that no extra pilot/crew training will be required to
ures as PBN has become a	enable pilots to fly the new PBN procedures as PBN has become a
across the world.	common navigation standard across the world.
y include updates to Flight	Other costs to commercial airlines may include updates to Flight
in databases and operating	Management Systems (FMS), navigation databases and operating
versus training etc. It is not	procedures, increased pilot hire costs versus training etc. It is not
or EMA to assess the 'other	proportionate at this stage of the ACP for EMA to assess the 'other
ring PBN procedures.	costs' to commercial airlines of flying PBN procedures.
structure costs. All options	There are no expected additional infrastructure costs. All options
no additional infrastructure	relate to the implementation of PBN and no additional infrastructure
I reduces the reliance on	is required as the introduction of PBN reduces the reliance on
d-based navigation aids are	ground infrastructure, in particular ground-based navigation aids are
ed.	no longer needed.
ated with respect to the	Some operational costs are anticipated with respect to the
and training of air traffic	implementation of new procedures and training of air tarflic
cannot be identified at this	controlling staff at EMA; however, these cannob be identified at this
rocess.	stage of the ACP process.
ated with respect to the	Some deployment costs are anticipated with respect to the
ocedures and training of air	implementation of the new departure procedures and training of air
ot be identified at this stage	traffic controllers; however, these cannot be identified at this stage
ess.	of the ACP process.
outh was identified where al and/or vertical separation aircraft departing from EMA re ATC tactical intervention O3 workload. This hazard the design process or uired. uring Stages 3 and 4 of the nature of all hazards and	A hazard relating to arrivals from the south was identified where there is the potential for loss of horizontal and/or vertical separation between arriving aircraft conficting with aircraft departing from ENA in a southerly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally frequired. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.
ario, this option performs:	When compared to the 'do nothing' scenario, this option performs: Better in the following areas: - Notes impact from 4.000h - Comentouse providences - Fuel bourges - Fuel bourges - Fuel bourges - Ar Cuality
riteria because there is no tion. Imme the safety option has been assessed options as part of a wider ed in Stage 3 and 4 of the ulative impact of this option	A cleanly requirement in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the safety imipications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wder system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.
hodology, Option 23 has	Based on IOA Shortlist Assessment methodology, Option 24 has
hin this design envelope.	been deemed the ALTERNATE option within this design envelope.
	ALTERNATE

			DO NOTHING' BASELINE	STAPL Direct R27_A_S_O15	STAPL Direct	STAPL Indirect	STA Indir
			For arrivals from the south, the 'do nothing' scenario for in terms of		R27 A.S.O16 The IAF for this option is STAPL and the style of the route is 'direct' which means the distance to the final approach has been minimised. It	R27_A_S_O19 The IAF for this option is STAPL and the style of the route is 'indirect'	R27_A The IAF for this option is STAPL an which means the distance to the fina
			today's operation is based around the existing PIGOT Hold. A modal track has been derived to provide an accurate representation of what	The IAF for this option is STAPL and the style of the route is 'direct' which means the distance to the final approach has been minimised. This option starts at IAF STAPL at Stapleton north of Hinkley from where	follows the same route as Option 15 initially but routes further east after Mountsorrel before joining the final approach.	which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct' route.	but has been designed to provide 'direct' route. It follows the same ro
			occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where	the route tracks north east passing over the M1 at Groby and remaining north of Leicester and south of Loughborough. It continues on this track	The option starts at IAF STAPL at Stapleton north of Hinkley from where the route tracks north east passing over the M1 at Groby and remaining	The option starts at IAF STAPL at Stapleton north of Hinkley from where it routes east to pass over the southern edge of Leicester. At a point	further east after the turn The option starts at IAF STAPL at St
			most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current	until just north of Seagrave to the east of Loughborough where it turns left and then left again to join the extended runway centreline north east	norm of telesier and south of toughborough. In commutes on this	south of Leicester Airport it turns left to head north to by-pass Leicester and Syston to the east. It continues on this heading over the A46 before	it routes east to pass over the sou south of Leicester Airport it turns le and Syston to the east and passing
			operations and approaches are dispersed use to radar vectoring and potentially may affect people on the ground. All data is based on	of the Wymeswold solar farm. This RNAV 1 route connects the IAF to the IF which is placed as close as	turns left to join the extended runway centreline close to Upper Broughton.	turning left to join the extended runway centreline north east of the Wymeswold solar farm.	turning left to join the extended Brou
			current aircraft performance data. The overflight analysis conducted on this transition was based on the modal track created using Noise and	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.3nm) whilst keeping the route within existing	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	This RNAV 1 arrival connects the IA possible from the FAF (6.3nm) wh
			Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been	The descent gradient to the FAF is 2.32° which is within the optimum range for low noise approaches and is within the acceptable range for	controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 27 approaches.	Port of the state of the sta	controlled airspace. The FAF is altitude for the existing FAF
			calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the Runway.	CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.91° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is range for low noise approaches bu
Group Communities	Impact Noise impact on health	Level of Analysis	Runway 27 For comparison purposes in the IOA, in terms of potential noise impact,	Runway 27 From 7,000ft, this option is estimated to overfly approximately 20,400	Runway 27	Runway 27 From 7,000ft, this option is estimated to overfly approximately 40,050	CDAs defined with Runw From 7,000ft, this option is estimat
	and quality of life	Qualitative	initial quantitive analysis has identified that the PIGOT 'do nothing' scenario for Runway 27 is estimated to overfly:	households with an approximate population of 38,100. Taking account of 4,200 planned property developments, this option is estimated to	households with an approximate population of 41,300. Taking account of 3,100 planned property developments, this option is estimated to	households with an approximate population of 75,600. Taking account of 6,350 planned property developments, this option is estimated to	t households with an approximate po of 3,850 planned property develo
			From 7,000ft: is estimated to overfly approximately 166,150 households with an approximate population of 355,300. Taking account of 19,250 planned property developments, this option is	overfly and impact a total population of 46,000. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fever people than the do nothing's scenario. From 4,000ft, this option is estimated to overfly approximately 4,200 households with an opproximate population of 7,900. Taking account of 1,800 planned	overfly and impact a total population of 47,100. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fever people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 1,200 households with an approximate population of 2,300. Taking account of 0 planned	overfly and impact a total population of 87,600. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 3,550 households with an	overfly and impact a total populat impact on health and quality of life affect fewer people than the 'do n option is estimated to overfly appre- approximate population of 2,00
			estimated to overfly and impact a total population of 396,400. From 4,000ft: is estimated to overfly approximately 3,100 households with an approximate population of 6,200. Taking account of 1,750 planned property developments, this option is estimated to overfly and impact a total population of 7,000.	approximate population of 7,900, toxing account of 1,200 planted property developments, this option is estimated to overfily and impact a total population of 11,300. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to offect more people than the 'do nothing' scenario.		approximate population of 6,900. Taking account of 2,250 planned property developments, this option is estimated to overify and impact a total population of 11,300. The potential noise impact on health and quality of life form 4,000 its accessed as likely to offlect more people than the 'do nothing' scenario.	approximate population of 2,00 property developments, this option total population of 2,000. The po quality of life from 4,000ft is assess than the 'do no
Communities	Air Quality	Initial Options Appraisal Qualitative	No change to air quality is predicted in maintaining baseline conditions. The mojority of the extent procedure involves overflight above 1,000tr, other than the areas in the immediate vicinity or final approach to EAA. In terms of AQMAs, the PIGOT do nothing scenario overflies 4 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1 000tr.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles one AQMA. When compared to the do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer ACMAA	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles no AQMAs. When compared to the do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer ACMAs	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies two AQMAs. When compared to the do nothing' scenario, this option is deemed to be beneficial as it overflies fewer ACMAs	There is not likely to be a change below 1,000 feet. As per CAP1 Assessment is dee This option overflies two AQMAs. 1 scenario, this option is deemed to AQW
Wider Society	Greenhouse Gas impact	Initial Options Appraisal Qualitative	Current arrival options do not facilitate continuous descent approaches	AGIVAS.	AQIVAS.	AGIVAS.	AQ
			to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed approaches to EMA. An element of
			are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no	to manage aircraft separation distances. The track mileage of this option is $51.96$ km (28.05 nm). When compared to the 'do nothing'	to manage aircraft separation distances. The track mileage of this option is 60.07 km (32.43 nm). When compared to the 'do nothing'	to manage aircraft separation distances. The track mileage of this option is 66.12 km (35.70 nm). When compared to the 'do nothing'	to manage aircraft separation di option is 72.17 km (38.97 nm).
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make	scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental benefit. More in-depth	scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	scenario, this option is longer and increase in greenhouse gas emis scenario and is deemed to be of
			a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do nothing' scenario track is 52.68km (28.44nm) long.	analysis will take place at 50ge 3 to canfirm the exact volumes of greenhouse gases released.	depth analysis will take place of Stage 3 to confirm the exact volumes o greenhouse gases released.	depth analysis will take place of Stage 3 to confirm the exact volumes o greenhouse gases released.	f depth analysis will take place at Sta greenhouse g
Wider Society	Capacity and resilience	Initial Options Appraisal Qualitative	: Retaining extant procedures would maintain current capacity; however,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and introductions.	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and intella flight acts and an article of the state in the state of an the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and intell. Birth a sub-and former delays (heath in the side and an the	The introduction of PBN routes increasing airspace capacity w predictable flight paths and fewe
Wider Society	Tranquillity	Initial Options Appraisal	due to the reliance upon ground-based navigational aids, resilience could be adversely affected due to the requirement to adopt PBN procedures. As per CAP1616, Appendix B, para B76, change sponsors are required	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on uddated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on vuldated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	predictable tlight paths and tewe ground). The reduction of the re navigational aids will significant through the intr
		Qualitative	to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutor (AONBs or National Parks), nor
			engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore com and assesse
Wider Society	Biodiversity	Initial Options Appraisal Qualitative	. The change sponsor has mapped the designated Sites of Special		CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, :
		Qualitative	Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	t mixing, there is unlikely to be an im above 1,000ft. Furthermore, CAP
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air unlikely to be an impact on local air and the main and the set. CAP1616, but be an air construction of the set of t	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change p biodiversity as they do not involve change sponsor has mapped the o
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protectic Conservation (SACs) and RAMSA
			infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledge designated sites around EMA will
General	Access	Initial Options Appraisal	Stage 3 of the ACP process by Subject Matter Experts.	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subje Impact to General Aviation acces
Aviation		Qualitative	No change to existing airspace arrangements. Any General Aviation	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Aareement pertaining to General Aviation access will be	consequence of this ACP. All Vis Letters of Agreement pertaining t
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and	reviewed and updated (where app ensure their continued validity. Airsp
				any additional airspace requirements will be reviewed as part of Stage 3 activities.	any additional airspace requirements will be reviewed as part of Stage 3 activities.	any additional airspace requirements will be reviewed as part of Stage 3 activities.	any additional airspace requirement 3 act
eneral viation / ommercial	Economic impact from increased effective	Initial Options Appraisal Qualitative		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected airspace capacity which in turn will
ommercial irlines	capacity		No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or facilitate economic benefit by poten
	5.11			transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing cargo tonn
General Wation / commercial	Fuel burn	Initial Options Appraisal Qualitative	<sup>1</sup> The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	This option supports continuous overall amount of fuel burnt. There the CAP1616 process to quantify
irlines			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	Stage 3. Therefore, to enable a co the shorter the track length, the less
			in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 52.68km	option, it is 51.96 km (28.05 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed	option, it is 60.07 km (32.43 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	option, it is 66.12 km (35.70 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	option, it is 72.17 km (38.97 nm nothing' scenario, this option is lor
	-		(28.44nm).	that it will be of economic benefit as less fuel will be burnt. More in- depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benef depth analysis will be carrie
Commercial airlines	Training costs	Initial Options Appraisal Qualitative	: Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilo enable pilots to fly the new PBN p common navigation sta
Commercial airlines	Other costs	Initial Options Appraisal Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlin Management Systems (FMS), na
			maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs'	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs	procedures, increased pilot hire proportionate at this stage of the AC
Airport / Air	Infrastructure costs	Initial Options Appraisal	capability etc.) to consider these effectively.	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate		to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of There are no expected additional in
navigation service provider	r	Qualitative	conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively accessible and the ADI 201 PM/V which the prohibitively	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN a required as the introduction of PB
Airport / A:	Operational	Initial Ontineer A	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-l nee
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal Qualitative	: No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	Some operational costs are a implementation of new procedures staff at EMA; however, these cann
service provider Airport / Air	r Deployment costs	Initial Options Appraisal		ACP process. Some deployment costs are anticipated with respect to the	ACP process. Some deployment costs are anticipated with respect to the	ACP process. Some deployment costs are anticipated with respect to the	Some deployment costs are of
navigation service provider	r	Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new depart traffic controllers; however, these of
Safety	Safety Assessment	Initial Options Appraisal		the ACP process. A hazard relating to arrivals from the south was identified where there is	the ACP process. A hazard relating to arrivals from the south was identified where there is	the ACP process. A hazard relating to arrivals from the south was identified where there is	the ACP A hazard relating to arrivals from th
Assessment		Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the	the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a	the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a	the potential for loss of horizontal and/or vertical separation between arriving aircraft conflicting with aircraft departing from EMA in a	the potential for loss of horizontal arriving aircraft conflicting with
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a	southerly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be	southerly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be	southerly direction. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be	southerly direction. This would req could result in an increase in ATCC
			commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the	further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the	further mitigated through the design process or procedurally if required Further assessment will be conducted during Stages 3 and 4 of the	Further mitigated through the design Further assessment will be condu
				CAP1616 process to confirm the exact nature of all hazards and mitigations.	CAP1616 process to confirm the exact nature of all hazards and mitigations.	CAP1616 process to confirm the exact nature of all hazards and mitigations.	CAP1616 process to confirm the mitigo
		Summary of Analysi	is l	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following greas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' : Worse in the following greas:
				- Noise impact from 4,000ft	- Fuel burn	- Noise immer following dreas:     - Noise impact from 4,000ft     - Greenhouse gas emissions	<ul> <li>Greenhouse gas emissions</li> <li>Fuel burn</li> </ul>
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace	- Noise impact from 7,000ft	Better in the following areas:	- Fuel burn	Better in the following areas:
			modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In	- Greenhouse gas emissions - Fuel burn	- Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 7,000ft	Noise impact from 4,000ft     Noise impact from 7,000ft
			greater volume of tuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change	- Air Quality Faual/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Eaual/neutral in terms of the remaining criteria because there is no	<ul> <li>Air Quality</li> <li>Eaual/neutral in terms of the remain</li> </ul>
			to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that	cquai/neutrai in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	change when compared to today's o
			current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar		this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully this specific option as this option ha
			vectoring.	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the neurophysical results in the set of the set	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the provide interact of this action when every set of the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the growthin interact of this action when even and the all	than as a set of design options as po analysis will be required in Stage 3 of
				determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of the other options.
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 15 has been	Based on IOA Shortlist Assessment methodology, Option 16 has been	Based on IOA Shortlist Assessment methodology, Option 19, has been	Based on IOA Shortlist Assessment n
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	deemed the ACCEPTABLE option within this design envelope. ACCEPTABLE	deemed the FAVOURABLE option within this design envelope. FAVOURABLE	deemed the REJECTED option within this design envelope. <b>REJECTED</b>	deemed the PREFERRED option withi PREFE

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ange in a second second

gned to support continuous descent to of nadar vectoring may still be required on diastores. The tack mileage of this im). When compared to the 'do nothing' and is therefore expected to nesult in an missions compared to the 'do nothing' of environmental dis-benefit. More in-150ge 31 to continum the exact volumes of use gases released.

utes is expected to deliver benefits by ity which subsequently leads to more rever delays (both in the air and on the se reliance on outdated ground based icontly increase operational resilience introduction of PBN.

e introduction of PBN. Introduction of PBN. Introdividentified tranquility receptors nor any identified through community comparable to the 'do nothing' scenario sessed as neutral. 7/4, states that because of dispersion and in impact on local air quality from aircraft CAP1616, Appendix B, para BB0, states age proposals will not have an impact on worke ground-based infrastructure. The the designated Sales of Special Scientific tection Areas (SPAs), Special Areas of MCAR4 sites, as distinitied on the DEFRA edges that any potential impact to the Valit Be assessed in Stage 3 of the ACP Subject Matter Experts. scccess is anticipated to be minimal as a applicable jinot to implementation to Airspace classification requirements and wrents will be reviewed as part of Stage 3 achivities.

A rapped classification in Regurithetis and a reactive of classification in Regurithetis and a calcinies. Specifiel of other benefits by increasing will lead to more predictable flight paths is or on the ground). This is expected to potentially increasing the fraquency of air is passenger numbers and increasing tomage corried. would descent operations, reducing the There is no requirement within Stage 2 of and fuel burn, this will be conducted in a comparison, the logic applied is that be less fuel is burnt. Wait regards to this 17 mil long. When compared to the lob is longer and at this stage, it is assumed benefit a more fuel will be burnt. More in carried out in Stage 3 to confirm. a pliof/creaw training will be required to their costs unce state work. a clinesr may include updates to Flight ), nongrithed to bubases and operating in a flight procedures. There CMM to causes the torther costs near of thying PBN proceedures. All options relate

nes of flying PBN procedures. Jal infrastructure costs. All options relate IN and no additional infrastructure is of PBN reduces the reliance on ground and-based navigation aids are no longer needed. are anticipated with respect to the ures and training of air traffic controlling cannot be identified at this stage of the CP process.

naining criteria because there is no y's operation.

fully determine the safety implications of n has been assessed in isolation rather as part of a wider system. Additional le 3 and 4 of the CAP 1616 process to ct of this option when compared to all

			'DO NOTHING' BASELINE	ROKUP Direct R09 A N 01	ROKUP Direct R09_A_N_O2	ROKUP Indirect R09 A N O3	ROKUP Indirect R09 A N O4
			For arrivals from the north, the 'do nothing' scenario in terms of today's			The IAF for this option is ROKUP and the style of the route is 'indirect' which means the	The IAF for this option is ROKUP and the style of the route is 'indirect' which med
			operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have	This option starts at IAF ROKUP which is the hold currently used for arrivals from the north. The style of the route is 'direct' which means the distance to the final approach has been minimised.	Option 2 starts at IAF ROKUP which is the hold currently used for arrivals from the north. The style of the route is 'direct' which means the distance to the final approach has been	distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct' route.	distance to the final approach has not been minimised but has been designed to p an alternative respite option to a 'direct' route. It is similar to Option 3 but has a
			been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created	The option starts at LAF ROKUP which is situated to the south west of Belper and the route initially tracks south-west furning to a southerly heading just north of the A52 and passing west of Derby. The route turns to join the extended runway centreline east of Burton upon	minimised. It is similar to Option 1 but has a longer final approach. The option starts of LAF ROKUP which is situated to the south west of Belper and the route tracks west of Derby before turning onto a southerly heading just north of Hatton before	The option starts at IAF ROKUP which is situated to the south west of Belper and the route tracks south-east between Derby and Nottingham, turning south over West Hallam, before turning west between Derby and Long Eaton. To the south-west of Derby the route	final approach. The option starts at IAF ROKUP which is situated to the south west of Belper and th tracks south-east between Derby and Nottingham, turning south to the west of Sta
			that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people on the	Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the	turning to join the extended runway centreline and over flying Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the	turns south before turning to join the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the	before turning west between Derby and Long Eaton. To the north of Burton upon and Hatton the route turns south before turning to join the extended runway cent and over flying Burton upon Trent.
			ground. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where	FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000fr, which is the platform altitude for the existing FAF for Runway 09 approaches.	FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000fr, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent aradient to the FAF is 2.7° which is within the oatimum ranae for low noise	FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible f FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FA
			appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the	The descent gradient to the FAF is 3.45° which is above the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	approaches and the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.96° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	2,000ft, which is the platform altitude for the existing FAF for Runway 09 approx The descent gradient to the FAF is 1.57° which is below the optimum range for lo approaches but is within the acceptable range for CDAs defined within ICAO au
<b>6</b>	Incost	Level of Analysis	runway.	A	h		
ommunities	Noise impact on health and quality of life	Initial Options Appraisal: Qualitative	Runway 09 For comparison purposes in the IOA, in terms of potential noise impact,	Runway 09	Runway 09	Runway 09	Runway 09
			initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 09 is estimated to overfly:	From 7,000ft, this option is estimated to overfly approximately 3,700 households with an approximate population of 6,900. Taking account of 300 planned property developments, this option is estimated to overfly and impact a total population of 7,400.	From 7,000ft, this option is estimated to overfly approximately 12,500 households with an approximate population of 22,500. Taking account of 2,400 planned property developments, this option is estimated to overfly and impact a total population of 26,800.	From 7,000ft, this option is estimated to overfly approximately 38,050 households with an approximate population of 71,200. Taking account of 4,700 planned property developments, this option is estimated to overfly and impact a total population of 80,000	From 7,000ft, this option is estimated to overfly approximately 45,850 househol an approximate population of 85,600. Taking account of 7,050 planned prop developments, this option is estimated to overfly and impact a total population of
			From 7,000ft: is estimated to overfly approximately 87,200 households with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and	The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nathing' scenaria. From 4,000ft, this option is estimated to overfly approximately 2,300 households with an approximate population of	The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nathing' scenaria. From 4,000ft, this option is estimated to overfly approximately 11,300 households with an approximate population of the standard to approximate the standard of the standard stan	The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fever people than the 'do nathing' scenaria. From 4,000ft, this aption is estimated to overfly approximately 21,550 households with an approximate population o	The potential noise impact on health and quality of life from 7,000ft is assessed a to affect fewer people than the 'do nothing' scenario. From 4,000ft, this optior estimated to overfly approximately 14,000 households with an approximate popula
			impact a total population of 187,700.	4,600. Taking account of 300 planned property developments, this option is estimated to overfly and impact a total population of 5,200. The potential noise impact on health and	20,200. Taking account of 2,150 planned property developments, this option is estimated to overfly and impact a total population of 24,100. The potential noise impact	41,000. Taking account of 2,550 planned property developments, this option is estimated to overfly and impact a total population of 45,800. The potential noise impact	26,400. Taking account of 4,250 planned property developments, this option estimated to overfly and impact a total population of 34,400. The potential noise
			From 4,000ft: is estimated to overfly approximately 18,250 households with an approximate population of 33,900. Taking account of 4,500 planned property developments, this option is estimated to overfly and	quality of life from 4,000th is assessed as likely to affect fewer people than the 'do nothing scenario.	on health and quality of life from 4,000h is assessed as likely to affect fewer people than the 'do nothing' scenario.	on health and quality of life from 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	on health and quality of life from 4,000ft is assessed as likely to affect fewer peop the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal:	impact a total population of 42,300. No change to air quality is predicted in maintaining baseline conditions.				
		Qualitative	The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final approach to	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	There is not likely to be a change in aviation emissions by location below 1,000 f per CAP1616, para B72 a full Air Quality Assessment is deemed not require
			EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1.000fr.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies two AQMAs. When compared to the 'do nothing' scenario, thi is deemed to be beneficial as it overflies fewer AQMAs.
fider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative					
			Current arrival options do not facilitate continuous descent approaches to EMA from 7,000fr. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing	This option has been designed to support continuous descent approaches to EMA. An	This option has been designed to support continuous descent approaches to EMA, An	This option has been designed to support continuous descent approaches to EMA. An	This option has been designed to support continuous descent approaches to EM
			procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no	element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 39.59 km (21.38 nm). When compared to the 'do	element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 46.59 km (25.16 nm). When compared to the 'do	element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 58.86 km (31.78 nm). When compared to the 'do	element of radar vectoring may still be required to manage aircraft separation dis The track mileage of this option is 69.67 km (37.62 nm). When compared to the
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a	nothing' scenaria, this option is longer and is therefore expected to result in an increase ir greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the	<ul> <li>nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the</li> </ul>	nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the	environmental dis-benefit. More in-depth analysis will take place at Stage 3 to con
			comparison, track mileage is used as a praxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do	exact volumes of greenhouse gases released.	exact volumes of greenhouse gases released.	exact volumes of greenhouse gases released.	exact volumes of greenhouse gases released.
			nothing' scenario track is 37.64km (20.33nm) long.				
Vider Society	Capacity and resilience	Initial Options Appraisal: Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airsp capacity which subsequently leads to more predictable flight paths and fewer delay in the air and on the ground). The reduction of the reliance on outdated ground
			be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	in the oir and on the ground, the reduction of the relative on oblidated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	in the air and on the ground, the reduction of the relative on ourdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	in the air and on the ground). The reduction of the relative on ourdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introc of PBN.
Vider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks	This option overflies no statutorily identified tranquillity receptors (AONBs or National	This option overflies no statutorily identified tranquility receptors (AONBs or National	This option overflies no statutorily identified tranquillity receptors (AONBs or National	This option overflies no statutorily identified tranquillity receptors (AONBs or Nati
			only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or		Parks), nor any identified through community engineering and therefore comparable to the 'do nothing' scenario and assessed as neutral.	Parks), nor any identified through committee indiquimy receptors (corrus or roundhar Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	
ider Society	Biodiversity	Initial Options Appraisal:	National Parks.				
		Qualitative	The change sponsor has mapped the designated Sites of Special Scientific				
			Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map. CAP1616, Appendix B, para B74, states that because of	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para 880, states that in general, airspace change proposals will	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, unlikely to be an impact on local air quality from aircraft above 1,000ft. Further CAP1616, Appendix B, para B80, states that in general, airspace change propos
			dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an	not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites,	<ul> <li>not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites,</li> </ul>		not have an impact on biodiversity as they do not involve ground-based infrastruct change sponsor has mapped the designated Sites of Special Scientific Interest [5 Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSA
			impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to	as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	as identified on the DEFRA MAGiC Map and acknowledges that any potential im the designated sites around EMA will be assessed in Stage 3 of the ACP process
			the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	Subject Matter Experts.	Subject Matter Experts.	Subject Matter Experts.	Subject Matter Experts.
eneral riation	Access	Initial Options Appraisal: Qualitative		Invest to General Aulation access is anticipated to be minimal as a conservance of this	Impact to General Aviation access is anticipated to be minimal as a consequence of this	Impact to General Aviation access is anticipated to be minimal as a consequence of this	Impact to General Aviation access is anticipated to be minimal as a consequence
		Goundare	of airspace in the vicinity of EMA will maintain their current level of access	ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation	ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation	ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation	ACP. All Visual Reference Points and existing Letters of Agreement pertaining to C Aviation access will be reviewed and updated (where applicable) prior to impleme
			under extant operational arrangements.	to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	to ensure their continued validity. Airspace classification requirements and any ad airspace requirements will be reviewed as part of Stage 3 activities.
ieneral viation / ommercial	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fever delays (both in the air or the interview of the second	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fever delays (both in the air or which is the second s	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths are predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths and fever delays (both in the air of the predictable flight paths are pred	The introduction of PBN is expected to deliver benefits by increasing airspace cap which in turn will lead to more predictable flight paths and fewer delays (both in th
lines			procedures, therefore no economic benefit for GA/airlines.	on the ground). This is expected to tacilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	<ul> <li>on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.</li> </ul>	on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	on the ground). This is expected to facilitate economic benefit by potentially increa frequency of air transport movements, increasing passenger numbers and increa cargo tonnage carried.
eneral riation / rmmercial	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel	This option supports continuous descent operations, reducing the overall amount burnt. There is no requirement within Stage 2 of the CAP1616 process to quantif
rlines			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in	burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the applied is that the shorter the track length, the less fuel is burnt. With regards to
			Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	option, it is 39:59 km (21.38 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	s option, it is 46.59 km (25.16 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	option, it is 58.86 km (31.78 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	option, it is 69.67 km (37.62 nm) long. When compared to the 'do nothing' scene option is longer and at this stage, it is assumed that it will be of economic dis-ber more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to cr
ommercial rlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common naviaation standard across the	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the	It is anticipated that no extra pilot/crew training will be required to enable pilots to any PBN association of PBN has become a common prelimition standard across
ommercial	Other costs	Initial Options Appraisal:	be practised by crews through existing simulator exercises.	new PBN procedures as PBN has become a common navigation standard across the world.	new PBN procedures as PBN has become a common navigation standard across the world.	new PBN procedures as PBN has become a common navigation standard across the world.	new PBN procedures as PBN has become a common navigation standard acros world.
rlines		Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are too	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other	Other costs to commercial airlines may include updates to Flight Management Sy (FMS), navigation databases and operating procedures, increased pilot hire costs training etc. It is not proportionate at this stage of the ACP for EMA to assess the
			many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	training etc. It is not proportionate at this stage of the ACP for EWA to assess the "other costs" to commercial airlines of flying PBN procedures.	training etc. If is not proportionate at this stage of the ACP for EWA to assess the "other costs" to commercial airlines of flying PBN procedures.	training etc. It is not proportionate at this stage of the ACP for EWA to assess the "other costs" to commercial airlines of flying PBN procedures.	training etc. It is not proportionate at this stage of the ACP for EMA to assess the costs' to commercial airlines of flying PBN procedures.
rport / Air avigation rvice provider	Infrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of	There are no expected additional infrastructure costs. All options relate to th implementation of PBN and no additional infrastructure is required as the introduc
			ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.		PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	
irport / Air avigation	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at ENA; however, these cannot be	Some operational costs are anticipated with respect to the implementation of r procedures and training of air traffic controlling staff at EMA; however, these can
ervice provider irport / Air	Deployment costs	Initial Options Appraisal:	procedures.	identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new	identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new	identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the new	identified at this stage of the ACP process. Some deployment costs are anticipated with respect to the implementation of the
avigation ervice provider afety	Safety Assessment	Qualitative Initial Options Appraisal:	No deployment costs applicable to extant procedures.	departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	departure procedures and training of air traffic controllers; however, these cann identified at this stage of the ACP process.
ssessment	· •	Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe	A hazard relating to arrivals from the north was identified where there is the potential for	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of	A hazard relating to arrivals from the north was identified where there is the poter
			including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial	horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	horizontal and/or vertical separation. This would require ATC tactical interventia could result in an increase in ATCO workload. This hazard could be further mitig
			agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 pro confirm the exact nature of all hazards and mitigations.
		Summary of Analysis	•	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
				Worse in the following greas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Noise impact from 4,000ft	Worse in the following areas: - Greenhouse gas emissions
			The 'do nothing' scenario in relation to this ACP is not a viable option as it	- Fuel burn	- Fuel burn	- Youse impact nom 4,000m - Greenhouse gas emissions - Fuel burn	- Fuel burn
			does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a greater volume of	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft
			fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations.	- Air Quality Equal/neutral in terms of the remaining criteria because there is no change when	- Air Quality Equal/neutral in terms of the remaining criteria because there is no change when	- Air Quality Equal/neutral in terms of the remaining criteria because there is no change when	- Air Quality Equal/neutral in terms of the remaining criteria because there is no change when
			Furthermore, there are very limited costs incurred as a result of this	compared to today's operation.	compared to today's operation.	compared to today's operation.	compared to today's operation.
			scenario. From a safety perspective, it is assumed that current EMA	At this time, it is not nossible to full, determine the cofee of the state of the	At this time, it is not nossible to fully determine the order of the state of the		
			scenario. From a safety perspective, it is assumed that current ENA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAT	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAF	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAN	option as this option has been assessed in isolation rather than as a set of design a as part of a wider system. Additional analysis will be required in Stage 3 and 4 of t
			operations are safe. It is acknowledged that ATCO workload is likely to	option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAR	option as this option has been assessed in isolation rather than as a set of design options	option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAR	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation ranker than as a set of design o as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the 1016 process to determine the cumulative impact of this option when compared to other options.
			operations are safe. It is acknowledged that ATCO workload is likely to	option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAI 1616 process to determine the cumulative impact of this option when compared to all the	option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAF [1616 process to determine the cumulative impact of this option when compared to all the	option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAI 1616 process to determine the cumulative impact of this option when compared to all the	option as this option has been assessed in isolation rather than as a set of design a as part of a wider system. Additional analysis will be required in Stage 3 and 4 of th 1616 process to determine the cumulative impact of this option when compared to

	ROKUP Direct
i means the d to provide ias a longer	R09 A N_04A The IAF for this option is ROKUP and the style of the route is 'direct' which means the distance to the final approach has been minimised. This option has an IF at 2,500 f which is at a point 5m from the FAF, hereby Gilling mid-way between the 38.5m and
ind the route if Stapleford, upon Trent r centreline	6.9m utilized by other arrival options to Runway 09 from the North. The option starts of 14F ROLUP which is situated of the south west of Belger and the route tracks south-west from ROLUP before turning onto a southerly heading as the track crosses the AS2 mid-way between Abhourne and Debyr. The option routes directly south, over Hillion, and turns to join the estended runway centreline at a point north-east of Burton upon Term.
ble from the e FAF is at oproaches. or low noise D guidance.	This RNAV 1 arrivel connects the LAF to the IF, at 2,500ft, which is placed as close as possible to the FAE (Som) when RMNS OPS criteria and MSD for a 90° true in stake into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Rurway 09 approaches. The descent gradient to the FAF is 30° which is above the optimum range for low noise
	approaches but is within the acceptable range for CDAs defined within ICAO guidance. Runway 09
eholds with property n of 98,700, sed as likely option is noise impact people than	From 7,000ft, this option is estimated to overfly approximately 8,050 households with an approximate population of 15,100. Taking account of 1,250 planned property developments, this option is estimated to overfly and impact a total population of 17,400. The potential notes impact on health and quality of life from 7,000ft assessed as likely to affect fever people than the t/o narhing' scenario. From 4,000th, this option is estimated to overfly opproximately 6,270 households with an approximate population of 12,200. Taking account of 1,250 planned property developments, this option is estimated to averfly and impact a total population to 14,200. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fever people than the 'do nahling' scenario.
000 feet. As quired. o, this option	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1016, para B72 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies lever AQMAs.
o EMA. An in distances. to the 'do in increase in ned to be of o confirm the	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track milege of this option is 0.04 Lm (23.24 Mm). When compared to the do nohing scenario, this option is longer and is therefore expected to result in an increase in genethouse gate maistains compared to the do nohing iscarria and safet to be of environmental dis-benetine of greenhouse gases released.
airspace delays (both und based introduction	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational oids will significantly increase operational resilience through the introduction of PBN.
r National mparable to	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.
ing, there is withermore, roposals will tructure. The est (SSSIs), AMSAR sites, al impact to rocess by	CAP1616, Appendix B, para B74, states that because of dispension and mixing, there is unlikely to be an impact on local air quality from aircraft above 1.000h; Furthermore, CAP1616, Appendix B, para B80, states that in general, imprace change proposals will not have an impact an biodiversity as they do not involve grand-based infrastructure. The change spanner has mapped the designated Stee of Special Scientific Interest [SSIs], Special Protection Areas (SPA), Special Areas of Conservation (SACs) and RANGAR sites, a identified on the DFRA MAGC Hoge and charanderiges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Expens.
ience of this 3 to General Ilementation 14 additional 8.	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Vsual Reference Paints and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Autopace daskitations are agrimments and any additional airspace requirements will be reviewed as part of Stage 3 activities.
te capacity in the air or acreasing the increasing	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This expected to facilitate accouncib enterity by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing acceptor transport onnage carried.
ount of fuel uantify fuel , the logic rds to this scenario, this s-benefit as to confirm.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burnt, this will be conducted in Stage 3. Therefores, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 4.30 km (23.24 nm) (ng). When composed to the 'do nching' iscarnia', this option is longer and at this stage, it is assumed that it will be of economic du-benefit as nore fuel will be burnt. More in-depti nanhysis will be corried out in Stage 5 to confirm.
ots to fly the across the	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
ent Systems costs versus is the 'other	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), novigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EAM to asses the other costs' to commercial airlines of thying PBN procedures.
to the roduction of d navigation	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in principal ground-based navigation aids are no longer needed.
n of new e cannot be	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.
of the new cannot be	Some deployment can introduce on the rate process process of the rate process of the rate process and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
potential for ing a loss of ention and r mitigated 6 process to	A basard relating to anrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC backal intervention and could result no increase in ATCO workbad. This hardand could be further miligated through the design process or procedurally if required. Further assessment will be conduced during Stage 3 and 4 of the CAP1616 process to contirm the exact nature of all hazards and mitigations.
	When compared to the do nothing' scenario, this option performs: Ware in the following areas: - Greenhouse gas emissions - Fuel burn
	Better in the following areas: - Noise impact from 4,000th - Noise impact from 7,000ft - Air Quality
hen	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
pecific sign options 4 of the CAP red to all the	At this time, it is not possible to fully determine the sofety implications of this specific options as this approximation to be not assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stoge 3 and 4 of the CAP 16 for porces to determine the cumulative impact of this option when compared to all the other options.
d the	Based on IOA Shortlist Assessment methodology, Option 4A has been deemed the FAVOURABLE option within this design envelope.
	FAVOURABLE

				DIPSO Indirect	DIPSO Indirect	DIPSO Direct	DIPSO Direct	DIPSO Direct	DIPSO Indired	DIPSO Indirect
				The IAF for this option is DIPSO and the style of the route is 'indirect'	KUY_A_IY_05	k0 <u>7 ( N</u> _0)		The IAF for this option is DIPSO and the style of the route is 'direct' which	h The IAF for this option is DIPSO and the style of the route is 'indirect'	The IAF for this option is DIPSO and the style of the route is 'indirect' which means the distance to the final approach has not been minimised
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has	which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a	The IAF for this option is DIPSO and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a	The IAF for this option is DIPSO and the style of the route is 'direct' which		means the distance to the final approach has been minimised. This option has an IF at 2,500ft which is at a point 5nm from the FAF, thereb falling mid-way between the 3.85nm and 6.9nm utilised by other arrival	which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a	but has been designed to provide an alternative respite option to a 'direct route. It follows the same track as Option 29 but routes further west befor
			been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals	'direct' route. The option starts at IAF DIPSO which is east of Ripley and tracks south- east towards Nottingham turning south over Hucknall, before turning	'direct' route. It is similar to Option 5 but has a longer final approach. The option starts at IAF DIPSO which is east of Ripley and tracks south-	means the distance to the final approach has been minimised. The option starts at IAF DIPSO which is east of Ripley and tracks south- west avoiding Belper. After passing Duffield it turns south and tracks west	initially similar to Option 7 but diverges south of Belper to give a longer final approach. The option starts at IAF DIPSO which is east of Ripley and tracks south-	options to Runway 09 from the North. The option starts at IAF DIPSO which is east of Ripley and tracks south	'direct' route. This option starts at IAF DIPSO, east of Ripley and initially tracks directly south from the IAF passing over the western side of Langley Mill and	joining the final approach. This option starts at IAF DIPSO, east of Ripley and initially tracks directly south from the IAF passing over the western side of Langley Mill and
			are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also	before turning west parallel to the final approach path at Beeston. It overflies southern Derby and to the south-west of Derby the route turns	east towards Nottingham turning south over Hucknall, before turning before turning west parallel to the final approach path at Beeston. It overflies southern Derby and to the north-west of Burton upon Trent it	of Derby before turning over Etwall onto a southerly heading before turning to join the extended runway centreline east of Burton upon Trent.	west avoiding Belper. It continues on this heading beyond Duffield and until Church Broughton where it turns onto a southerly heading before	west similar to Options 7 and 8, staying to the south-west of Belper before turning onto a southerly heading as the track crosses the A52 mic way between Ashbourne and Derby. The option routes directly south over	between West Hallam and Ilkeston. It continues south until it passes over the A52 near Risley where it turns west to track across the southern	between West Hallam and Ilkeston. It continues south until it passes over the A52 near Risley where it turns west to track across the southern
			been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this	south before turning to join the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	turns south before turning to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	This KNAV I route connects the IA* to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	turning to join the extended runway centreline west of Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.9nm) whilst keeping the route within existing	Hilton and turns to join the extended runway centreline at a point north- east of Burton upon Trent.	solution of Derby. In torus solution close to Environ before forming to point the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	suburbs of Derby. It continues on this heading until Church Broughton where it turns onto a southerly heading before turning left to join the extended runway centreline west of Burton upon Trent.
			transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	possible from the FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.56° which is within the optimum range for low noise approaches and the acceptable range for CDAs	controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2° which is below the optimum range	This RNAV 1 arrival connects the IAF to the IF, at 2,500ft, which is place as close as possible to the FAF (5nm) when PANS OPS criteria and MSE for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is	d possible to the FAF (3.85nm) when PANS-OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for runway 09 approaches.	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude
			vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	The descent gradient to the FAF is 1.77° which is below the optimum range for low noise approaches but is within the acceptable range for	The descent gradient to the FAF is 1.5° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches and the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the PAP is 2" which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.16° which is close to the optimum range for low noise approaches and is within the acceptable range for	The descent gradient to the FAF is 2.12° which is below the optimum range for low noise approaches but is within the acceptable range for	for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.66° which is below the optimum
				CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.			CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.	range for law noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal:	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09
	and quality of life	Qoundine	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 09 is estimated to overfly:	From 7,000ft, this option is estimated to overfly approximately 81,300 households with an approximate population of 153,900. Taking account	From 7,000ft, this option is estimated to overfly approximately 94,950 households with an approximate population of 180,000. Taking account	From 7,000ft, this option is estimated to overfly approximately 15,600 households with an approximate population of 29,300. Taking account	From 7,000ft, this option is estimated to overfly approximately 20,200 households with an approximate population of 37,300. Taking account	From 7,000ft, this option is estimated to overfly approximately 20,100 households with an approximate population of 37,600. Taking account	From 7,000ft, this option is estimated to overfly approximately 45,700 households with an approximate population of 85,800. Taking account	From 7,000ft, this option is estimated to overfly approximately 57,550 households with an approximate population of 107,300. Taking account
			From 7 000H: is astimuted to overfly opproving tely 87 200 bourseholds	of 2,350 planned property developments, this option is estimated to overfly and impact a total population of 158,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 4,100 planned property developments, this option is estimated to overfly and impact a total population of 187,800. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 2,600 planned property developments, this option is estimated to overfly and impact a total population of 34,200. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 2,900 planned property developments, this option is estimated to overfly and impact a total population of 42,700. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 2,500 planned property developments, this option is estimated to overfly and impact a total population of 42,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 6,200 planned property developments, this option is estimated to overfly and impact a total population of 97,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 8,650 planned property developments, this option is estimated to overfly and impact a total population of 123,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to
			with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and impact a total population of 187.700.	affect fewer people than the 'do nothing' scenario. From 4,000ft, this	affect more people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 27,550 households with an approximate population of 54,300. Taking account of 3,350 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 2,250 households with an approximate population of 4,200. Taking account of 300 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 6,800 households with an approximate population of 12,300. Taking account of 1,600 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 6,250 households with an approximate population of 11.700. Taking account of 1.050 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 11,550 households with an approximate population of 21,100. Taking account of 3,950 planned
			From 4,000ft: is estimated to overfly approximately 18,250 households	property developments, this option is estimated to overfly and impact a total population of 50,100. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 60,900. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 4,800. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 15,200. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 13,700. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 34,400. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 28,300. The potential noise impact on health and
			with an approximate population of 33,900. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 42,300.	quality of life from 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people that the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal:								
		Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft,	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is		1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is		There is not likely to be a change in aviation emissions by location belo 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is
			other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above	deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	deemed not required. This option overflies four AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it overflies more	deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	deemed not required. This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer
			1,000ft.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.
Vider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches							
			to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to mensee size the superstant distances. The test millions of this patient	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to meaner pricedly according distances. The tests without a file	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to assess a supplementation distance. The tends allowed of this assists	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to more accession of the action.	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to memory provide a structure of the rest without of this rest.	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approache to EMA. An element of radar vectoring may still be required to manage
			are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no	is 63.59 km (34.34 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 74.97 km (40.48 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 48.39 km (26.13 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 48.19 km (26.02 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 54.98 km (29.69 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to result in an increase in	aircraft separation distances. The track mileage of this option is 66.91 k (36.13 nm). When compared to the 'do nothing' scenario, this option i longer and is therefore expected to result in an increase in greenhouse g
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases	emissions compared to the 'do nothing' scenario and is deemed to be environmental dis-benefit. More in-depth analysis will take place at Sto
			shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do nothing' scenario track is 37.64km (20.33nm) long.	take place at Stage 3 to contirm the exact volumes of greenhouse gases released.	take place at Stage 3 to contirm the exact volumes of greenhouse gases released.	released.	released.	released.	released.	3 to confirm the exact volumes of greenhouse gases released.
Vider Society	Capacity and resilience	Initial Options Appraisal:		7	71	7	7	71		7
		Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	The introduction of PBN routes is expected to deliver benefits by increasi airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction
			could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based h navigational aids will significantly increase operational resilience through the introduction of PBN.	of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction o PBN.
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required							
			to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	or National Parks), nor any identified through community engagement	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	or National Parks), nor any identified through community engagement	or National Parks), nor any identified through community engagement	or National Parks), nor any identified through community engagement	s This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	or National Parks), nor any identified through community engagement
			engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.
ider Society	Biodiversity	Initial Options Appraisal: Qualitative	The design of the second data and the second data and the second data and the second data and the second data a	C401/1/ A	C101717 Access D	CAD1/1/ A	CAD1/1/ A	CAD1/1/ A	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion an
			The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	t mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircra above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states th
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B,	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific
			para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA
			infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.
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Jeneral . Aviation	Access	Initial Options Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Argement participation to General Aviation occurs will be aviewed and	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Arcaenat participing to General Aviation occurs will be reviewed and	consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agrammat participation to General Aviation access will be reviewed and	consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Lette
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	of Agreement pertaining to General Aviation access will be reviewed an updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any addition
General	Economic impact from	Initial Options Appraisal:		additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	airspace requirements will be reviewed as part of Stage 3 activities.
wiation / commercial	increased effective capacity	Qualitative		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight path
nnines			No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing carg
S	Fuel burn	Initial Options Appraisal:		cargo tonnage carried.	cargo tonnage carried.	cargo tonnage carried.	cargo tonnage carried.	cargo tonnage carried.	cargo tonnage carried.	tonnage carried.
Aviation /	l der bonn	Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3	This option supports continuous descent operations, reducing the overal amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3	I This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the 8. CAP1616 process to quantify fuel burn, this will be conducted in Stage 3.	This option supports continuous descent operations, reducing the overa amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage
airlines			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	Therefore, to enable a comparison, the logic applied is that the shorter t track length, the less fuel is burnt. With regards to this option, it is 66.9
			in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	63.59 km (34.34 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	74.97 km (40.48 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	48.39 km (26.13 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	48.19 km (26.02 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	54.98 km (29.69 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	55.39 km (29.91 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	km (36.13 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of econom dis-benefit as more fuel will be burnt. More in-depth analysis will be
Commercial	Training costs	Initial Options Appraisal:		analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable	analysis will be carried out in Stage 3 to confirm.	analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable	analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable	analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable	analysis will be carried out in Stage 3 to confirm.	carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enab
airlines		Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating
			legacy systems to continue fying conventional navigation but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for ENA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for ENA to assess the 'other costs' to commercial airlines of flying PBN procedures.	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' commercial airlines of flying PBN procedures.
Airport / Air	nfrastructure costs	Initial Options Appraisal: Qualitative	No additional infrastructure is required at EMA to maintain estant	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate		There are no expected additional infrastructure costs. All options relate
ervice provider		Quandine	conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure	d to the implementation of PBN and no additional infrastructure is required , as the introduction of PBN reduces the reliance on ground infrastructure,	the implementation of PBN and no additional infrastructure is required a the introduction of PBN reduces the reliance on ground infrastructure, in
Airport / Air	Operational costs	Initial Options Appraisal:	prior to the proposed removal date.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	particular ground-based navigation aids are no longer needed.
avigation ervice provider	operational costs	Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACI	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air P traffic controllers; however, these cannot be identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA;
kirport / Air	Deployment costs	Initial Options Appraisal:		process. Some deployment costs are anticipated with respect to the	process. Some deployment costs are anticipated with respect to the	process. Some deployment costs are anticipated with respect to the	process. Some deployment costs are anticipated with respect to the	process. Some deployment costs are anticipated with respect to the	ACP process. Some operational costs are anticipated with respect to the	however, these cannot be identified at this stage of the ACP process.
avigation ervice provider		Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.
afety asessment	Safety Assessment	Initial Options Appraisal: Qualitative		ALT process.		A cr process.		ALT process.	process. A hazard relating to arrivals from the north was identified where there is	A hazard relating to arrivals from the north was identified where there i
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the						A the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing navigational aid not be	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.
			implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and miligations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.
		Summary of Analysis	•	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
				Warse in the following areas: - Noise impact from 4,000ft	Worse in the following areas: - Noise impact from 4,000ft	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Warse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Warse in the following areas: - Greenhouse gas emissions
			The 'do nothing' scenario in relation to this ACP is not a viable option as	- Greenhouse gas emissions - Fuel burn	Noise impact from 7,000ft     Greenhouse gas emissions     Fuel burn	- Fuel burn Better in the following greas:	• Fuel burn Better in the following greas:	• Fuel burn Better in the following greas:	- Fuel burn Better in the following areas:	- Fuel burn Better in the following greas:
			it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a	Better in the following areas: Noise impact from 7,000ft	- Air Quality	- Noise impact from 4,000ft - Noise impact from 7,000ft	Noise impact from 4,000ft     Noise impact from 7,000ft	Noise impact from 4,000ft     Noise impact from 7,000ft	<ul> <li>Noise impact from 4,000ft</li> <li>Noise impact from 7,000ft</li> </ul>	- Noise impact from 4,000ft - Noise impact from 7,000ft
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's	<ul> <li>Air Quality</li> <li>Equal/neutral in terms of the remaining criteria because there is no</li> </ul>	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	<ul> <li>Air Quality</li> <li>Equal/neutral in terms of the remaining criteria because there is no</li> </ul>	<ul> <li>Air Quality</li> <li>Equal/neutral in terms of the remaining criteria because there is no</li> </ul>	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no
			operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA	change when compared to today's operation.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of
			operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the satety implications of this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional
				analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.
				Based on IOA Shortlist Assessment methodology, Option 05 has been	Based on IOA Shortlist Assessment methodology, Option 06 has been	Based on IOA Shortlist Assessment methodology, Option 07 has been	Based on IOA Shortlist Assessment methodology, Option 08 has been	Based on IOA Shortlist Assessment methodology, Option 8A has been	Based on IOA Shortlist Assessment methodology, Option 29 has been	Based on IOA Shortlist Assessment methodology, Option 30 has been
			IOA Shortlist Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	deemed the REJECTED option within this design envelope. REJECTED	deemed the REJECTED option within this design envelope. REJECTED	deemed the PREFERRED option within this design envelope. PREFERRED	deemed the ACCEPTABLE option within this design envelope. ACCEPTABLE	deemed the FAVOURABLE option within this design envelope. FAVOURABLE	deemed the REJECTED option within this design envelope. REJECTED	deemed the ALTERNATE option within this design envelope. ALTERNATE
								,		

			DO NOTHING' BASELINE	IAF 1 Indirect R09 A N 017	IAF 1 Indirect R09 A N O18	IAF 1 Direct R09 A N O19	IAF 1 Direct R09 A N O20	
								The IAF
				The IAF for this option is IAF1 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised	The IAF for this option is IAF1 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a	The IAF for this option is IAF1 and the style of the route is 'direct' which	The IAF for this option is IAF1 and the style of the route is 'direct' which means the distance to the final approach has been minimised. It initially	n option thereby
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing'	s but has been designed to provide an alternative respite option to a 'direct' route. The option starts at IAF1, west of Sutton-in-Ashfield and initially tracks	'direct' route. It initially routes on the same track as Option 17 but takes a more westerly track after passing Duffield.	means the distance to the final approach has been minimised. The option starts at IAF1, west of Sutton-in-Ashfield and tracks south- west over Alfreton passing north of Ripley and west of Belper. It then	routes on the same track as Option 19 but takes a more westerly track after passing Duffield. The option starts at IAF1, west of Sutton-in-Ashfield and tracks south-	option track o
			scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers	south-east before turning south-west and routing between Heanor and Ripley and south of Belper. North of Duffield the route turns south by	ne option starts at IAPT, west or Sunon-In-Asmield and mitially induks	turns slightly left onto a south-west heading to route to the west of Derby. The route turns over Etwall onto a southerly heading before	west over Alfreton passing north of Ripley and west of Belper. It then turns slightly left onto a south-west heading to route north west of Derb	The of west of
			from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially may affect	south-west and tracks west of Derby before turning over Etwall onto a southerly heading and turning to join the extended runway centreline east of Burton upon Trent.	south and continues on this heading until Church Broughton where it turns onto a southerly heading before turning left to join the extended	turning to join the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	and continues on this heading until Church Broughton. Here it turns onto a southerly heading before turning left to join the extended runwa centreline west of Burton upon Trent.	y turn: Derby
			people on the ground. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping data from an	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	runway centreline west of Burton upon Trent. <sup>5</sup> This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.9nm) whilst keeping the route within existing	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.9nm) whilst keeping the route within existing	before This Rt
			altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.03° which is below the optimum	controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.17° which is close to the optimum range for low noise approaches but is within the acceptable range for	controlled airspace. The FAF is at 2,000ff, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.79° which is below the optimum	possi con
				range for low noise approaches but within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.67° which is below the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.	range for low noise approaches but within the acceptable range for CDAs defined within ICAO guidance.	The de for lo
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal: Qualitative	Runway 09 For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway	Runway 09 From 7,000ft, this option is estimated to overfly approximately 25,150 households with an approximate population of 46,200. Taking account	Runway 09 From 7,000fr, this option is estimated to overfly approximately 32,900 t households with an approximate population of 60,800. Taking account	Runway 09 From 7,000ft, this option is estimated to overfly approximately 18,750 households with an approximate population of 34,700. Taking account	Runway 09 From 7,000ft, this option is estimated to overfly approximately 26,300 t households with an approximate population of 48,100. Taking account	From
	and quality of the	qualitative	09 is estimated to overfly:	of 2,500 planned property developments, this option is estimated to overfly and impact a total population of 51,500. The potential noise	of 3,550 planned property developments, this option is estimated to overfly and impact a total population of 67,300. The potential noise	of 2,050 planned property developments, this option is estimated to overfly and impact a total population of 38,500. The potential noise	of 3,800 planned property developments, this option is estimated to overfly and impact a total population of 55,100. The potential noise	of 2,2 overfl
			From 7,000ft: is estimated to overfly approximately 87,200 households with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and impact a total population of	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 2,150 households with an	affect fewer people than the 'do nothing' scenario. From 4,000ft, this	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 2,300 households with an	<ul> <li>impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 9,400 households with an</li> </ul>	affect option
			187,700.	approximate population of 4,100. Taking account of 1,050 planned property developments, this option is estimated to overfly and impact a	approximate population of 16,100. Taking account of 2,000 planned property developments, this option is estimated to overfly and impact a	approximate population of 4,300. Taking account of 300 planned property developments, this option is estimated to overfly and impact a	approximate population of 16,900. Taking account of 2,050 planned property developments, this option is estimated to overfly and impact a	proper
			From 4,000ft: is estimated to overfly approximately 18,250 households with an approximate population of 33,900. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of	total population of 6,100. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.		total population of 4,900. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	total population of 20,600. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	total p qualit
Communities	Air Quality	Initial Options Appraisal: Qualitative	42,300. No change to air quality is predicted in maintaining baseline conditions. The	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	Ther
		Qualitative	majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing'	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing'	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	bel This c
			ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000ft.	scenario, this option is degreed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deered to be beneficial as it overflies fewer AQMAs.	scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deered to be beneficial as it overflies fewer AQMAs.	scen
Wider Society	Greenhouse Gas impact	Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA					
			from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of	Th ap
			environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct	this option is 57.58 km (31.09 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	y this option is 66.64 km (35.98 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	<sup>1</sup> this option is 54.39 km (29.37 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	this option is 62.91 km (33.97 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	this opt
			quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory tha the shorter the track mileage, the less greenhouse gases are emitted. With regards		increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in- f depth analysis will take place at Stage 3 to confirm the exact volumes o	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in- flanth angulesis will take place at Stope 3 to confirm the event volumes of	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in- f depth analysis will take place at Stage 3 to confirm the exact volumes o	incre scenc f depth c
			The shorter the track milege, the less greenhouse gases are emitted, with regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do nothing' scenario track is 37.64km (20.33nm) long.	greenhouse gases released.	greenhouse gases released.	greenhouse gases released.	greenhouse gases released.	-e***1 G
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative		The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The
			Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predi grou
			PBN procedures.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	nav
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only,	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	Thi
			unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The 'do	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	(AO engag
Wider Society	Biodiversity	Initial Options Appraisal:	nothing' scenario does not overfly any AONBs or National Parks.					
		Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000fr. Furthermore, CAP1616, Appendix B, para B80, states		t mixing, there is unlikely to be an impact on local air quality from aircraft		
			RAMSAR sites, as identified on the DEFRA MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616,	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in biod
			Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure.	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	chang Inte Cons
			However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MA
General	Access	Initial Options Appraisal:	Subject Matter Experts.	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	process by Subject Matter Experts. Impact to General Aviation access is anticipated to be minimal as a	Impa
Aviation	100000	Qualitative	No change to existing airspace arrangements. Any General Aviation users of	Impact to General Available access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Impact to General Availion access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	con: Lette
			airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional pirspace requirements will be reviewed as part of Stone	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stone	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stone	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stone	reviev ensure
General	Economic impact from	Initial Options Appraisal		3 activities.	3 activities.	3 activities.	3 octivities.	any ac
Aviation / commercial airlines	increased effective capacity	Qualitative	No increase to effective capacity anticipated for continued use of extant	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight path: and fewer delays (both in the air or on the ground). This is expected to			The introduction of PBN is expected to deliver benefits by increasing a airspace capacity which in turn will lead to more predictable flight path: and fewer delays (both in the air or on the ground). This is expected to	The i airspac and fe
			procedures, therefore no economic benefit for GA/airlines.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	<ul> <li>facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing</li> </ul>	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	<ul> <li>facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing</li> </ul>	r facilitat transp
General	Fuel burn	Initial Options Appraisal		cargo tonnage carried. This option supports continuous descent operations, reducing the	cargo tonnage carried. This option supports continuous descent operations, reducing the	cargo tonnage carried. This option supports continuous descent operations, reducing the	cargo tonnage carried. This option supports continuous descent operations, reducing the	This
Aviation / commercial airlines		Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no requirement for a	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	overall the C
diffice			change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 57.58 km (31.09 nm) long. When compared to the 'do	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 66.64 km (35.98 nm) long. When compared to the 'do	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 54.39 km (29.37 nm) long. When compared to the 'do	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 62.91 km (33.97 nm) long. When compared to the 'do	Stage the sh optio
			armited. In the case of the 'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More	nothin that it
Commercial	Training costs	Initial Options Appraisal:	-	in-depth analysis will be carried out in Stage 3 to confirm.	in-depth analysis will be carried out in Stage 3 to confirm.	in-depth analysis will be carried out in Stage 3 to confirm.	in-depth analysis will be carried out in Stage 3 to confirm.	lt is r
airlines		Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	enab
Commercial airlines	Other costs	Initial Options Appraisal Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for	Other costs to commercial airlines may include updates to Flight	Other costs to commercial airlines may include updates to Flight	Other costs to commercial airlines may include updates to Flight	Other costs to commercial airlines may include updates to Flight	Oth
			commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are too many variables	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not s' proportionate at this stage of the ACP for EMA to assess the 'other costs	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not ' proportionate at this stage of the ACP for EMA to assess the 'other costs	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not i' proportionate at this stage of the ACP for EMA to assess the 'other costs	Mar pro s' proport
Airport / Air	Infrastructure costs	Initial Options Appraisal:	(e.g. aircraft types, on-board system capability etc.) to consider these effectively.	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of flying PBN procedures.	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	e There o
navigation service provider		Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to t requi
Airport / Air	Operational costs	Initial Options Appraisal	substitution not be implemented prior to the proposed removal date.	infrastructure, in particular ground-based navigation aids are no longe needed.	r infrastructure, in particular ground-based navigation aids are no longer needed.	infrastructure, in particular ground-based navigation aids are no longer needed.	r infrastructure, in particular ground-based navigation aids are no longe needed.	r infrastr
navigation service provider	- pa. a	Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	staff at EMA; however, these cannot be identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	implen staff e
Airport / Air	Deployment costs	Initial Options Appraisal:	-	ACP process.	ACP process. Some deployment costs are anticipated with respect to the	ACP process. Some deployment costs are anticipated with respect to the	ACP process.	<u> </u>
navigation service provider		Qualitative	No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of	imple traffic
Safety	Safety Assessment	Initial Options Appraisal:		the ACP process.	the ACP process.	the ACP process.	the ACP process.	<u> </u>
Assessment		Qualitative	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the astron conventional amendume. Following the reasonal of	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical	s A haza the p nor
			including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	sepa result
			The existing novigational aid not be implemented), resulting in a possible increase in ATCO workload.	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	miti Furth CAI
		Summary of Analysis		When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	when compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When c
		Contrary of Analysis		Worse in the following areas:	Worse in the following areas:	Worse in the following areas:	Worse in the following areas:	Worse
				- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel bum	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn	- Greer - Fuel b
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does no provide a sustainable solution in terms of airspace modernisation. The existing	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better i - Noise
			arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality	- Noise - Air Q
			impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/r change
			scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	f At this t this spe
			requirement to recell YECKIIIIg.	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this spe than as analysis
				determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.	determi the othe
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 17 has been	Based on IOA Shorilist Assessment methodology, Option 18 has been	Based on IOA Shortlist Assessment methodology, Option 19 has been	Based on 10A Shortlist Assessment methodology, Option 20 has been	Based o

IOA Shortlist Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3

ed on IOA Shortlist Assessment methodology, emed the FAVOURABLE option within this desig FAVOURABLE



The IAF for this option is IAF1 and the style of the route is 'direct' which means the distance to the final opport. A lass of the initial option has an IF of 2,500 which is at a point 5mm from the FAF, hereby falling between the 3.85mm and 6.9 mm utilited by other arrival options to Rumwy QP from the North. It initially routes on the same tack as Option 20 but the slightly more earsthy' tack they around the tack as Option 20 but the slightly more earsthy' tack they around the tack as Option 20 but the slightly more earsthy' tack they around the tack as Option 20 but the slightly they are observed they are to the option starts of IAF1 and Subject and the tack as option options and the starts and the tack as option options and the starts and the tack as options the tack of the tack as the start of the tack as the start of the tack as the start of the tack as the

Runney 0 From 7,000h, this option is estimated to overfly approximately 22,550 nouseholds with an approximate population of 11,900. Taking account of 2,750 planned population of 47,000. The potential noise mosc of neah and quality of life from 7,000h is assessed as likely to affect lever people than the d'a nothing scenario. From 4,000h, this approximate population of 11,300. Taking account of 1,050 planned total population of 13,300. The potential noise impact on health and quality of life from 4,000h is assessed as likely to affect lever people and the scenario of the scenario of the scenario of the scenario total population of 13,300. The potential noise impact on health and quality of life from 4,000h is assessed as likely to affect lever people than the 'do nothing' scenario.

There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overfiles no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overfiles fewer AQMAs.

This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be quired to manage aircalt separation distances. The track mileage of a point a 57.83 km (31.22 nm). When compared to the do nothing cenario, this option is longer and is therefore sepacetal to result in an increase in greentouse gas emissions compared to the Via onthing cenario and is deemed to be of environmental dis-benefit. More in-pth analysis will tab place at Stage 5 to confirm the exact volumes a greenhouse gase released.

The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more applicable light paths and fever delays (both in the air and an the ground). The reduction of the reliance on audioted ground based novigational aits will significantly increase operational resilience through the introduction of PBN.

This option overflies no statutorily identified tranquillity receptors (AQNBs or National Parks), nor any identified through community ngagement and is therefore comparable to the 'do nothing' scenaric and assessed as neutral.

AP1616, Appendix B, para B74, states that because of dispersion and wing, there is unlikely to be an impact on local air quality from aircraft hore I, JOOR: Furthermore, CAP1616, Appendix B, para B80, states at in general, aircapace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The hange sporor hors mapped the designated Sites of Special Scientific Interest (SSGI), Special Protection Areas (SPAI), Special Contention Conservation (SAC) and RAMSAR states, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites arround EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.

Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be eviewed and updated (where applicable) prior to implementation to surve their continued validity. Airspace classification requirements and my additional airspace requirements will be reviewed as part of Stage 3 activities.

The introduction of PBN is expected to deliver benefits by increasing inspace copacity which in turn will lead to more predictable flight path and lever delays (both in the air or on the ground). This is expected to aclitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing arrays carried.

This option supports continuous descent operations, reducing the verall amount of hell burnt. There is no requirement within Stage 2 of the C&P1 of process to quantify hell burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this ontoning is 57.83 km (31.22 cm) long. When compared to the 40 onthing scenario, this option is longer and at this stage, it is assumed in the will be of comomic dis-benefits arower take will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.

It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.

Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not opontionet at this stage of the ACP for EMA to assess the other cost to commercial airlines of flying PBN procedures.

to commercial ainlines of thing PBN procedures. There are no expected additional infrastructure costs. All options relate to the implementation of PBN reduces the reliance on ground infrastructure, in proficular ground based arrongation raids are no longer meetad. Some operational costs are antifoipted with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these control to identified at this stage of the ACP process.

Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air raffic controllers; however, these cannot be identified at this stage o the ACP process.

hazard relating to aniholis from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north and north west cousing a loss of horizontal and/or vertical separation. This would require ATC tockical intervention and could esuit in an increase in ATCO workload. This hazard could be further mighted through the design process procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the esuit nature and mitigation and mitigations.

en compared to the 'do nothing' scenario, this option performs:

orse in the following areas: Greenhouse gas emissions Fuel burn

etter in the following areas: Noise impact from 4,000ft Noise impact from 7,000ft Air Quality

al/neutral in terms of the remaining criteria because there is no nge when compared to today's operation.

I this time, it is not possible to fully determine the sofety implications of is specific option as this option has been casessed in adoltion rather an as a set of design options as part of a wider system. Additional adjust will be required in Stage 3 and 4 of the CAP Tol to process to stermine the cumulative impact of this option when compared to all a other options.

				IAF 2	IAF 2	IAF 2	IAF 2	IAF 2
			'DO NOTHING' BASELINE	Indirect R09_A_N_O13	Indirect R09 A.N.O14	Direct R09_A_N_O21	Direct R09_A_N_O22	Direct R09_A_N_O22A The IAF for this option is IAF2 and the style of the
			For arrivals from the north, the 'do nothing' scenario in terms of today's	The IAF for this option is IAF2 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but	The IAF for this option is IAF2 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but	5	The IAF for this option is IAF2 and the style of the route is 'direct' which	means the distance to the final approach has been has an IF at 2,500ft which is at a point 5nm from
			operation is based around the existing ROKUP Hold. A modal track ha been derived to provide an accurate representation of what occurs	has been designed to provide an alternative respite option to a 'direct' route.	has been designed to provide an alternative respite option to a 'direct' route. It initially routes on the same track as Option 13 but takes a more westerly track after passing Derby.	The IAF for this option is IAF2 and the style of the route is 'direct' which means the distance to the final approach has been minimised. The option starts at IAF2 near Alfreton and initially follows the line of the	means the distance to the final approach has been minimised. It initially routes on the same track as Option 21 but takes a more westerly track after passing Duffield.	
			today. The 'do nothing' scenario for arrivals consists of modal tracks the have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final	1 This option starts at IAF2 near Alfreton and track south towards Heanor prior to turning south by south west to pass north of West Hallam. At the north-east edge of Derby it route turns to a south-west heading and	This option starts at IAF2 near Alfreton and track south towards Heanor prior to turning south by south west to pass north of West Hallam. At the	A38 south to pass over Ripley and south of Belper where it turns slightly south west to track to the west of Derby. The option turns, over Etwall,	The option starts at IAF2 near Alfreton and initially follows the line of the A38 south to pass over Ripley and south of Belper where it turns slightly	upon Trent. The option starts at IAF2 near Alfreton and initially
			Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations and	overflies central Derby and once over Etwall it turns left onto a southerly heading before turning to join the extended runway centreline east of	north-east edge of Derby it route turns to a south-west heading and overflies north Derby. It continues on this heading until Church Broughton where it turns onto a southerly heading before turning to join	onto a southerly heading before turning to join the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	south west to track to the west of Derby. It continues on this heading unti Church Broughton where it turns onto a southerly heading before turning left to join the extended numma centreline west of Burton upon Trent	A38 south to pass over Ripley and south of Belpe south west to track to the west of Derby. It continu porth of Hilton where it makes a left turn south and
			approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track	Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	the extended runway centreline west of Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF ( $\delta$ .9nm) whilst keeping the route within existing	turning to join the extended runway centreline over Trent.
			transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	possible from the FAF (6.9nm) whilst keeping the route within existing controlled aispace. The FAF is at 2,000ft, which is the platform altitude	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.46° which is within the optimum	controlled airspace. The FAF is at 2,000fr, which is the platform altitude for the existing FAF for Runway 09 approaches.	possible from the FAF (5nm) whilst keeping the
			on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	The descent gradient to the FAF is 2.17° which is below the optimum range for low noise approaches but is within the acceptable range for	for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.71° which is within the optimum range for low noise approaches but is within the acceptable range for	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.95° which is within the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	controlled airspace. The FAF is at 2,000ft, which for the existing FAF for Runway 09 ap The descent gradient to the FAF is 2.21° which is
				CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.			range for low noise approaches and is within the CDAs defined within ICAO guid
Group Communities	Impact Noise impact on health	Level of Analysis Initial Options Appraisal	Runway 09 For comparison purposes in the IOA, in terms of potential noise impact,	Runway 09 From 7,000fr, this option is estimated to overfly approximately 59,850	Runway 09 From 7,000ft, this option is estimated to overfly approximately 64,800	Runway 09 From 7,000ft, this option is estimated to overfly approximately 26,050	Runway 09 From 7,000ff, this option is estimated to overfly approximately 34,250	Runway 09 From 7,000ft, this option is estimated to overfly
	and quality of life	Qualitative	initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 09 is estimated to overfly:	households with an approximate population of 111,700. Taking account of 5,950 planned property developments, this option is estimated to	t households with an approximate population of 120,500. Taking account of 8,900 planned property developments, this option is estimated to	households with an approximate population of 47,800. Taking account of 3,250 planned property developments, this option is estimated to	households with an approximate population of 62,400. Taking account of 4,250 planned property developments, this option is estimated to	households with an approximate population of 55 3,150 planned property developments, this option
			From 7,000ft: is estimated to overfly approximately 87,200 households	overfly and impact a total population of 122,800. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 137,000. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 53,800. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 70,200. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	and impact a total population of 61,600. The po health and quality of life from 7,000ft is assessed people than the 'do nothing' scenario. From 4
			with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and impact a total population of 187,700.	option is estimated to overfly approximately 19,950 households with an approximate population of 38,400. Taking account of 2,300 planned	option is estimated to overfly approximately 9,200 households with an approximate population of 16,600. Taking account of 3,700 planned	option is estimated to overfly approximately 2,350 households with an approximate population of 4,400. Taking account of 550 planned	option is estimated to overfly approximately 9,800 households with an approximate population of 17,700. Taking account of 2,150 planned	estimated to overfly approximately 6,350 househo population of 11,900. Taking account of 1,05
			From 4,000ft: is estimated to overfly approximately 18,250 households with an approximate population of 33,900. Taking account of 4,500	property developments, this option is estimated to overfly and impact a total population of 42,800. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 23,300. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 5,400. The potential noise impact on health and audity of life from 4.000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 21,500. The potential noise impact on health and	developments, this option is estimated to overfl population of 13,900. The potential noise impact
			with an approximate population of 33,700. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 42,300.	quality of life from 4,000ft is assessed as likely to affect more people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	life from 4,000ft is assessed as likely to affect few nothing' scenario.
Communities	Air Quality	Initial Options Appraisal Qualitative	No change to air quality is predicted in maintaining baseline conditions.	There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location below	
			The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing'	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This patient and files as AOMA's When compared to the ide pathian!	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	deemed not required.
			AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000ft.	scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies no AQMAs. When compar scenario, this option is deemed to be beneficia AQMAs.
Wider Society	Greenhouse Gas impac	t Initial Options Appraisal:	: Current arrival options do not facilitate continuous descent approaches					
		Qualitative	to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing	This option has been designed to support continuous descent	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continue
			procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 54.49 km (29.42 nm). When compared to the 'do nothing' scenario,		is 49.73 km (26.85 nm). When compared to the 'do nothing' scenario,	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option is 59.14 km (31.93 nm). When compared to the 'do nothing' scenario,	aircraft separation distances. The track mileage of
			proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	(29.00 nm). When compared to the 'do nothing' longer and is therefore expected to result in an ir gas emissions compared to the 'do nothing' scena
			comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	of anyicopmontal dis banafit. Mars in donth and
			regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do nothing' scenario track is 37.64km (20.33nm) long.					
Wider Society	Capacity and resilience	Initial Options Appraisal Qualitative	Retaining extant procedures would maintain current capacity; however,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and table flight acts and for an data of the high in the picture of an the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and table (light path and an addition data in the set of an the	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and introduction of the second se	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more and itstels (list acts and for a data to the subsequent of the subsequent of the subsequence	The introduction of PBN routes is expected to deliv airspace capacity which subsequently leads to n actual for any deliver, the stirts are and as the
			due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based anavigational aids will significantly increase operational resilience through	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through	paths and fewer delays (both in the air and on the of the reliance on outdated ground based na significantly increase operational resilience throu
Wider Society	Tranquillity	Initial Options Appraisal	As per CAP1616, Appendix B, para B76, change sponsors are required	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	PBN.
		Qualitative	to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nathing' scenario and assessed as	<ul> <li>This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as</li> </ul>	or National Parks), nor any identified through co
			engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	neutral.	neutral.	neutral.	neutral.	neutral.
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	: The change sponsor has mapped the designated Sites of Special	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and		CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that bee
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas a Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map. CAP1616, Appendix B, para B74, states that because of	f mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000fr. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	mixing, there is unlikely to be an impact on local above 1,000ft. Furthermore, CAP1616, Appendix in general, airspace change proposals will not
			dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000fr. Furthermore, CAP1616, Appendix B,	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	biodiversity as they do not involve ground-base change sponsor has mapped the designated Site
			para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	Interest (SSSIs), Special Protection Areas (SPA Conservation (SACs) and RAMSAR sites, as ide
			infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	MAGiC Map and acknowledges that any pot designated sites around EMA will be assessed in process by Subject Matter Exp
General	Access	Initial Options Appraisal						
Aviation		Qualitative		Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters		Impact to General Aviation access is anticipate consequence of this ACP. All Visual Reference Pc
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	I of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	I of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	of Agreement pertaining to General Aviation acce updated (where applicable) prior to implement
				additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	continued validity. Airspace classification requirem airspace requirements will be reviewed as part
General Aviation /	Economic impact from increased effective	Initial Options Appraisal Qualitative		The introduction of PBN is expected to deliver benefits by increasing	The introduction of PBN is expected to deliver benefits by increasing	The introduction of PBN is expected to deliver benefits by increasing	The introduction of PBN is expected to deliver benefits by increasing	The introduction of PBN is expected to deliver b
commercial airlines	capacity		No increase to effective capacity anticipated for continued use of extant	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	airspace capacity which in turn will lead to more and fewer delays (both in the air or on the groun
			procedures, therefore no economic benefit for GA/airlines.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo tonnage carried.	facilitate economic benefit by potentially increasi transport movements, increasing passenger number tonnage carried.
General	Fuel burn	Initial Options Appraisal:			cugo romage carres.			ioniuge cance.
Aviation / commercial		Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CADI of a construction work of the particular within stage 2 of the statement of the statement of th	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	I This option supports continuous descent operation amount of fuel burnt. There is no requirement CAP1616 process to quantify fuel burn, this will be the support of the
airlines			aescent operations. Within stuge 2 of the CA+1616 process, interes is no requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison	3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option,	3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option,	CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the lagic applied is that the shorter the track length, the less fuel is burnt. With regards to this option,	3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option,	Therefore, to enable a comparison, the logic app
			in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the	it is 54.49 km (29.42 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	it is 65.40 km (35.31 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	it is 49.73 km (26.85 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	it is 59.14 km (31.93 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	this option is longer and at this stage, it is assu
			'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	economic dis-benefit as more fuel will be burnt. I will be carried out in Stage 3 to c
Commercial airlines	Training costs	Initial Options Appraisal Qualitative	: Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training wi pilots to fly the new PBN procedures as PBN ha
Commercial	Other costs	Initial Options Appraisal	would be practised by crews through existing simulator exercises.	common navigation standard across the world.	common navigation standard across the world.	common navigation standard across the world.	common navigation standard across the world.	navigation standard across the v
airlines	Oliver Coals	Qualitative	It is not proportionate at this stage for EMA to assess potential other cost: for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are	<ul> <li>Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not</li> </ul>	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may includ Management Systems (FMS), navigation datab procedures, increased pilot hire costs versus t
			too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	<ul> <li>proceedings, increased pilor me costs versas indiming etc. in a non proportionate at this stage of the ACP for EMA to assess the 'ather costs' to commercial airlines of flying PBN procedures.</li> </ul>	proceedings, increased pilot the CCP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proceedings, increased pilot the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proceedings, increased pilot the ACP for EMA to assess the 'ather costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to commercial airlines of flying PBN pr
Airport / Air navigation	Infrastructure costs	Initial Options Appraisal Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	
service provider			ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented	as the introduction of PBN reduces the reliance on ground infrastructure,	I to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	d the implementation of PBN and no additional infra , the introduction of PBN reduces the reliance on g particular ground-based navigation aids are
Airport / Air	Operational costs	Initial Options Appraisal	prior to the proposed removal date.	in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated with resper
navigation service provider		Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	of now procedures and training of air traffic cor
Airport / Air navigation	Deployment costs	Initial Options Appraisal Qualitative	5	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respe
service provider			No deployment costs applicable to extant procedures.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure procedures and training of however, these cannot be identified at this stage
Safety Assessment	Safety Assessment	Initial Options Appraisal Qualitative		A hazard relating to arrivals from the north was identified where there is	A hazard relating to arrivals from the north was identified where there is	A hazard relating to arrivals from the north was identified where there is	A hazard relating to arrivals from the north was identified where there is	
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the	The potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	the potential for confliction with the new EMA proposed SIDs to the north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	the potential for confliction with the new EMA pro and north west causing a loss of horizontal and/ This would require ATC tactical intervention ar
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing navigational aid not be	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could through the design process or procedure
			implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during St CAP1616 process to confirm the exact nature mitigations.
		Summary of Analysi	ls l	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this
				Worse in the following areas: - Noise impact from 4,000ft	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions
			The 'do nothing' scenario in relation to this ACP is not a viable option as	- Greenhouse gas emissions - Fuel burn	- Fuel burn Better in the following areas:	- Fuel burn Better in the following areas:	- Fuel burn Better in the following areas:	- Fuel burn Better in the following areas:
			it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a	Better in the following areas: - Noise impact from 7,000/ft	<ul> <li>Noise impact from 4,000ft</li> <li>Noise impact from 7,000ft</li> </ul>	Noise impact from 4,000ft     Noise impact from 7,000ft	Noise impact from 4,000ft     Noise impact from 7,000ft	<ul> <li>Noise impact from 4,000ft</li> <li>Noise impact from 7,000ft</li> </ul>
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic	- Air Quality	- Air Quality	- Air Quality	- Air Quality	- Air Quality
			impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria bee change when compared to today's operation.
			of this scenario. From a safety perspective, it is assumed that current EMP operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	this specific option as this option has been assesse
				than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider s analysis will be required in Stage 3 and 4 of the C determine the cumulative impact of this option whe
				other options.	other options.	other options.	other options.	other options.
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 13 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 14 has been deemed the ALTERNATE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 21 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 22 has been deemed the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, O deemed the FAVOURABLE option within this design
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	REJECTED	ALTERNATE	PREFERRED	ACCEPTABLE	FAYOURABLE

# **LPE 2 Dree Dree Dree Dree Dree Dree Not** AN **CO22A** to the final approach has been minimised. This option by which is dra point 5mm from the FAF, thereby fulling Shorm and 6, 9mm while any other arrived applications and LPZ near Alleston and initially follows the line of the table Tar ear Alleston and initially follows the line of the table Tar ear Alleston and initially follows the line of the table Tar ear Alleston and initially follows the line of the table Tar ear Alleston and initially follows the line of the table Tar ear Alleston and initially follows the line of the table table table table table table table table table to the near of Defug. It continues on this heading until the the near of Defug. It continues on this heading until the TAF (5mm) while keeping the node whith making the TAF (5mm) while keeping the node whith making the TAF (5mm) while keeping the node whith making the TAF (5mm) while a whith the acceleties on the optimum te approaches approaches. Defael whith ICAO guidance. **Dree Start** (22)<sup>12</sup> which is the platform diffuelde to approximate population of 5,550 no Toping account of the optimum table table to meeting and the table table table to the optimum table tables to a stimule table conselly to population of 16,500 m to peterting his optimum table to approximate population of 5,550 no tables the other this option is estimated to overly and impact a table to anothing scenario. From A,0000 the appreciable table forces to anothing scenario.

to be a change in aviation emissions by location below or CAP1016, para B72 a full Air Quality Assessment is deterred not required. filles no AQMAs. When compared to the 'do nathing' ption is deemed to be beneficial as it overfiles fewer AQMAs.

in designed to support continuous descent approaches and of radar vectoring may still be required to manage distances. The tock mileage of this caption in 53.71 km n compared to the 'do nothing' scenario, this aption is refore expected to result in an increase in greenhouse spared to the 'do nothing' scenario and is deemed to be id als-benefit. More incledph analysis and like place at Irm the exact volumes of greenhouse gases released.

PBN routes is expected to deliver benefits by increasin which subsequently leads to more predictable flight ktys (both in the air and on the ground). The reduction e on outdated ground based novigational aids will ase operational resilience through the introduction of PBN.

a no statutorily identified tranquillity receptors (AONBs , nor any identified through community engagement nparable to the 'do nothing' scenario and assessed as neutral. 

ndix B, para B74, states that because of dispension and nikely to be an impact on local air quality from aircraft thermone, CAP1016, Appendix B, para B80, states the space change proposals will not have an impact an they do not involve ground-based infrastructure. The how snapped the designed 51se of Space 30 Sensitilie, 3, Special Protection Areas (SPA), Special Areas of ACS, and RAMSAR site, as identified on the DEFRA and acknowledges that any potential impact to the process by Subject Matter Expens.

ral Aviation access is anticipated to be minimal as a is ACP. All Visual Reference Points and existing Lettern aning to General Aviation access will be reviewed and applicable) prior to implementation to ensure their Arspace classification requirements and any additiona ements will be reviewed as part of Stage 3 activities.

of PBN is expected to deliver benefits by increasing which in turn will lead to more predictable flight paths both in the air or on the ground). This is expected to benefit by potentially increasing the frequency of air s, increasing passenger numbers and increasing cargo tonnage carried.

Its continuous descent operations, reducing the overall burnt. There is no requirement within Stage 2 of the to quantify fuel burn, this will be conducted in Stage 3, the comparison, the logic capelled is that the shorter the less to be a burnt. With regards to this option, it is only long. When compared to the dia notify sciencia, nger and at this stage, it is assumed that it will be of lies as more fuel will be burnt. Never indepth analysis II be carried out in Stage 3 to confirm. 

no extra pilot/crew training will be required to enable w PBN procedures as PBN has become a common avigation standard across the world.

commercial airlines may include updates to Flight tystems (FMS), navigation databases and operating creased pilot hire costs versus training etc. It is not s stage of the ACP for ENA to assess the 'other costs' mercial airlines of flying PBN procedures.

ed additional infrastructure costs. All options relate to of PBN and no additional infrastructure is required as PBN reduces the reliance on ground infrastructure, in nd-based navigation aids are no longer needed.

as a data intriguint dua te in any any of necesi-osts are anticipated with respect to the implementation as and training of air traffic controlling staff at ENA; annot be identified at this stage of the ACP process.

costs are anticipated with respect to the implementatio ture procedures and training of air traffic controllers; cannot be identified at this stage of the ACP process. 

to arrivals from the north was identified where there is confliction with the new EMA proposed SDA to the north causing a loss of horizontal and/or writical separation. joure ATC tocical intervention and could result in an Oo workload. This hazard could be further mitgated the design process or procedurally if required. ment will be conducted during Stoges 3 and 4 of the cases to confirm the exact noture of all hazards and mitigations.

ns of the remaining criteria because there is no ared to today's operation.

t possible to fully determine the safety implications of as this option has been assessed in isolation rather ign options as part of a wider system. Additional uride in Stage 3 and 4 of the CAP 1616 process to ulative impact of this option when compared to all the

ist Assessment methodology, Option 22A has bee RABLE option within this design envelope. FAYOURABLE

_			DO NOTHING' BASELINE	UF 3 Direct R09 A N O11	IAF 3 Direct R09 A.N.O12	IAF 3 Direct R09_A N_012A	IAF 3 Indirect R09 A N_023	IAF 3 Indirect R09 A. N O24
						The IAF for this option is IAF3 and the style of the route is 'direct' which means the distance to the final approach has been minimised. This		The IAF for this option is IAF3 and the style of the rout
			For arrivals from the north, the 'do nothing' scenario in terms of today's	The IAF for this option is IAF3 and the style of the route is 'direct' which	The IAF for this option is IAF3 and the style of the route is 'direct' which means the distance to the final approach has been minimised. It is	option has an IF at 2,500ft which is at a point 5nm from the FAF, thereby falling between the 3.85nm and 6.9nm utilised by other arrival	The IAF for this option is IAF3 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but	means the distance to the final approach has not be has been designed to provide an alternative respite of
			operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs	means the distance to the final approach has been minimised. This option starts at IAF3 which is west of Alfreton and from this point i	initially the same as option 11 but takes a more westerly track after Duffield.	options to Runway 09 from the North. It initially routes on the same track as Option 12 but the slightly more easterly track helps avoid the	has been designed to provide an alternative respite option to a 'direct' route.	route. It follows the same track as Option 23 but rou reaching Derby.
			today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most	routes between Ripley and Belper and turns south west passing	The option starts at IAF3 west of Alfreton and from this point and from	overflight of Burton upon Trent The option starts at IAF3 west of Alfreton and from this point it routes	This option starts at IAF IAF3 west of Afreton and tracks almost direct south from the IAF, overflying west Ripley. On the north-east boundary o	This option starts at IAF3 west of Alfreton and tracks of from the IAF, overflying west Ripley. On the north-e
			arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon	turning onto a southerly heading over Etwall, before turning to join the extended number centraling owth east of Burton upon Treat	<ul> <li>passing overhead Duffield. It continues on this heading until Church Broughton where it turns onto a southerly heading before turning to join</li> </ul>	between Ripley and Belper and turns south west passing north of Duffield. It continues on this heading until the track crosses the A52 mid	Derby the route turns to a south-west heading and overflies Derby. It turns left over Etwall, onto a south-reading before turning to join the	Derby the route turns to a south-west heading and a continues on this heading until Church Broughton wh
			has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and potentially	<sup>5</sup> This RNAV 1 arrival connects the IAF to the IF which is placed as far a	s the extended runway centreline west of Burton upon Trent.	way between Ashbourne and Derby. The option routes directly south and overflies Hilton before turning left to join the extended runway	extended runway centreline east of Burton upon Trent.	southerly heading before turning left to join the ex
			may affect people on the ground. The overflight analysis conducted or this transition was based on the modal track created using Noise and		possible from the FAF (6.9nm) whilst keeping the route within existing	centreline and passing just north east of Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF, at 2,500ft, which is	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85m) when PANS OPS criteria and MSD for a provide the IAF (3.85m) when PANS OPS criteria and MSD for a provide the IAF of	centreline west of Burton upon Tren This RNAV 1 arrival connects the IAF to the IF which
			Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been	The descent gradient to the FAF is 2.56° which is within the optimum	controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	placed as close as possible to the FAF (5nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	possible from the FAF (6.9nm) whilst keeping the ro controlled airspace. The FAF is at 2,000ft, which is the
			calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the runway.	range for low noise approaches and the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for	2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	The descent gradient to the FAF is 2.35° which is within the optimum range for low noise approaches and the acceptable range for CDAs	for the existing FAF for Runway 09 appro The descent gradient to the FAF is 1.83° which is be
			· · · · · · · · · · · · · · · · · · ·		CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.16° which is below the optimum range for low noise approaches but is within the acceptable range for	defined within ICAO guidance.	range for low noise approaches but is within the acc CDAs defined within ICAO guidance
~				Runway 09	Runway 09	CDAs defined within ICAO guidance. Runway 09		
Communities	Noise impact on health	Initial Options Appraisal Qualitative	Runway 09				Runway 09	Runway 09
	and quality of life	Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing'	households with an approximate population of 30,200. Taking account	nt households with an approximate population of 45,500. Taking account	households with an approximate population of 38,100. Taking account	From 7,000fr, this option is estimated to overfly approximately 50,500 households with an approximate population of 94,800. Taking account	From 7,000ft, this option is estimated to overfly appr households with an approximate population of 102,8
			scenario for Runway 09 is estimated to overfly:	of 2,700 planned property developments, this option is estimated to overfly and impact a total population of 35,200. The potential noise	of 3,650 planned property developments, this option is estimated to overfly and impact a total population of 52,200. The potential noise	of 2,500 planned property developments, this option is estimated to overfly and impact a total population of 42,700. The potential noise	of 4,850 planned property developments, this option is estimated to overfly and impact a total population of 103,900. The potential noise	of 7,800 planned property developments, this optic overfly and impact a total population of 117,400. T
			From 7,000ft: is estimated to overfly approximately 87,200 households with an approximate population of 166,500. Taking account of 11,100	affect fewer people than the 'do nothing' scenario. From 4,000ft, this	affect fewer people than the 'do nothing' scenario. From 4,000ft, this	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	impact on health and quality of life from 7,000ft is a affect fewer people than the 'do nothing' scenario. F
			planned property developments, this option is estimated to overfly and impact a total population of 187,700.	approximate population of 4,400. Taking account of 300 planned	approximate population of 17,800. Taking account of 2,150 planned	option is estimated to overfly approximately 6,250 households with an approximate population of 11,700. Taking account of 1,050 planned	option is estimated to overfly approximately 10,250 households with an approximate population of 19,600. Taking account of 2,450 planned	option is estimated to overfly approximately 9,300 h approximate population of 16,800. Taking account
			From 4,000ft: is estimated to overfly approximately 18,250 households		total population of 21,700. The potential noise impact on health and	total population of 13,700. The potential noise impact on health and	property developments, this option is estimated to overfly and impact a total population of 24,300. The potential noise impact on health and	property developments, this option is estimated to over total population of 20,600. The potential noise impr
			with an approximate population of 33,900. Taking account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 42,300.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	quality of life from 4,000ft is assessed as likely to aft than the 'do nothing' scenario.
			impact a total population of 42,300.					
Communities	Air Quality	Initial Options Appraisal Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft,	. There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location belov 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emission: 1,000 feet. As per CAP1616, para B72 a full Air Qu
			other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overfiles	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing'	Assessment is deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing'	deemed not required. This option overflies one AQMA. When compared to the 'do nothing'	deemed not required. This option overflies two AQMAs. When compared th
			EVA. In terms of AQMAs, the KOKUP to nothing scenario overties 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1.000ft		Inis option overtiles one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	Inis option overtiles no AQWAS. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	Inis option overtiles one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	scenario, this option is deemed to be beneficial as AQMAs.
Wider Society	Greenhouse Gas impac			najirins.	Abgivino.	ingenes.	namna.	AQMAS.
		Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aiscretized track and initiality due to the acture of rander surfacing. Existing	Inis option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support contin
			by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the	g approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage a	approaches to EMA. An element of radar vectoring may still be f required to manage aircraft separation distances. The track mileage of	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this option	approaches to EMA. An element of radar vectoring m to manage aircraft separation distances. The track mil
			are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or	this option is 48.31 km (26.08 nm). When compared to the 'do nothin scenario, this option is longer and is therefore expected to result in an	g this option is 57.72 km (31.16 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	this option is 55.00 km (29.70 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in an	is 51.34 km (27.72 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 62.09 km (33.53 nm). When compared to the 'do this option is longer and is therefore expected to result
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothin deemed to be of environmental dis-benefit. More in-
			a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do		of depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of released.
			regards to the "do nothing" scenario track lengths, the KUKUP UY do nothing' scenario track is 37.64km (20.33nm) long.					
Wider Society	Capacity and resilience	Initial Options Appraisal Qualitative	: Retaining extant procedures would maintain current capacity; however,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deli increasing airspace capacity which subsequently
			due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the ground). The reduction of the reliance on outdated
			and the requirement to adopt PBN procedures.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational the introduction of PBN.
Wider Society	Tranquillity	Initial Options Appraisal Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors	This option overflies no statutorily identified tranquillity receptors (AONB:	This option overflies no statutorily identified tranquillity
			Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario	(AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed	or National Parks), nor any identified through commu and is therefore comparable to the 'do nothing' scene
			engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	and assessed as neutral.	and assessed as neutral.	and assessed as neutral.	as neutral.	as neutral.
Wider Society	Biodiversity	Initial Options Appraisal Qualitative	: The change sponsor has mapped the designated Sites of Special	CAP1616, Appendix B, para B74, states that because of dispersion an	d CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states		above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air q above 1,000ft. Furthermore, CAP1616, Appendix B,
			MAGIC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air	biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not he biodiversity as they do not involve ground-based inf
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	change sponsor has mapped the designated Sites of Interest (SSSIs), Special Protection Areas (SPAs), Sp
			have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identifie MAGiC Map and acknowledges that any potentia
			potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Sta process by Subject Matter Experts.
General Aviation	Access	Initial Options Appraisal Qualitative	:	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to
/ mailon		Gounanie	No change to existing airspace arrangements. Any General Aviation	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	of Agreement pertaining to General Aviation access w
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	f reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements an any additional airspace requirements will be reviewed as part of Stage	reviewed and updated (where applicable) prior to implementation to d ensure their continued validity. Airspace classification requirements and any additional aircance requirements will be carrieved are part of State.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	updated (where applicable) prior to implementation continued validity. Airspace classification requiren additional airspace requirements will be reviewed as
General	Economic impact from	Initial Options Appraisal		3 activities.	3 activities.	3 activities.	activities.	activities.
Aviation / commercial	increased effective capacity	Qualitative		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight path	The introduction of PBN is expected to deliver benefits by increasing a inspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benef airspace capacity which in turn will lead to more pred
airlines	. ,		No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of ai	and fewer delays (both in the air or on the ground). This is expected to	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). T facilitate economic benefit by potentially increasing th
				transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger number cargo tonnage carried.
General	Fuel burn	Initial Options Appraisal Qualitative	2	This option supports continuous descent operations, reducing the	This option supports continuous descent operations, reducing the	This option supports continuous descent operations, reducing the	This option supports continuous descent operations, reducing the overal	This option supports continuous descent operations, re
Aviation / commercial airlines		Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn	overall amount of fuel burnt. There is no requirement within Stage 2 o the CAP1616 process to quantify fuel burn, this will be conducted in	the CAP1616 process to quantify fuel burn, this will be conducted in	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	amount of fuel burnt. There is no requirement within CAP1616 process to quantify fuel burn, this will be a
dimines			analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	the shorter the track length, the less fuel is burnt. With regards to this	Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	<ol><li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option</li></ol>	<ol> <li>Therefore, to enable a comparison, the logic ap shorter the track length, the less fuel is burnt. With reg</li> </ol>
			the shorter the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is	option, it is 48.31 km (26.08 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	nothing' scenario, this option is longer and at this stage, it is assumed	option, it is 55.00 km (29.70 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	it is 51.34 km (27.72 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	it is 62.09 km (33.53 nm) long. When compared to scenario, this option is longer and at this stage, it is a
			37.64km (20.33nm).	that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burn analysis will be carried out in Stage 3 to co
Commercial airlines	Training costs	Initial Options Appraisal Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will enable pilots to fly the new PBN procedures as PBN
Commercial	Other costs	Initial Options Appraisal	would be practised by crews through existing simulator exercises.	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the v Other costs to commercial airlines may include up
airlines		Qualitative	in shorp opportionate an instage of the entry of a session potential of the costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases procedures, increased pilot hire costs versus training
			but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other cost to commercial airlines of flying PBN procedures.	s' proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to asse to commercial airlines of flying PBN proce
Airport / Air navigation	Infrastructure costs	Initial Options Appraisal Qualitative	No additional infrastructure is required at EMA to maintain extant	There are no expected additional infrastructure costs. All options relat	e There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs.
service provider			conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively provide the value of COB 709. PMAN what the pathe is a plane at the	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure is available and the reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure is an end of the second seco	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground for the table and the additional interface interface.	as the introduction of PBN reduces the reliance on ground infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure	to the implementation of PBN and no additional infras
			expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	infrastructure, in particular ground-based navigation aids are no longe needed.	needed.	needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no
Airport / Air navigation	Operational costs	Initial Options Appraisal Qualitative	: No change to operational costs is attributable to maintaining the extant		Some operational costs are anticipated with respect to the g implementation of new procedures and training of air traffic controlling	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	Some operational costs are anticipated with re- implementation of new procedures and training of air
service provider			procedures.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACP process.	staff at EMA; however, these cannot be identified at this stage of the ACE process.	staff at EMA; however, these cannot be identified at thi process.
Airport / Air navigation	Deployment costs	Initial Options Appraisal Qualitative	: No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with re- implementation of the new departure procedures an
service provider	Salahi Ar	latio Ortere t		traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisal Qualitative		A hazard relating to arrivals from the north was identified where there the potential for confliction with the new EMA proposed SIDs to the	is A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north	A hazard relating to arrivals from the north was identif the potential for confliction with the new EMA propose
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the	north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could	north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could	north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	and north west causing a loss of horizontal and/or ve This would require ATC tactical intervention and co
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a	result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be f through the design process or procedurally if
			commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	Further assessment will be conducted during Stages CAP1616 process to confirm the exact nature of a
				mitigations.	mitigations.	mitigations.	mitigations.	mitigations.
		Summary of Analysi	5	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this optic
				Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace	s Tele Durn 8 Better in the following areas:	- rue burn Better in the following areas:	- Fuel Durn Better in the following areas:	- ruei burn Better in the following areas:	- ruel burn Better in the following areas:
			modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a	Noise impact from 7,000ft	Noise impact from 7,000ft     Noise impact from 7,000ft	Noise impact from 4,000ft     Noise impact from 7,000ft	- Noise impact from 4,000ft - Noise impact from 7,000ft	<ul> <li>Noise impact from 4,000ft</li> <li>Noise impact from 7,000ft</li> </ul>
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and	- Air Quality	- Air Quality	- Air Quality	- Air Quality	- Air Quality
			Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria becaus change when compared to today's operation.
			incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO unreflect is likely to increase due to the and unrege requirement.	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the sofe
			ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be reauired in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in than as a set of design options as part of a wider syste analysis will be required in Stage 3 and 4 of the CAP 1
				analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	
			IOA Shortlist Assessment	Based on IUA Shortlist Assessment methodology, Option 11 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 12 has been deemed the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 12A has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 23 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Opti deemed the ALTERNATE option within this design enve
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	PREFERRED	ACCEPTABLE	FAVOURABLE	REJECTED	ALTERNATE

## IAF 3 Indirect R09\_A\_N\_024

In the VFA and the style of the route is 'indirect' which note to the final operatorships not been minimized but all to provide an alternative respite option to a 'direct' he same track as Option 2.5 but routes Untert west to reaching Derby. at VF3 west of Alfreion and tracka almost direct south verifying west Ripley. On the north-seat Neutrology, I heading unit Church Broughton where it turns onto a ling before turning left to join the extended runway zentreline west for Buron upon Trent. al connects the VF1 to the IF which is placed os for as 1.FAF (6.9m) which is the platform allitude existing FAF for Runway 0.9 approaches. Lient to the FAF is 1.33" which is below the optimum as approaches but within the acceptator groot 'DAS defined within ICAO guidance.

### Runway 09

is option is estimated to overfly approximately 55.050 neprovement population of 102,800. Taking account of popenty-denotements, this option is estimated to at a total population of 117,400. The potential noise and quality of life rom 7.000 ft assessed as likely to ple than the 'do nothing' sciencia. From 4,0000, this at lo overfly approximately 7,300 households with an ulation of 16,800. Taking account of 2,100 planned mests, this option is estimated to overfly approximately a 4,000 its assessed as likely to faller fewer people than the 'do nothing' sciencia.

be a change in aviation emissions by location below CAP1616, para B72 a full Air Quality Assessment is deemed not required. es wa GANAs. When compared to the 'do nothing' tion is deemed to be beneficial as it overflies fewer AQMAs.

been designed to support continuous descent A na element of rodor vectoring may still be required expansion distances. The track mileage of this option 3 mil. When compared to the tix antifuig scenario, rand is therefore expected to result in an increase in stission compared to the dia onthig scenario and is mirrommental dis-benefit. More in -depth analysis will 3 to confirm the each volumes of greenhouse gases released.

on of PBN routes is expected to deliver benefits by space copacity which subsequently leads to more it paths and fewer delays (both in the air and on the eduction of the reliance on outdated ground based will significantly increase operational resilience throug the introduction of PBN.

no statutorily identified tranquillity receptors (AONBs nor any identified through community engagement nparable to the 'do nothing' scenario and assessed as neutral.

dix B, para B74, states that because of dispersion and likely to be on impact on local air quality fram aircroft untermore, CAP1616, Appendix B, para B80, states impace change proposals will not have an impact on they do not involve ground-Joaned infrastructure. The Local Parameter and the state of the state of the state by a constraint of the state of the state of the state (Jones) Parameter (SPA), Span (Jones) (SPA), Span (Jones) of ACG) and RAMSAR sites, an identified on the DEFRA and acknowledges that any potential impact to the around RAM-will be assessed in Stage 3 of the ACP process by Subject Matter Expensi. The Alvidian access that is anticipated to be minimal as a is ACP. Al Visual Reference Points and existing Letters aircing to General Avalation access that be reviewed any a opticable prior to implementation to ensure their is (JN). Anapce Calculation and the reviewed and a parkites.

of PBN is expected to deliver benefits by increasing hich in turn will lead to more predictable flight paths both in the air or on the ground). This is expected to benefit by potentially increasing the frequency of air neth, increasing passenger numbers and increasing cargo tonnage carried.

s continuous descent operations, reducing the overall sumt. There is no requirement within Stage 2 of the to quantify fuel burn, this will be conducted in Stage enable a comparison, the logic applied is that the right, the less luet is burnt. With regards to this option, 3.5 amil long. When compared to the do nothing on is longer and a this stage, it is assumed that it will be certified out in Stage 3 to confirm.

swill be corried out in Stage 3 to continm. that no extra pilot/crew taining will be required to it that no extra pilot/crew tains in the second of an anargain standard access the work!. commercial aritime may include updates to Flight patterns (FMS), navigation databases and operating reased pilot this costs wearus training etc. It is not is stage of the ACP for EMA to assess the 'other costs' mercial ainlines of thying FBN procedures.

ted additional infrastructure costs. All options relation on of PBN and no additional infrastructure is require of PBN reduces the reliance on ground infrastructure und-based navigation aids are no longer needed.

ational costs or anticipated with respect to the new procedures and training of air traffic controlling expression of the traffic or this stage of the ACP process. process predicted with respect to the of the new departure procedures and training of air nowwer, these control to identified of this stage of the ACP process.

Act process. Mark process. Sandhall from the north was identified where there is sandhall for with the new EMA proposed SIDs to the north using a loss of horizontal and/or vertical separation. uire ATC tactical intervention and could result in on O workfood. This harard could be further mitigated the design process or procedurally if required. ment will be conducted during Stages 3 and 4 of the cess to confirm the each nature of all hazards and mitigations.

the 'do nothing' scenario, this option performs:

ns of the remaining criteria because there is no ared to today's operation.

possible to fully determine the safety implications o as this option has been assessed in isolation rather ign options as part of a wider system. Additional uried in Stage 3 and 4 of the CAP 161 6 process to ulative impact of this option when compared to all th

			DO NOTHING' BASELINE	IAF 4 Direct R09 A N O9	IAF 4 Direct R09 A.N.O10	IAF 4 Direct R09_A_N_010A	IAF 4 Indirect R09 A. N_O25	
					The IAF for this option is IAF4 and the style of the route is 'direct' which	The IAF for this option is IAF4 and the style of the route is 'direct' which means the distance to the final approach has been minimised. This	The IAF for this option is IAF4 and the style of the route is 'indirect' which	The IAF for this option is means the distance to the been designed to provide
			For arrivals from the north, the 'do nothing' scenario in terms of today's operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs	means the distance to the final approach has been minimised.	means the distance to the final approach has been minimised. It is initially the same as option 9 but takes a more westerly track after	option has an IF at 2,500ft which is at a point 5nm from the FAF, thereby falling mid-way between the 3.85nm and 6.9nm utilised by othe arrival options to Runway 09 from the North. It initially routes on the	means the distance to the final approach has not been minimised but has r been designed to provide an alternative respite option to a 'direct' route. The option starts at IAF4 north of Belper and initially tracks south-east	It follows the same tra i
			today. The 'do nothing' scenario for arrivals consists of modal tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final	The option starts at IAF4 which is north of Belper and from this point it tracks around Belper to the east and then south passing just north of Duffield and routing to the west of Derby. The option turns over Etwall,	Duffield to take the same track as Option 8. The option starts at IAF4 which is north of Belper and from this point it tracks around Belper to the east and then south passing just north of	same track as Option 10 but the slightly more easterly track helps avoid the overflight of Burton upon Trent The option starts at IAF4 which is north of Belper and from this point it	between Belper and Ripley until West Hallam where the route turns to a southerly heading and passes between West Hallam and Ilkeston. It continues south until it passes over the A52 near Risley where it turns west	The option starts at IA between Belper and Ri southerly heading an
			Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations and	onto a southerly heading before turning to join the extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	Duffield. It continues on this heading until Church Broughton where it turns onto a southerly heading before turning to join the extended runway centreline west of Burton upon Trent.	tracks around Belper to the east and then south passing just north of Duffield. It continues on heading until north of Hilton and then overflies	to track across the southern suburbs of Derby. It turns south close to Etwall before turning to join the extended runway centreline east of Burton	continues south until it p to track across the south until Church Broughto
			approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on this transition was based on the modal track created using Noise and Track	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude	Hilton before turning left to join the extended runway centreline and passing just north east of Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90°	turning left to join the This RNAV 1 arrival co
			Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end	The descent gradient to the FAF is 2.87° which is close to the optimum range for low noise approaches but is within the acceptable range for	for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.19° which is close to the optimum	possible from the FAF (5nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.95° which is below the optimum	possible from the FAF controlled airspace. Th
			(Touchdown point) of the runway.	CDAs defined within ICAO guidance.	range for low noise approaches and is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 2.5° which is within the optimum range for low noise approaches and the acceptable range for CDAs	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	for the exis The descent gradient to for low noise approact
Group	Impact Noise impact on health	Level of Analysis Initial Options Appraisal:	Runway 09	Runway 09	Runway 09	defined within ICAO guidance. Runway 09	Runway 09	de
	and quality of life	Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing'	From 7,000ft, this option is estimated to overfly approximately 15,450 households with an approximate population of 29,100. Taking account	From 7,000ft, this option is estimated to overfly approximately 23,550 households with an approximate population of 43,500. Taking account of 3 150 planned recoverty developments, this option is estimated to	From 7,000ft, this option is estimated to overfly approximately 19,850 households with an approximate population of 37,300. Taking account	households with an approximate population of 76,100. Taking account of	From 7,000ft, this opt f households with an app
			scenario for Runway 09 is estimated to overfly: From 7,000ft: is estimated to overfly approximately 87,200 households	of 2,450 planned property developments, this option is estimated to overfly and impact a total population of 33,700. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	overfly and impact a total population of 49,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	of 2,000 planned property developments, this option is estimated to averfly and impact a total population of 41,100. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to		and impact a total population of life
			with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and impact a total population of 187,700.	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 2,400 households with an approximate population of 4,500. Taking account of 300 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 10,100 households with an approximate population of 18,100. Taking account of 2,250 planned	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 6,500 households with an approximate population of 12,200. Taking account of 1,150 planned	people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 22,000 households with an approximate population of 41,700. Taking account of 2,550 planned	people than the 'do estimated to overfl approximate populatio
			From 4,000ft: is estimated to overfly approximately 18,250 households with an approximate population of 33,900. Taking account of 4,500	property developments, this option is estimated to overfly and impact a total population of 5,100. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 22,200. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 14,400. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 46,500. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect more people than	property developments total population of 37 quality of life from 4,00
			planned property developments, this option is estimated to overfly and impact a total population of 42,300.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	the 'do nothing' scenario.	
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions.	There is not likely to be a change in aviation emissions by location below	r There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location below	There is not likely to be
			The majority of the extant procedure involves overflight above 1,000 ft, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	1,000 feet. As per CA
			EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1,000fr.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies to scenario, this option
Wider Society	Greenhouse Gas impac	t Initial Options Appraisal:	Current arrival options do not facilitate continuous descent approaches					
		Qualitative	to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches	This option has been de
			procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no	to manage aircraft separation distances. The track mileage of this option is 44.67 km (24.12 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	to manage aircraft separation distances. The track mileage of this option is 54.11 km (29.22 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	to manage aircraft separation distances. The track mileage of this option is 48.78 km (26.34 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	(36.13 nm). When compared to the 'do nothing' scenario, this option is	to EMA. An element of aircraft separation dista (38.05 nm). When cor
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will take place at	longer and is therefore gas emissions compared of environmental dis-
			shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do nothing' scenario track is 37.64km (20.33nm) long.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	Stage 3 to confirm the exact volumes of greenhouse gases released.	Stage 3 to confirm th
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative		The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by increasing	The introduction of PBN
			Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be adversely affected, following the removal of the TNT DVOR and	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will	airspace capacity whi paths and fewer delays of the reliance on a
			the requirement to adopt PBN procedures.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	significantly increase operational resilience through the introduction of PBN.	significantly increase o
Wider Society	Tranquillity	Initial Options Appraisal: Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community	This option overflies no statutorily identified tranquillity receptors (AONB or National Parks), nor any identified through community engagement	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement	This option overflies no statutorily identified tranquillity receptors (AONBs     or National Parks), nor any identified through community engagement	This option overflies no or National Parks), no
			engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	and is therefore comparable to the 'do nothing' scenario and assessed a neutral.	and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	and is therefore compa
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Sites of Special	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that	mixing, there is unlikely above 1,000ft. Furthern
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000fr. Furthermore, CAP1616, Appendix B,	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	in general, airspace biodiversity as they d change sponsor has n
			para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the	Interest (SSSIs), Spe Conservation (SACs) MAGiC Map and o
			potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites arou proc
General Aviation	Access	Initial Options Appraisal: Qualitative		Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letter.	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General A consequence of this AC
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	I of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their	of Agreement pertaining updated (where app
				additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3 activities.	continued validity. Airsp airspace requiremen
General Aviation / commercial	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative		The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths	The introduction of P airspace capacity which
airlines			No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing cargo	and fewer delays (both facilitate economic ber transport movements, in
General Aviation /	Fuel burn	Initial Options Appraisal: Qualitative		cargo tonnage carried. This option supports continuous descent operations, reducing the overal	cargo tonnage carried. This option supports continuous descent operations, reducing the overall	cargo tonnage carried. This option supports continuous descent operations, reducing the overall	tonnage carried. This option supports continuous descent operations, reducing the overall	This option supports co
commercial airlines		Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter	amount of fuel burnt CAP1616 process to qu Therefore, to enable a
			analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of the	shorter the track length, the less fuel is burnt. With regards to this option it is 44.67 km (24.12 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	shorter the track length, the less fuel is burnt. With regards to this option, it is 54.11 km (29.22 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	shorter the track length, the less fuel is burnt. With regards to this option, it is 48.78 km (26.34 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will	the track length, the less fuel is burnt. With regards to this option, it is 58.98 km (31.85 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed that it will be of	the track length, the le 70.47 km (38.05 nm) lo this option is longer
			'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	economic dis-benefit a will be
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common	It is anticipated that no pilots to fly the new P
Commercial	Other costs	Initial Options Appraisal:	would be practised by crews through existing simulator exercises.	common navigation standard across the world.	common navigation standard across the world.	common navigation standard across the world.	navigation standard across the world.	navig
airlines		Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to com Management System procedures, increas
Airport / Air	Infrastructure costs	Initial Options Appraisal:	too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stag commerci
Airport / Air navigation service provider		Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure,	the implementation of PBN and no additional infrastructure is required as	There are no expected of the implementation of P the introduction of PBN
Al	Opportunity	laitial Orderer	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	in particular ground-based navigation aids are no longer needed.	the introduction of PBN reduces the reliance on ground intrastructure, in particular ground-based navigation aids are no longer needed.	particular ground-l
Airport / Air navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACI	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF	Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	Some operational costs of new procedures ar however, these canno
Airport / Air navigation	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to start and de	process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers:	Some deployment costs
service provider Safety	Safety Assessment	Initial Options Appraisal:	No deployment costs applicable to extant procedures.	traffic controllers; however, these cannot be identified at this stage of the ACP process.		traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	of the new departure however, these cannot
Assessment		Qualitative	The 'do nothing' scenario assumes that current operations at EMA are		A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north	the potential for confliction with the new EMA proposed SIDs to the north	A hazard relating to an the potential for conflict
			safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated	and north west causin This would require A increase in ATCO we
			commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and	through the de Further assessment v CAP1616 process
		Summary of Applysi		mitigations.	mitigations.	mitigations.	mitigations.	
		Summary of Analysi		When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the 'do nothing' scenario, this option performs: Worse in the following areas:	When compared to the Worse in the following a
			The 'do nothing' scenario in relation to this ACP is not a viable option as	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn	- Noise impact from 4,000ft - Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissi - Fuel burn
			it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7,000ft, which could lead to a	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 7,000ft	Better in the following an - Noise impact from 4,0 - Noise impact from 7,0
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms a
			impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA experiments are safe. It is relaxed whet are the table to the table to the table.	change when compared to today's operation.	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of	change when compared
			operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as this option has been assessed in isolation other than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	this specific option as thi than as a set of design o analysis will be required
				determine the cumulative impact of this option when compared to all the other options.		determine the cumulative impact of this option when compared to all the other options.		determine the cumulative other options.
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 09 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 10 has been deemed the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 10A has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 25 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist A deemed the ALTERNATE
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	PREFERRED	ACCEPTABLE	FAVOURABLE	REJECTED	



vortlist Assessment methodology, Option 26 has been RNATE option within this design envelope. ALTERNATE

				IAF 5 Direct	IAF 5 Direct	IAF 5 Indirect R09_A_N_027	IAF 5
			DO NOTHING' BASEUNE	R09_A_N_015	R09_A_N_016		R09_A_N_028 The IAF for this option is IAF5 and the style of the route is 'indirect' wi
			For arrivals from the north, the 'do nothing' scenario in terms of today's	The IAF for this option is IAF5 and the style of the route is 'direct' which		The IAF for this option is IAF5 and the style of the route is 'indirect' which means the distance to the final approach has not been minimised but	has been designed to provide an alternative respite option to a 'dire
			operation is based around the existing ROKUP Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal tracks	means the distance to the final approach has been minimised. The option starts at IAF5 north of Duffield and initially routes south-	The IAF for this option is IAF5 and the style of the route is 'direct' which means the distance to the final approach has been minimised. The option starts at IAF5 north of Duffield and heads in a south west	has been designed to provide an alternative respite option to a 'direct' route. This option starts at IAF5 north of Duffield and tracks south-east until	route. It follows the same track as Option 27 but routes further we before joining the final approach. This option starts at IAF5 north of Duffield and tracks south-east ur
			that have been created based upon current operations of modal makes arrivals are radar vectored by air traffic controllers from the Hold to the	west, crossing the A52 close to Ednaston, where it turns to track south and to the west of Derby and over flying Hilton. South of Hilton the	direction to route west of Derby before turning onto a southerly heading just north of Hatton and joining the extended runway centreline west of	West Hallam where the route turns to a southerly heading and passes between West Hallam and Ilkeston. It continues south until it passes over	West Hallam where the route turns to a southerly heading and pass between West Hallam and Ilkeston. It continues south until it passes
			Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations	route turns to join the extended runway centreline east of Burton upon Trent.	Burton upon Trent. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	the A52 near Risley where it turns west to track across the southern suburbs of Derby. It turns south close to Etwall before turning to join the	the A52 near Risley where it turns west to track across the southern suburbs of Derby. It continues on this heading until Church Brought
			and approaches are dispersed due to radar vectoring and potentially may affect people on the ground. The overflight analysis conducted on	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (5nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	<sup>a</sup> possible from the FAF (6.9nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude	extended runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as	where it turns onto a southerly heading before turning left to join th extended runway centreline west of Burton upon Trent.
			this transition was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 3.15° which is above the optimum	for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is $2.8^\circ$ which is close to the optimum	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	This RNAV 1 arrival connects the IAF to the IF which is placed as far possible from the FAF (6.9nm) whilst keeping the route within existin
			radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is $2.02^\circ$ which is below the optimum	controlled airspace. The FAF is at 2,000ft, which is the platform altit for the existing FAF for Runway 09 approaches.
			Arrival end (Touchdown point) of the runway.			range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	The descent gradient to the FAF is 1.59° which is below the optimu range for low noise approaches but is within the acceptable range f CDAs defined within ICAO guidance.
Group	Impact Noise impact on health	Level of Analysis Initial Options Appraisal	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09
Commonnies	and quality of life	Qualitative	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the ROKUP 'do nothing' scenario for Runway 09 is estimated to overfly:	From 7,000ft, this option is estimated to overfly approximately 8,450 households with an approximate population of 15,900. Taking accoun of 1,250 planned property developments, this option is estimated to	From 7,000ft, this option is estimated to overfly approximately 13,250 t households with an approximate population of 23,900. Taking account of 2,500 planned property developments, this option is estimated to	From 7,000ft, this option is estimated to overfly approximately 35,900 households with an approximate population of 67,400. Taking account of 4,550 planned property developments, this option is estimated to	From 7,000ft, this option is estimated to overfly approximately 47,5 households with an approximate population of 88,700. Taking accord of 6,850 planned property developments, this option is estimated to
			From 7,000ft: is estimated to overfly approximately 87,200 households	overfly and impact a total population of 18,300. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	overfly and impact a total population of 28,400. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	overfly and impact a total population of 7,500. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to	overfly and impact a total population of 101,500. The potential no impact on health and quality of life from 7,000ft is assessed as likely
			with an approximate population of 166,500. Taking account of 11,100 planned property developments, this option is estimated to overfly and	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 6,650 households with an	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 10.550 households with an	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 19,150 households with an	affect fewer people than the 'do nothing' scenario. From 4,000ft, th option is estimated to overfly approximately 13,000 households with
			impact a total population of 187,700.	approximate population of 12,500. Taking account of 1,250 planned property developments, this option is estimated to overfly and impact a	approximate population of 18,900. Taking account of 2,050 planned property developments, this option is estimated to overfly and impact a	approximate population of 36,200. Taking account of 2,600 planned property developments, this option is estimated to overfly and impact a	approximate population of 24,400. Taking account of 4,050 plann property developments, this option is estimated to overfly and impact
			From 4,000ft: is estimated to overfly approximately 18,250 households with an approximate population of 33,900. Taking account of 4,500 planned property developments, this option is estimated to overfly and	total population of 14,800. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	total population of 22,500. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	total population of 41,200. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario.	total population of 32,000. The potential noise impact on health a quality of life from 4,000ft is assessed as likely to affect fewer peop than the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisal	impact a total population of 42,300.	man me ao noning scenario.	manine do toning scenario.	man me do noming scenario.	manime do noning scendrio.
Commonnies	Air Godiny	Qualitative	No change to air quality is predicted in maintaining baseline conditions.	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location	There is not likely to be a change in aviation emissions by location below	There is not likely to be a change in aviation emissions by location be
			The majority of the extant procedure involves overflight above 1,000ft, other than the areas in the immediate vicinity or final approach to	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is deemed not required.	deemed not required.
			EMA. In terms of AQMAs, the ROKUP 'do nothing' scenario overflies 3 AQMAs. Overflight of these AQMAs occurs when the aircraft is above 1.000ft.	This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies one AQMA. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	This option overflies two AQMA. When compared to the 'do nothin scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.
				r sager i sa			
Wider Society	Greenhouse Gas impac	t Initial Options Appraisal Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent
			by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this	I his option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this optior	approaches to EMA. An element of radar vectoring may still be requi
			are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no convincement for a charge process to conduct auditotic fuel hum or the conduct of the state of the	option is 41.94 km (22.64 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an	option is 45.44 km (24.54 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an	is 57.56 km (31.08 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in	is 69.04 km (37.28 nm). When compared to the 'do nothing' scenar this option is longer and is therefore expected to result in an increase
			requirement for a change sponsor to conduct quantitative fuel burn or emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	increase in greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-	greenhouse gas emissions compared to the 'do nothing' scenario and is deemed to be of environmental dis-benefit. More in-depth analysis will	greenhouse gas emissions compared to the 'do nothing' scenario and deemed to be of environmental dis-benefit. More in-depth analysis of
			shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the ROKUP 09 'do	depth analysis will take place at Stage 3 to confirm the exact volumes o greenhouse gases released.	f depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of greenhouse go released.
Wider Society	Capacity and resilience	Initial Options Appraisal	nothing' scenario track is 37.64km (20.33nm) long.	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by
society	p, and residence	Qualitative	Retaining extant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the
			could be adversely affected, following the removal of the TNT DVOR and the requirement to adopt PBN procedures.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience thro
Wider Society	Tranquillity	Initial Options Appraisal Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required	through the introduction of PBN.	through the introduction of PBN.	the introduction of PBN.	the introduction of PBN.
		Guananve	to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	or National Parks), nor any identified through community engageme
			engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	and assessed as neutral.	and assessed as neutral.	neutral.	neutral.
Wider Society	Biodiversity	Initial Options Appraisal Qualitative	The change sponsor has mapped the designated Sites of Special	CAP1616, Appendix B, para B74, states that because of dispersion and	I CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion and	CAP1616, Appendix B, para B74, states that because of dispersion of
			Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	mixing, there is unlikely to be an impact on local air quality from aircraf above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para BBO, states	mixing, there is unlikely to be an impact on local air quality from airc above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, stat
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact biodiversity as they do not involve ground-based infrastructure. The
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	change sponsor has mapped the designated Sites of Special Scienti Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFR
			infrastructure. However, the change sponsor acknowledges that any potential impact to the designated sites around EMA will be assessed in	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGiC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the AC
-			Stage 3 of the ACP process by Subject Matter Experts.	process by Subject Matter Experts.	process by Subject Matter Experts.	process by Subject Matter Experts.	process by Subject Matter Experts.
General Aviation	Access	Initial Options Appraisal Qualitative	No change to existing airspace arrangements. Any General Aviation	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and	Impact to General Aviation access is anticipated to be minimal as consequence of this ACP. All Visual Reference Points and existing Let of Agreement pertaining to General Aviation access will be reviewed
			users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and	reviewed and updated (where applicable) prior to implementation to	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any
				any additional airspace requirements will be reviewed as part of Stage 3 activities.	any additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage 3 activities.	additional airspace requirements will be reviewed as part of Stage activities.
General Aviation /	Economic impact from increased effective	Initial Options Appraisal Qualitative	: No increase to effective capacity anticipated for continued use of extant	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	The introduction of PBN is expected to deliver benefits by increasing s airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to	The introduction of PBN is expected to deliver benefits by increasin airspace capacity which in turn will lead to more predictable flight pc and fewer delays (both in the air or on the ground). This is expected
commercial airlines	capacity		procedures, therefore no economic benefit for GA/airlines.	facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing		facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passenger numbers and increasing	
General	Fuel burn	Initial Options Appraisal	The existing EMA procedures for arrivals do not facilitate continuous	cargo tonnage carried. This option supports continuous descent operations, reducing the	cargo tonnage carried. This option supports continuous descent operations, reducing the	cargo tonnage carried. This option supports continuous descent operations, reducing the overall	cargo tonnage carried. This option supports continuous descent operations, reducing the over
Aviation / commercial airlines		Qualitative	descent operations. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that	overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Sta 3. Therefore, to enable a comparison, the logic applied is that the
Gan all led			analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the track mileage the large argentized argent mileage 1. In the case of	Stage 3. Ineretore, to enable a companison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 41.94 km (22.64 nm) long. When compared to the 'do	Stage 3. Ineretore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 45.44 km (24.54 nm) long. When compared to the 'do	3. Interetore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 57.56 km (31.08 nm) long. When compared to the 'do nothing'	<ol> <li>Ineretore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this opti it is 69.04 km (37.28 nm) long. When compared to the 'do nothing</li> </ol>
			the track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 37.64km (20.33nm).	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in	nothing' scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in	scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth	scenario, this option is longer and at this stage, it is assumed that it to be of economic dis-benefit as more fuel will be burnt. More in-dept
Commercial airlines	Training costs	Initial Options Appraisal Qualitative	Standard training would be applicable for existing procedures which	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a
airlines Commercial	Other costs	Initial Options Appraisal	would be practised by crews through existing simulator exercises. It is not proportionate at this stage for EMA to assess potential other	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight
airlines		Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation	Unter costs to commercial artitles may include updates to hight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other Costs to commercial antines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial animes may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not
			but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other ca to commercial airlines of flying PBN procedures.
Airport / Air navigation	Infrastructure costs	Initial Options Appraisal Qualitative	No additional infrastructure is required at EMA to maintain extant conventional procedures; however, maintaining accessibility to current	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required	There are no expected additional infrastructure costs. All options rela
service provider			ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented and a substitution of the annual data and an an annual data and an annual data an an annual data an	required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer	required as the introduction of PBN reduces the reliance on ground r infrastructure, in particular ground-based navigation aids are no longer	to the implementation of PBN and no additional intrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based navigation aids are no longer needed.	
Airport / Air	Operational costs	Initial Options Appraisal Qualitative	prior to the proposed removal date.	needed. Some operational costs are anticipated with respect to the	needed. Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the	Some operational costs are anticipated with respect to the
navigation service provider		apointanve	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlli staff at EMA; however, these cannot be identified at this stage of the A process.
Airport / Air navigation	Deployment costs	Initial Options Appraisal Qualitative		Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of a
service provider			No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	
Safety Assessment	Safety Assessment	Initial Options Appraisal Qualitative	-	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the	A hazard relating to arrivals from the north was identified where there is     the potential for confliction with the new EMA proposed SIDs to the	A hazard relating to arrivals from the north was identified where there is the potential for confliction with the new EMA proposed SIDs to the north	A hazard relating to arrivals from the north was identified where there
			The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the scenario of scenard have do extincted with science at EMA.	north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could	north and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could	and north west causing a loss of horizontal and/or vertical separation. This would require ATC tactical intervention and could result in an	and north west causing a loss of horizontal and/or vertical separation This would require ATC tactical intervention and could result in an
			removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing navigational aid not be	result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.
			implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and minimations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and minimations	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and minimations and statement of the statement of	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and militations
		Summary of Analysi	s	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:	mitigations. When compared to the 'do nothing' scenario, this option performs:
				Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions	Worse in the following areas: - Greenhouse gas emissions
			The 'do nothing' scenario in relation to this ACP is not a viable option as	- Fuel burn	- Fuel burn	- Fuel burn	- Fuel burn
			it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent acceptions from 7 000ft which could load to a	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft
			continuous descent operations from 7,000ft, which could lead to a greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality
			Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
			incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications of	At this time, it is not possible to fully determine the safety implications
			ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional
				analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the other options.	analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all other options.
			IOA Shortlist Assessment	deserven IOA Shortlist Assessment methodology, Option 15 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 16 has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 27 has been deemed the REJECTED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 28 has been deemed the ACCEPTABLE option within this design envelope.
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	PREFERRED	FAVOURABLE	REJECTED	ACCEPTABLE

28 cold the route is 'indirect' which h has not been minimized but we resplace option to a 'direct' on 27 but routes further west all and tracks south-east until a dard tracks south-east until a dard tracks south-east until before the souther to be the darg until Church Broughton darg Darger with the balow the optimum thin the acceptable range for AC guidance. workthy approximately 47,550 for of 82,700. Taking account 101,500. The potential noise y seancio. The not during of y seancio. The not during of the south optimum and the south on to the south optimum and the south on the south optimum and the south of the south optimum and the south of the south optimum and the south optimum and the south of the south optimum and the south optimum and the south optimum of the south optimum and the south optimum and the south optimum of the south optimum and the south optimum and the south optimum of the south optimum and the south optimum and the south optimum of the south optimum and the south

on emissions by location below a full Air Quality Assessment is uired. compared to the 'do nothing' eneficial as it overflies fewer

pport continuous descent vectoring may still be required the track mileage of this option of to the 'do nothing' scenario, cted to result in an increase in he 'do nothing' scenario and is fit. More in-depth analysis will t volumes of greenhouse gases

ected to deliver benefits by ubsequently leads to more ys (both in the air and on the on outdated ground based e operational resilience through of PBN.

ed tranquillity receptors (AONBs ough community engagement sthing' scenario and assessed as

that because of dispersion and no local air quality from aircraft Appendia & pana B60, sittes and the second second second second and State & Special Scientific and State of Special Scientific and State of Special Scientific and State of Special Scientific and State State & Special Scientific and State State & Special Scientific and State Science & Special Scientific and State Science & Special Scientific and State & Special Scientific and Science & Special Scientific and Science & Special Scientific and Science & Special Scienc

deliver benefits by increasing to more predictable flight paths to ground). This is expected to increasing the frequency of air nger numbers and increasing arried

ated with respect to the ocedures and training of air re identified at this stage of the

be commissed in this stage of the s. th was identified where there is MA proposed SIDs to the north tal and/or vertical separation. Infoin and could result in an d could be further mitigated occelurally if required. luring Stages 3 and 4 of the t nature of all hazards and

nine the safety implications of assessed in isolation rather a wider system. Additional of the CAP 1616 process to otion when compared to all th

ology, Option 28 has been s design envelope.

			po tominio transi	JUNCK Direct	JUNCK Direct	JUNCK	JUNCK	JUNCK	JUNCK	JUNCK	JUNCK	JUNCK
			'DO NOTHING' BASELINE	R09_A_S_O1	R09_A_5_02	R09_A_5_C3	R09 <u>A</u> 5 <u></u> 64	R09_A_S_07	R09_A_S_O8 The IAF for this option is JUNCK and the style of the route is 'indirect'	R09_A_S_O9	R09_A_S_010	R09_A_S_O18
			For arrivals from the south, the 'do nothing' scenario for in terms of today's operation is based around the existing PIGOT Hold. A moda		The IAF for this option is JUNCK and the style of the route is 'direct' which means the distance to the final approach has been minimised.		The IAF for this option is JUNCK and the style of the route is 'indirect' which means the distance to the final approach has not been minimise	The IAF for this option is JUNCK and the style of the route is 'indirect' d which means the distance to the final approach has not been minimised	which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a	d The IAF for this option is JUNCK and the style of the route is 'direct' which means the distance to the final approach has been minimised.	The IAF for this option is JUNCK and the style of the route is 'direct' which means the distance to the final approach has been minimised. It	The IAF for this option is JUNCK and the style of the which means the distance to the final approach has b
			track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal	The IAF for this option is JUNCK and the style of the route is 'direct which means the distance to the final approach has been minimised	follows a near identical track as option 1 but routes further west before		but has been designed to provide an alternative respite option to a 'direct' route. It follows the same route as Option 3 but routes further	but has been designed to provide an alternative respite option to a 'direct' route.	'direct' route. It follows an identical initial track as Option 7 but routes further west before joining the final approach.		follows an identical initial track as Option 9 but routes further west before joining the final approach.	follows an identical initial track as Option 17 but rou before joining the final approach.
				This option starts at IAF JUNCK, southwest of Leicester from where the route tracks north-west overflying the south-western edge of lbstock a	This option starts at IAF JUNCK, southwest of Leicester from where the		The option starts at IAP JUINCK, southwest of Leicester from where it	The option starts at IAF JUNCK, southwest of Leicester and initially track north-east and overflies the western portion of Leicester. To the north of	The option starts at IAF JUNCK, southwest of Leicester and initially track north-east and overflies the western portion of Leicester. To the north of	s The route turns north-west at Ratby and continues to follow the M1	The option starts at IAF JUNCK, southwest of Leicester and tracks north following the line of the M1 and overflying the western edge of Leicester.	The entire starts at IAE II INCK, southwest of Leisente
			Final Approach Fix (FAF). In addition to the modal track, a polygon hi also been created that represents an area where current operations an	35 the extended communicative and of Poster owner Trent	route turns north to the west of Swadlincote and overfiles the edge of	of then turns west and passes to the north of Ashby-de-la-Zouch and over	tracks north-west before turning north to pass east of Coalville. The rou- tracks north-west and passes to the north of Ashby-de-la-Zouch and over		Leicester the route turns north-west passing over Coalville and the southern edge of Ashby-de-la-Zouch. The route turns north to the west of	south west of Swadlincote. The route turns north just to the west of	The route turns north-west at Ratby and continues to follow the M1 initially but continuing on this heading to track south of Coalville until	until west of Swadlincote. At this point the route turns r
			approaches are dispersed due to radar vectoring and potentially may	This KNAV I route connects the IAP to the IP which is placed as close	centreline.	extended runway centreline.	the southern portion of Swadlincate, before turning right over the easte edge of Burton upon Trent to join the extended runway centreline.	n west of Swadlincote before turning right to join the extended runway centreline east of Burton upon Trent.	Swadlincote and overflies the edge of Burton upon Trent before turning	east of Burton upon Trent.	west of Swadlincote. It then turns north and overflies the edge of Burton upon Trent before turning right to join the extended runway centreline.	the edge of Burton upon Trent before turning right to runway centreline.
			affect people on the ground. All data is based on current aircraft performance data. he overflight analysis conducted on this transition	90° turn is taken into consideration. The FAF is at 2,000ft, which is t	possible from the FAF (5.1 nm) whilst keeping the route within existin	g possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	<sup>3</sup> This RNAV 1 arrival connects the IAF to the IF which is placed as far a possible from the EAE (6, 1 and while begins the south within arrival.	This RNAV 1 route connects the IAF to the IF which is placed as close as	right to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	<sup>15</sup> This RNAV 1 arrival connects the IAF to the IF which is placed as far as practicle from the EAF (6, 1 pm) which begins the context within minimum.	possible from the FAF (5.1nm) whilst keeping the rou
			was based on the modal track created using Noise and Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring	The descent gradient to the FAF is 2.11° which is below the optimur range for low noise approaches but is within the acceptable range for	for the existing FAF for Runway 09 approaches.	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	<ul> <li>controlled airspace. The FAF is at 2,000ft, which is the platform altitud for the existing FAF for Runway 09 approaches.</li> </ul>	<ul> <li>90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.</li> </ul>	possible from the FAF (5.1 nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform altitude	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	<ul> <li>controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.</li> </ul>	for the existing FAF for Runway 09 approa
			area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdow	CDAr defined within ICAO guidance	The descent gradient to the FAF is 1.93° which is below the optimum range for low noise approaches but is within the acceptable range for	or range for low noise approaches but is within the acceptable range for	The descent gradient to the FAF is 1.67° which is below the optimum	The descent gradient to the FAF is 1.76° which is below the optimum	for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.62° which is below the optimum	The descent gradient to the FAF is 2.03° which is below the optimum range for low noise approaches but is within the acceptable range for	The descent gradient to the FAF is 1.86° which is below the optimum	The descent gradient to the FAF is 1.91° which is bell range for low noise approaches but is within the acce
			point) of the Runway.		CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range fo CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.		range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.
	Impact	Level of Applysis	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09		Runway 09	Runway 09	Runway 09	Runway 09
s Noise imp	npact on health ality of life	Initial Options Apprais Qualitative	al:									
ana quan	any of me	Goundaire	For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the PIGOT 'do nothing'		Prom 7,000ft, this option is estimated to overfly approximately 21,95 unt households with an approximate population of 39,800. Taking account of the second seco		From 7,000ft, this option is estimated to overfly approximately 29,150 to households with an approximate population of 52,600. Taking account to the second seco	From 7,000ft, this option is estimated to overfly approximately 69,050 t households with an approximate population of 132,700. Taking account	From 7,000ft, this option is estimated to overfly approximately 72,300 households with an approximate population of 138,000. Taking account	From 7,000ft, this option is estimated to overfly approximately 39,500 thouseholds with an approximate population of 73,300. Taking account	From 7,000ft, this option is estimated to overfly approximately 43,050 to households with an approximate population of 79,000. Taking account	From 7,000ft, this option is estimated to overfly approx households with an approximate population of 40,300
			scenario for Runway 09 is estimated to overfly:		o of 6,700 planned property developments, this option is estimated to	o of 7,800 planned property developments, this option is estimated to	of 8,200 planned property developments, this option is estimated to		of 6,100 planned property developments, this option is estimated to	of 5,700 planned property developments, this option is estimated to overfly and impact a total population of 83,900. The potential noise	of 6,400 planned property developments, this option is estimated to	
			From 7,000ft: is estimated to overfly approximately 136,800 household	impact on health and quality of life from 7,000ft is assessed as likely	to impact on health and quality of life from 7,000ft is assessed as likely	to impact on health and quality of life from 7,000ft is assessed as likely to	impact on health and quality of life from 7,000ft is assessed as likely t	impact on health and quality of life from 7,000ft is assessed as likely to	impact on health and quality of life from 7,000ft is assessed as likely to	impact on health and quality of life from 7,000ft is assessed as likely to	impact on health and quality of life from 7,000ft is assessed as likely to	impact on health and quality of life from 7,000ft is as
			planned property developments, this option is estimated to overfly and	affect fewer people than the 'do nothing' scenario. From 4,000ff, thi option is estimated to overfly approximately 7,400 households with a provide the statement of the scenario of the sce	an option is estimated to overfly approximately 10,500 households with	an option is estimated to overfly approximately 11,100 households with an	n option is estimated to overfly approximately 15,400 households with a	affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 11,300 households with an	option is estimated to overfly approximately 13,500 households with an	option is estimated to overfly approximately 7,800 households with an		<ul> <li>option is estimated to overfly approximately 10,400 h</li> </ul>
			impact a total population of 313,300.	approximate population of 13,700. Taking account of 400 planner property developments, this option is estimated to overfly and impact	t a property developments, this option is estimated to overfly and impact	a property developments, this option is estimated to overfly and impact a	property developments, this option is estimated to overfly and impact	property developments, this option is estimated to overfly and impact a	property developments, this option is estimated to overfly and impact a	property developments, this option is estimated to overfly and impact a	property developments, this option is estimated to overfly and impact a	property developments, this option is estimated to over
			From 4,000ft: is estimated to overfly approximately 45,350 households with an approximate population of 82,000. Taking account of 4,500	total population of 14,500. The potential noise impact on health an quality of life from 4,000ft is assessed as likely to affect fewer people		d total population of 24,100. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people			total population of 25,600. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people		total population of 20,200. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	
			planned property developments, this option is estimated to overfly and impact a total population of 90,100.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.
Air Qualit	lity	Initial Options Apprais Qualitative	al: No change to air quality is predicted in maintaining baseline conditions The majority of the extant procedure involves overflight above 1,000ft,	. There is not likely to be a change in aviation emissions by location bell 1,000 feet Ar ner CAP1616, page 872 a full Air Quality Arrangement	low There is not likely to be a change in aviation emissions by location bel	law There is not likely to be a change in aviation emissions by location belov is 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	w There is not likely to be a change in aviation emissions by location beld 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment i	w There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emissions by location below 1,000 feet As our CAP1616, our B72 a full Air Quality Assessment in	w There is not likely to be a change in aviation emissions by location below 1,000 feet As per CAP1616, page 872 a full Air Quality Assessment in	w There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	W There is not likely to be a change in aviation emissions 1,000 feet. As per CAP1616, para B72 a full Air Qui
			other than the areas in the immediate vicinity or final approach to	deemed not required.	deemed not required.	deemed not required.	deemed not required.	deemed not required.	deemed not required.	deemed not required.	deemed not required.	deemed not required.
			EMA. In terms of AQMAs, the PIGOT 'do nothing' scenario overflies 7 AQMAs. Overflight of these AQMAs occurs when the aircraft is above	This option overflies three AQMAs. When compared to the 'do nothin scenario, this option is deemed to be beneficial as it overflies fewer	r scenario, this option is deemed to be beneficial as it overflies fewer	scenario, this option is deemed to be beneficial as it overflies fewer	scenario, this option is deemed to be beneficial as it overflies fewer	scenario, this option is deemed to be beneficial as it overflies fewer	This option overflies eight AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be of dis-benefit as it overflies more	scenario, this option is deemed to be beneficial as it overflies fewer	scenario, this option is deemed to be equal as it overflies the same	scenario, this option is deemed to be beneficial as
Greenhau	aura Gas impand	Initial Onlines America	1,000ft.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	AQMAs.	number of AQMAs.	AQMAs.
Greenhou	ouse was impact	Initial Options Apprais Qualitative	al: Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown i	hu								
			aircraft may vary slightly due to the nature of radar vectoring. Existing	<ul> <li>This option has been designed to support continuous descent</li> </ul>	This option has been designed to support continuous descent red approaches to EMA. An element of radar vectoring may still be requir	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent d approaches to EMA. An element of radar vectoring may still be require	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent d approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support contin approaches to EMA. An element of radar vectoring m
			procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the	to manage aircraft separation distances. The track mileage of this opt	tion to manage aircraft separation distances. The track mileage of this opt	<ul> <li>to manage aircraft separation distances. The track mileage of this option is 16.61 km (33.27 nm). When compared to the 'do nothing' scenario,</li> </ul>	in to manage aircraft separation distances. The track mileage of this optic	n to manage aircraft separation distances. The track mileage of this option	to manage aircraft separation distances. The track mileage of this option	n to manage aircraft separation distances. The track mileage of this option	in to manage aircraft separation distances. The track mileage of this option	n to manage aircraft separation distances. The track m
			proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or	this option is shorter and is therefore expected to result in a reduction	in this option is longer and is therefore expected to result in an increase	in this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to result in an increase i	this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to result in an increase in	this option is longer and is therefore expected to resu
			emissions analysis; this will be conducted in Stage 3. In order to make comparison, track mileage is used as a proxy using the theory that the	deemed to be of environmental benefit. More in-depth analysis will ta	ake deemed to be of environmental dis-benefit. More in-depth analysis w	d is greenhouse gas emissions compared to the 'do nothing' scenario and is vill deemed to be of environmental dis-benefit. More in-depth analysis will	deemed to be of environmental dis-benefit. More in-depth analysis wi	deemed to be of environmental dis-benefit. More in-depth analysis will	deemed to be of environmental dis-benefit. More in-depth analysis will	deemed to be of environmental dis-benefit. More in-depth analysis will	deemed to be of environmental dis-benefit. More in-depth analysis will	deemed to be of environmental dis-benefit. More in
			shorter the track mileage, the less greenhouse gases are emitted. With	place at Stage 3 to confirm the exact volumes of greenhouse gases released.	s take place at Stage 3 to confirm the exact volumes of greenhouse gas released.	ses take place at Stage 3 to confirm the exact volumes of greenhouse gase released.	s take place at Stage 3 to confirm the exact volumes of greenhouse gase released.	s take place at Stage 3 to confirm the exact volumes of greenhouse gase released.	take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	s take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	is take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	take place at Stage 3 to confirm the exact volumes of released.
			regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do nothing' scenario track is 57.36km (30.97nm) long.									
ty Capacity	y and resilience	Initial Options Apprais Qualitative	al: Retaining extant procedures would maintain current capacity; however,	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to deliver benefits by	The introduction of PBN routes is expected to de
			due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the DTY DVOR	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the		increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the	increasing airspace capacity which subsequently predictable flight paths and fewer delays (both in t
			and the requirement to adopt PBN procedures as part of the FASI-N	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through			ground). The reduction of the reliance on outdated ground based an aviaational aids will significantly increase operational resilience through	ground). The reduction of the reliance on outdated ground based h navigational aids will significantly increase operational resilience throug	ground). The reduction of the reliance on outdated ground based navigational gids will significantly increase operational resilience through	ground). The reduction of the reliance on outdated ground based h navigational aids will significantly increase operational resilience through	ground). The reduction of the reliance on outdated ground based an navigational aids will significantly increase operational resilience through	ground). The reduction of the reliance on outdate h navigational aids will significantly increase operation
			Programme.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.	the introduction of PBN.
Tranquilli	llity	Initial Options Apprais Qualitative	al: As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National	This option overflies no statutorily identified tranquility receptors (AOI)	NBs This option overflies no statutorily identified tranquillity receptors (AON	ABs This option overflies no statutorily identified tranquillity receptors (AONB	as This option overflies no statutorily identified tranquillity receptors (AON	Is This option overflies no statutorily identified tranquillity receptors (AONB	This option overflies no statutorily identified tranquillity receptors (AONB	s This option overflies no statutorily identified tranquillity receptors (AONB	as This option overflies no statutorily identified tranquillity receptors (AONB:	s This option overflies no statutorily identified tranquillit
			Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	or National Parks), nor any identified through community engageme and is therefore comparable to the 'do nothina' scenario and assessed	or National Parks), nor any identified through community engageme and is therefore comparable to the 'do nothina' scenario and assessed	nt or National Parks), nor any identified through community engagement I as and is therefore comparable to the 'do nothing' scenario and assessed a	or National Parks), nor any identified through community engagement as and is therefore comparable to the 'do nothina' scenario and assessed	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed a	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed a	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed a	or National Parks), nor any identified through community engagement as and is therefore comparable to the 'do nothina' scenario and assessed a	or National Parks), nor any identified through comm and is therefore comparable to the 'do nothina' scena
			engagement. The 'do nothing' scenario does not overfly any AONBs or	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.	neutral.
y Biodiversi	sity	Initial Options Apprais	al:									
		Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas			nd CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft					d CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft	
			Conservation (SACs) and RAMSAR sites, as identified on the DEFRA	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, state	es above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, state	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	above 1,000ft. Furthermore, CAP1616, Appendix B
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air	biodiversity as they do not involve ground-based infrastructure. The	on that in general, airspace change proposals will not have an impact of biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based infrastructure. The	biodiversity as they do not involve ground-based int
			quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix E para B80, states that in general, airspace change proposal will not have		fic change sponsor has mapped the designated Sites of Special Scientifi Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	ic change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	<ul> <li>change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of</li> </ul>	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of	<ul> <li>change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of</li> </ul>	change sponsor has mapped the designated Sites of Interest (SSSIs), Special Protection Areas (SPAs), Sp
			an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	A Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified MAGiC Map and acknowledges that any potential
			potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACI process by Subject Matter Experts.	P designated sites around EMA will be assessed in Stage 3 of the ACE process by Subject Matter Experts.	P designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP	designated sites around EMA will be assessed in Stage 3 of the ACP	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Sta
			stage 3 of the ACF process by Subject Matter Expens.	process by Subject Matter Expens.	process by Subject Matter Expens.	process by Subject Matter Expens.	process by Subject Matter Expens.	process by Subject Matter Experts.	process by Subject Matter Experts.	process by subject Matter Expens.	process by subject matter expens.	process by Subject Matter Experts.
Access		Initial Options Apprais Qualitative	al:	Impact to General Aviation access is anticipated to be minimal as a		Impact to General Aviation access is anticipated to be minimal as a ters consequence of this ACP. All Visual Reference Points and existing Letter	Impact to General Aviation access is anticipated to be minimal as a rs consequence of this ACP. All Visual Reference Points and existing Lette	Impact to General Aviation access is anticipated to be minimal as a s consequence of this ACP. All Visual Reference Points and existing Letter	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letter	Impact to General Aviation access is anticipated to be minimal as a contracture of this ACP. All Visual Pafarance Points and existing latter	Impact to General Aviation access is anticipated to be minimal as a rs consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to s consequence of this ACP. All Visual Reference Points
		Godinalive	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level o	of Agreement pertaining to General Aviation access will be reviewed a	and of Agreement pertaining to General Aviation access will be reviewed a	and of Agreement pertaining to General Aviation access will be reviewed an	d of Agreement pertaining to General Aviation access will be reviewed a	d of Agreement pertaining to General Aviation access will be reviewed an		d of Agreement pertaining to General Aviation access will be reviewed an	d of Agreement pertaining to General Aviation access will be reviewed and	d of Agreement pertaining to General Aviation access w
			access under extant operational arrangements.	continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any	continued validity. Airspace classification requirements and any	updated (where applicable) prior to implementation continued validity. Airspace classification requirem
				additional airspace requirements will be reviewed as part of Stage 3 activities.	activities.	activities.	activities.	activities.	additional airspace requirements will be reviewed as part of Stage 3 activities. The introduction of PBN is expected to deliver benefits by increasing		activities.	additional airspace requirements will be reviewed as activities.
Economic increased	ic impact from ed effective	Initial Options Apprais Qualitative	al:		ths airspace capacity which in turn will lead to more predictable flight pat	ths airspace capacity which in turn will lead to more predictable flight path:			airspace capacity which in turn will lead to more predictable flight paths	airspace capacity which in turn will lead to more predictable flight paths	airspace capacity which in turn will lead to more predictable flight paths	
capacity	r		No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	and fewer delays (both in the air or on the ground). This is expected facilitate economic benefit by potentially increasing the frequency of	to and fewer delays (both in the air or on the ground). This is expected air facilitate economic benefit by potentially increasing the frequency of a	to and fewer delays (both in the air or on the ground). This is expected to air facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to r facilitate economic benefit by potentially increasing the frequency of a	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). This is expected to r facilitate economic benefit by potentially increasing the frequency of air	and fewer delays (both in the air or on the ground). facilitate economic benefit by potentially increasing t
						g transport movements, increasing passenger numbers and increasing					transport movements, increasing passenger numbers and increasing	
Fuel burn	m	Initial Options Apprais	al:			rall This option supports continuous descent operations, reducing the overa					Il This option supports continuous descent operations, reducing the overal	
		Godinalive	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage		amount of fuel burnt. There is no requirement within Stage 2 of the a. CAP1616 process to quantify fuel burn, this will be conducted in Stage 3	amount of fuel burnt. There is no requirement within Stage 2 of the 3. CAP1616 process to quantify fuel burn, this will be conducted in Stage	amount of fuel burnt. There is no requirement within Stage 2 of the 3. CAP1616 process to quantify fuel burn, this will be conducted in Stage 3	amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3		amount of fuel burnt. There is no requirement within Stage 2 of the 3. CAP1616 process to quantify fuel burn, this will be conducted in Stage 3	amount of fuel burnt. There is no requirement with 3. CAP1616 process to quantify fuel burn, this will be a
			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparisor	Therefore, to enable a comparison, the logic applied is that the short the track length, the less fuel is burnt. With regards to this option, it is				<ul> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is</li> </ul>	Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is	<ul> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is</li> </ul>		
			in Stage 2, track mileage is used, based on the theory that the shorter the	se 55.66 km (30.05 nm) long. When compared to the 'do nothing'	59.44 km (32.09 nm) long. When compared to the 'do nothing'	61.61 km (33.27 nm) long. When compared to the 'do nothing'	66.28 km (35.79 nm) long. When compared to the 'do nothing'	63.90 km (34.50 nm) long. When compared to the 'do nothing'	68.03 km (36.73 nm) long. When compared to the 'do nothing'	57.37 km (30.98 nm) long. When compared to the 'do nothing'	61.20 km (33.05 nm) long. When compared to the 'do nothing'	59.85 km (32.32 nm) long. When compared to scenario, this option is longer and at this stage, it is
			track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 57.36km (30.97nm).		in- be of economic of economic dis-benefit as more fuel will be burnt. Me	ore be of economic of economic dis-benefit as more fuel will be burnt. Mor					I scenario, this option is longer and at this stage, it is assumed that it will be of economic of economic dis-benefit as more fuel will be burnt. More in draft prediction will be accorded act in Stance 2 to according to the standard	e be of economic dis-benefit as more fuel will be bur
Training a	costs	Initial Options Apprais	al:		in-depth analysis will be carried out in Stage 3 to confirm. able It is anticipated that no extra pilot/crew training will be required to eng	in-depth analysis will be carried out in Stage 3 to confirm. able It is anticipated that no extra pilot/crew training will be required to enable	in-depth analysis will be carried out in Stage 3 to confirm. le It is anticipated that no extra pilot/crew training will be required to end	in-depth analysis will be carried out in Stage 3 to confirm.	in-depth analysis will be carried out in Stage 3 to confirm.	in-depth analysis will be carried out in Stage 3 to confirm. It is anticipated that no extra pilot/crew training will be required to enable	in-depth analysis will be carried out in Stage 3 to confirm. le It is anticipated that no extra pilot/crew training will be required to enable	analysis will be carried out in Stage 3 to e It is anticipated that no extra pilot/crew training will b
		Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to ena pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	n pilots to fly the new PBN procedures as PBN has become a commo	n pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has become a common	pilots to fly the new PBN procedures as PBN has b
Other cos	osts	Initial Options Apprais	al: It is not proportionate at this stage for EMA to assess potential other cos		navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the world. Other costs to commercial airlines may include updates to Flight	navigation standard across the wor Other costs to commercial airlines may include u
		Qualitative	for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are		Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not		Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Management Systems (FMS), navigation databas procedures, increased pilot hire costs versus train
			too many variables (e.g. aircraft types, on-board system capability etc.) consider these effectively.				procedures, increased pliot nire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other cost to commercial airlines of flying PBN procedures.	procedures, increased pilor nire costs versus training esc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	procedures, increased prior nire costs versus retaining etc. It is nor proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	procedures, increased pilor nine costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs to commercial airlines of flying PBN procedures.	s' procedures, increased pilor nire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flvina PBN procedures.	proportionate at this stage of the ACP for EMA to as to commercial airlines of flying PBN pro
		Initial Options Apprais	al: No additional infrastructure is required at EMA to maintain extant				to commercial ainines of tiying PBN procedures.	to commercial atrines of trying PBN procedures.	to commercial atrines of trying PBN procedures.			
Infrastruct	cture costs	Qualitative	conventional procedures; however, maintaining accessibility to current	There are no expected additional infrastructure costs. All options rela		There are no expected additional infrastructure costs. All options relate	The second	The second second statistic second statistics and second statistics and second se	The second second state is the second state of		There are no expected additional infrastructure costs. All options relate	There are no expected additional infrastructure costs
Infrastruct	cture costs	Goundaire	ground-based equipment (operated by NERI) may become an USAN I		ired to the implementation of PBN and no additional infrastructure is requi	red to the implementation of PBN and no additional infrastructure is require	d to the implementation of PBN and no additional infrastructure is require			d to the implementation of PBN and no additional infrastructure is require	d to the implementation of PBN and no additional infrastructure is required	
r Infrastruct rider	cture costs	Godinanie	ground-based equipment (operated by NERL) may become prohibitively expensive should a CAP1781 RNAV substitution not be implemented		to the implementation of PBN and no additional infrastructure is requi ure, as the introduction of PBN reduces the reliance on ground infrastructu	red to the implementation of PBN and no additional infrastructure is require as the introduction of PBN reduces the reliance on ground infrastructure	d to the implementation of PBN and no additional infrastructure is require	d to the implementation of PBN and no additional infrastructure is require	to the implementation of PBN and no additional infrastructure is require	d to the implementation of PBN and no additional infrastructure is require	d to the implementation of PBN and no additional infrastructure is required	, as the introduction of PBN reduces the reliance on gr
ider Operation	onal costs	Initial Options Apprais	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date. al:	as the introduction of PBN reduces the reliance on ground infrastructu	to the implementation of PBN and no additional infrastructure is requi ure, as the introduction of PBN reduces the reliance on ground infrastructu	red to the implementation of PBN and no additional infrastructure is require as the introduction of PBN reduces the reliance on ground infrastructure	ed to the implementation of PBN and no additional infrastructure is require, as the introduction of PBN reduces the reliance on ground infrastructure	d to the implementation of PBN and no additional infrastructure is require as the introduction of PBN reduces the reliance on ground infrastructure	to the implementation of PBN and no additional infrastructure is require as the introduction of PBN reduces the reliance on ground infrastructure	d to the implementation of PBN and no additional infrastructure is requires , as the intraduction of PBN reduces the reliance on ground infrastructure in particular ground-based manigation aids are no longer needed. Some operational costs are anticipated with respect to the	d to the implementation of PBN and no additional infrastructure is required e, as the introduction of PBN reduces the reliance on ground infrastructure, in particular ground-based anayagition aids are no longer needed. Some operational costs are anticipated with respect to the	, as the introduction of PBN reduces the reliance on gru in particular ground-based navigation aids are no
der Operation	icture costs	Initial Options Apprais Qualitative	expensive should a CAP1781 RNAV substitution not be implemented	as the introduction of PBN reduces the reliance on ground infrastructu in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlli	ired to the implementation of PBN and no additional infrastructure is require, as the introduction of PBN reduces the reliance on ground infrastructure in particular ground-based novigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controls	red to the implementation of PBN and no additional infrastructure is require re, as the introduction of PBN reduces the reliance on ground infrastructure in particular ground-based analygitation aids are no longer needed. Some operational costs are anticipated with respect to the	d to the implementation of PBN and no additional infrastructure is require,     s as the introduction of PBN reduces the reliance on ground infrastructur     in particular ground-based navigation aids are no longer needed.     Some operational costs are anticipated with respect to the     implementation of new procedures and training of air traffic controllin	d to the implementation of PBN and no additional infrastructure is require , as the introduction of PBN reduces the relations on ground intrastructure in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	to the implementation of PBN and no additional infrastructure is requires as the introduction of PBN reduces the relance on ground infrastructure in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	d to the implementation of PBN and no additional infrastructure is requires, a site intraduction of PBN reduces the reliance on ground infrastructure in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	el to the implementation of PBN and no additional infrastructure is required e, as the introduction of PBN reduces the relations on ground infrastructure in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling	, as the introduction of PBN reduces the reliance on gri in particular ground-based navigation aids are no Some operational costs are anticipated with re implementation of new procedures and training of ai
der	onal costs	Initial Options Apprais Qualitative Initial Options Apprais	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date. al:	as the introduction of PBN reduces the reliance on ground intratruction in particular ground-based navigation aids are no longer needed. Some operational cass are anticipated with respect to the implementation of new procedures and training of air traffic controllant atalf at ENA; however, these cannot be identified at this stage of the A process. Some deployment cass are contripoted with respect to the	ende to the implementation of PRN and no additional infrastructure is require, as the introduction of PRN reduces the reliance on ground infrastruct- in particular ground-based novigation aids are no longer needed. Some periodic and the intervention of the second second to the regi implementation of new procedures and training of ait huffle catheling utiled EMA, however, these cannot be identified at this stoge of the A process. Some deployment costs are encloyeded with respect to the	red to the implementation of PRN and no additional infrastructure is require, in a the initiaduation of PRN induces the relinance on ground infrastructure in particular ground-based novigation aids are no longer needed. Some previous location are inclinated with request to the ng instantian of one procedures and training of air staffic controlling control and the staffic additional and the stage of the AC process. Some deployment costs are enricipted with request to the	e) of the implementation of PRN ends.et the there are grown infrastructure is required, as the introduction PRN ends.et the there are grown infrastructure, in particular grown-based morigation acids are to longer needed. Some operational cash are endschuld with sequed to the grown and the second sec	d o fine implementation of PRN and no additional infrastructure is require , as the introduction of PRN reduces the reflance on ground infrastructure in particular ground-based marginal marginal marginal particular ground-based marginal marginal marginal participation with regular to the implementation of new procedures and instaining of air traffic controlling and of a KMA; however, these counts to identified at this stage of the AC process. Some deployment costs are anticipated with respect to the	In the implementation of PRN ends, not finding of infrastructure is require the introduction of PRN ends, set the interace or ground infrastructure in particular ground based morigation aids are no longer needed. Some approach and the anticipated with respect to the implementation of new procedures and taxing of a tertific containing staff at EMA, however, here cannot be identified at this stoge of the AC Some approach crasts are anticipated with respect to the	d) o the implementation of PRN and no additional infrastructure is require to a the introduction of PRN educes the relance on ground infrastructure in particular ground-based novigation risks are no longer needed. Some operational casts are enricipated with respect to the implementation of new procedures and training of air table; controlling shaft at EMA; however, these controls be identified at this stage of the ACC process. Some deployment casts are anticipated with respect to the implementation of the process.	el lo the implementation of PRN and no additional infrastructure is requires, as the introduction of PRN reduces the relance on ground infrastructure, in particular ground-based marginon aids are no longer needed. Some operative provides the relance on ground infrastructure is required at the relative of the relat	<ul> <li>as the introduction of PBN reduces the reliance on gr in particular ground-based navigation aids are na Some operational costs are anticipated with n implementation of new procedures and training of or P staff at EMA; however, these cannot be identified at th process.</li> <li>Some deployment costs are anticipated with n</li> </ul>
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der		Initial Options Apprais Qualitative	expensive should a CAPT28 RNAV substitution not be implemented prior to the proposed removal date. No change to operational costs is attributable to maintaining the extant procedures.	as the introduction of PRH reduces the male name on ground instruction, in particular ground-based neighting and a strate to longer medid. 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der		Initial Options Apprais Qualitative Initial Options Apprais Qualitative Initial Options Apprais Qualitative	regeneries should a CAPT21 RNA substitution not be implemented prior to the proposed removal date. No change to operational costs is attributable to maintaining the extent procedures. No change to operational costs is attributable to maintaining the extent procedures. The to nothing' semario assumes that current operations of EMA are as including use of the extent control procedures. Colong the removal of ground-based manyational ads, include any of the association as including use of the extent control procedures. Colong the removal of ground-based manyational ads, include any of the association accommencial agreement to maintain the existing manyational aid not be implemented, resulting in a possible increase in ATCO workload. 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Additional material scenarios as the addition material scenarios as the addition material scena	<ul> <li>d In the implementation of PBN and no additional infrastructure is require a the introduction of PBN radices the relations on ground infrastructure in particular ground-based marginon aids are no longer needed.</li> <li>Some operational casts are anticipated with request to the interpretation of new procedures and training of air traffic controlling and of BAN, however, these controls to identified at this stage of the Add of BAN, however, these controls the identified at this stage of the traffic controllers, however, these controls the identified at this stage of the interpretation of the new departure procedures and training of air traffic controllers, however, these controls the identified at this stage of the traffic controllers, however, these controls the identified at this stage of the interpretation of the new departure procedures and training of air and south wast causing a loss of horizontal and/or vestical separation. This would require ATC bactical intervention and could be further mitigated through the design process are install with a loss and training CAP to IS process is confirm the action train at loss and south wast causing a loss of horizontal and/or vestical separation. This would require ATC bactical add uring Stogers 3 and 4 of the CAP to IS process is confirm the action at install the loss of the lossing areas: Note impact from 4,0000th Equal/neutral in the following areas: Notes impact from 4,000th Equal/neutral in terms of the remaining criteria because there is no change when compared to the doger 3 and 4 of the CAP 1016 process Note is impact from 4,000th Invision an this action has been anceaused in isolation and Indetrime the size option has been anceaused in isolation and Indetrime the anceution isolation in the distion process Note is impact from 4,000th How as as at of a propasite to life, there is in the distion and Indetrime the ancustotion in the control in dower system. Additional and pi</li></ul>	<ul> <li>a the incluction of PBN reduces the relinice on group in particular ground-based analyzing could see not in particular ground-based analyzing could be applied with the generative of the period based on the interpret of the particular set of the meta dynamic particular set implementation of the met dynamic particular set implementation of the met dynamic particular set implementation of the meta dynamic particular set implementation of the set of the particular set implementation of the dynamic particular set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set of the set implementation of the set of the set of the set implementation of the set of the set of the set of the set implementation of the set of the set of the set of the set implementation of the set of the s</li></ul>
ler		Initial Options Apprais Qualitative Initial Options Apprais Qualitative Initial Options Apprais Qualitative	Experiments should a CAPT21 RNAV substitution not be implemented     prior to the proposed removal date.     No charge to operational costs is attributable to maintaining the extent     procedures.     No charge to operational costs is attributable to maintaining the extent     procedures.     No deployment costs applicable to extant pracedures.     No deployment costs applicable to extant pracedures.     The two nothing' scenario assumes that current operations of BMA are     sin including use of the extant costroling bhold CAPT81 or a     commercial agreement to maintain the existing movig/cond oil do the     implemented, resulting in a possible increase in ATCO workload.     The 'Vo nothing' scenario in relation to this ACP is not a viable option a     it does not provide a sustainable solution in terms of airpace     mordmainton. The existing priorid CAPT81 or a     commercial agreement to melation to this ACP is not a viable option a     it does not provide a sustainable solution in terms of airpace     medmainton. The existing movid comprements do not enable     continuous descart operations from 7,000%, which could lead to a     genetier volume of the blavm, emissioned move whinch could lead to a     operation. Sense the line average of the adverter to the adverter operation from 7,000% which could lead to a     operation. The sense is in adverter operation of a sustained based     operation. The sense is in adverter operation of a sense.	as the introduction of PBH reduces the relations on ground instruction, in perticular ground-based norigination adds are no longer medide. 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Additional marks is the required in Stage 2 and 4 of the CAP 16 process to for thermine the cultural with the reader of the control of outling on the take the origin of the control outling on the take take thas a distribution marks in the rea	end         bits implementation of PBN and no additional infrastructure is require, as the introduction of PBN reduces the reliance or ground infrastructu- ing and the introduction of PBN reduces the reliance or ground infrastructure.           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When compared to the during groups - Note impact from 4,00016 - AP1016 process to confirm the east new red all hazards and mitigations.           When in the following anexa: - Note impact from 7,00016 - Area and the process in the option of the remaining criteria because there is no of change when compared to toldy's operation.           Are this registion of the diagrago from the south has been anazed in haddenoid many when compared to toldy's operation.           Area the require of a mit and process of a diagrago from the addisored many when compared to told and registion defasoff in the observed to andid de	end to the implementation of PRN and no additional infrastructure is equite in the initiaduction of PRN reduces the enlines on ground infrastructure in particular ground-based nonjaction aids are no longer needed. Some deployment cass are entripidened infraged to the staff of EMA, however, thes cannot be devinted of this stage of the AC process. 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This would merge AC bacted call and be further mail particle in the catholic and the new catholic and and a the CATH EDS and the catholic and and and the CATH EDS and the catholic and and and the CATH EDS and the catholic and and and the CATH EDS and the scale and the scale and a scale and a scale in the catholic and and the scale and the scale and and the Equal/instutue in terms of the menoining criteria because there is no change when compared to the scale and a scale and the catholic mathem and the determine the catholic approximation of a was begin the theory on a scale and the change of a scale and the catholic mathem and the determine the catholic particle and a scale and the catholic mathem the assemic and cathorize groups and an	<ul> <li>d) ohe implementation of PRN induces the induces on ground infrastructure in particular ground-based molgation acids are to longer needed.</li> <li>a) an entire inducation of PRN induces the induces on ground infrastructure in particular ground-based molgation acids are to longer needed.</li> <li>b) an entire inducation cash are entitle induced with insigned of in traffic controlline, where, these cannot to lacified and this stage of the induced molecular acids are entitle induced with insigned of the KA process.</li> <li>c) A host deviation of the eve departure procession and training of an and training of an advice of the KA induced and induced with the event of the induced molecular and training of an induced with the particular for controlline, the other with a stage of the induce controlline, resolution with the even KAA proposed SDs to the sou- card south west consing a loss of horizontal and/or west called and the induced molecular induces and horizontal and/or west called and the induced molecular and the loss of horizontal and/or west called and the induced molecular and the loss of horizontal and/or west called and and interaction.</li> <li>A horizon the design process to more-dealing in the advice process interaction and and a structure of a loss and a difference of the CAP10 16 process to controlling demonstration.</li> <li>When compared to the do notified structure.</li> <li>A more and the following areas:</li> <li>A reaction of a terms of the monoising or relation.</li> <li>A reaction terms of the monoising or relation.</li> <li>A reaction the structure relation the south with a condense pass emissions - Area quality.</li> <li>Equal/mutual to terms of the monoising or relation.</li> <li>Equal/mutual to terms of the monoising or relation.</li> <li>A have an and the induced and the monoising or relation.</li> <li>A have an and the remaining or relation because there is no chaving whene compared to the monoising or relation because ther</li></ul>	<ul> <li>d o far implementation of PBN and no additional infrastructure is require in particular ground-based navigation aids are no longer needed.</li> <li>Some particular ground-based navigation aids are no longer needed.</li> <li>Some particular ground-based navigation aids are no longer needed.</li> <li>Implementation a far processure and training of air traffic controlling table of EMA, however, these cannot be identified of this stage of the AC process.</li> <li>Some deployment costs are analyzed and the stage of the AC indic controllers.</li> <li>A hoard relation of the nee departure procedures and training of air valids of EMA, however, these cannot be compared to the stage of the AC process.</li> <li>A hoard relating to annote from the south was identified twhere there is the potential for confliction with the new EMA proposed SIDs to the south and continue and the south was identified twhere there is there is a stage of the CAC that an intervention and code that a stage of the CAP16 to process to confirm the south was identified twhere there is there is a stage of the CAC that and there there is a stage of the CAP16 to process to confirm the south was all dentified twhere there is there is a stage of the CAC that and there there is a stage of the CAP16 to process to confirm the south was all dentified that and a shift CAP16 to process to confirm the south was all dentified to an other in the compared to the two nothing scenario, fits option performs: Woreas in the following ancess: Near the following ancess:</li></ul>	In the implementation of PRN weaks the incluse is equivalent of the product of	<ul> <li>d in the implementation of RPN and no additional infrastructure is require in particular ground-based novigation risks are no longer needed.</li> <li>Some operational crash are maticipated with require to the implementation of new procedures and training of air traffic controlling that all all of MA, however, these controls be identified at this stage of the AD spectra program.</li> <li>Some deployment costs are analyzed to the traffic controlling traffic controllers, however, these controls be identified at this stage of the implementation of the new departure procedures and training of air traffic controllers, however, these controls and be identified at the stage of the AD spectra relation of the new departure procedures and training of air traffic controllers, however, these controls be identified at the stage of the traffic controllers, however, these controls be identified at these there is all and south west causing a loss of horizontal and/or vertical separation. 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A fails muscilla explores have the process there is no change when compored to the dower of and a or diver Additional amolysis will be required in Stage 2 and 4 of the CAP 1616 process to a world wester.</li></ul>	<ul> <li>d In the implementation of PBN and no additional infrastructure is require a the introduction of PBN radices the relations on ground infrastructure in particular ground-based marginon aids are no longer needed.</li> <li>Some operational casts are anticipated with request to the interpretation of new procedures and training of air traffic controlling and of BAN, however, these controls to identified at this stage of the Add of BAN, however, these controls the identified at this stage of the traffic controllers, however, these controls the identified at this stage of the interpretation of the new departure procedures and training of air traffic controllers, however, these controls the identified at this stage of the traffic controllers, however, these controls the identified at this stage of the interpretation of the new departure procedures and training of air and south wast causing a loss of horizontal and/or vestical separation. 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Additional and pi</li></ul>	<ul> <li>a the includucion of PBN reduces the relinance angre in particular gundh-based neighting condition are no Some appendixed and any setting definition of the neighting regularemention of the neighting of the transmission of a some deployment costs are anticipated with m implementation of the new deployment procedures as traffic controllers; however, these cannot be identified of the setting of the new deployment costs as shere the setting of the new deployment costs and traffic controllers; however, these cannot be identified to the setting of the new deployment costs as traffic controllers; however, these cannot be identified to the compared to the design process or procedurally further costs and the transmitter of the transmitter (CMP1616 process to controlling transmits; - Greenbrouxe gas emissions - Fareb born Notes in the following cares: - Areaborne 4000ti - Notes impact for 4000ti - Notes impact for 4000ti - Notes impact for 0,000ti - Notes impact</li></ul>

			DO NOTHING' BASELINE	EYEHO Direct R09_A_S_013	EYEHO Direct R09_A_S_014	EYEHO Indirect R09_A_S_023	EYEHO Indirect R09_A_S_024
			For arrivals from the south, the 'do nothing' scenario for in terms of today's operation is based around the existing PIGOT Hold. A modal	The IAF for this option is EYEHO and the style of the route is 'direct'	The IAF for this option is EYEHO and the style of the route is 'direct' which means the distance to the final approach has been minimised. It	The IAF for this option is EYEHO and the style of the route is 'indirect' which means the distance to the final approach has not been minimised	The IAF for this option is EYEHO and the style of the route is 'indirec which means the distance to the final approach has not been minimis
			track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal	which means the distance to the final approach has been minimised. The option starts at IAF EYEHO, south east of Hinkley from where the	follows an identical initial track as Option 13 but routes further west before joining the final approach.	but has been designed to provide an alternative respite option to a 'direct' route.	but has been designed to provide an alternative respite option to a 'direct' route.
			tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a	route heads north-west passing between Earl Shilton and Hinckley. It continues on this heading until just south of Swadlincote where it turns north and passes between Swadlincote and Burton upon Trent before	The option starts at IAF EYEHO, south east of Hinkley from where the route heads north-west passing between Earl Shilton and Hinckley. It continues on this heading until south west of Swadlincote where it turns	The option starts at IAF EYEHO, south east of Hinkley from where the route tracks north to pass east of Coalville. It then turns west and passes to the north of Coalville and Ashby-de-la-Zouch and over the southern	The option starts at IAF EYEHO, south east of Hinkley from where th route tracks north to pass east of Coalville. It then turns west and pas to the north of Coalville and Ashby-de-la-Zouch and over the southe
			polygon has also been created that represents an area where current operations and approaches are dispersed due to radar vectoring and	turning right to join the extended runway centreline. This RNAV 1 route connects the IAF to the IF which is placed as close as	north and overflies the edge of Burton upon Trent before turning right to join the extended runway centreline.	portion of Swadlincote, before turning right to join the extended runway centreline east of Burton upon Trent.	portion of Swadlincote, before turning right over the eastern edge o Burton upon Trent to join the extended runway centreline.
			potentially may affect people on the ground. All data is based on current aircraft performance data. he overflight analysis conducted on this transition was based on the modal track created using Noise and	possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches.	This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5.1nm) whilst keeping the route within existing controlled airspace. The FAF is at 2,000ft, which is the platform	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the	This RNAV 1 arrival connects the IAF to the IF which is placed as far possible from the FAF (5.1nm) whilst keeping the route within existin controlled airspace. The FAF is at 2,000ft, which is the platform
			Track Keeping data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been	The descent gradient to the FAF is 2.15° which is close to the optimum range for low noise approaches but is within the acceptable range for	altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2° which is below the optimum range	platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.75° which is below the optimum	altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.6° which is below the optimum
			calculated on the distance from the start of the modal track to the Arrival end (Touchdown point) of the Runway.	CDAs defined within ICAO guidance.	for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.
Group Communities	Impact Noise impact on health	Level of Analysis Initial Options Appraisa	Runway 09 For comparison purposes in the IOA, in terms of potential noise impact,	Runway 09 From 7,000ft, this option is estimated to overfly approximately 15,550	Runway 09 From 7,000ft, this option is estimated to overfly approximately 17,350	Runway 09 From 7,000ft, this option is estimated to overfly approximately 23,500	Runway 09 From 7,000ft, this option is estimated to overfly approximately 28,35
	and quality of life	Qualitative	initial quantitive analysis has identified that the PIGOT 'do nothing' scenario for Runway 09 is estimated to overfly:	households with an approximate population of 28,800. Taking account of 2,200 planned property developments, this option is estimated to	households with an approximate population of 31,200. Taking account of 2,750 planned property developments, this option is estimated to	households with an approximate population of 42,600. Taking account of 3,800 planned property developments, this option is estimated to	households with an approximate population of 50,600. Taking accord of 4,250 planned property developments, this option is estimated to
			From 7,000ft: is estimated to overfly approximately 136,800 households with an approximate population of 265,200. Taking	overfly and impact a total population of 32,900. The patential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 36,100. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 49,500. The potential noise impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this	overfly and impact a total population of 58,200. The potential nois impact on health and quality of life from 7,000ft is assessed as likely affect fewer people than the 'do nothing' scenario. From 4,000ft, thi
			account of 24,800 planned property developments, this option is estimated to overfly and impact a total population of 313,300.	option is estimated to overfly approximately 6,000 households with an approximate population of 11,200. Taking account of 300 planned	option is estimated to overfly approximately 7,650 households with an approximate population of 13,400. Taking account of 900 planned	option is estimated to overfly approximately 10,550 households with an approximate population of 19,300. Taking account of 2,050 planned	option is estimated to overfly approximately 15,350 households with approximate population of 27,000. Taking account of 2,450 planne
			From 4,000ft: is estimated to overfly approximately 45,350 households with an approximate population of 82,000. Taking account of 4,500	property developments, this option is estimated to overfly and impact a total population of 11,800. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 15,000. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact a total population of 23,000. The potential noise impact on health and quality of life from 4,000ft is assessed as likely to affect fewer people	property developments, this option is estimated to overfly and impact total population of 31,300. The potential noise impact on health ar quality of life from 4,000ft is assessed as likely to affect fewer peopl
			planned property developments of 5,000, raking account of 4,000 impact a total population of 90,100.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	than the 'do nothing' scenario.
Communities	Air Quality	Initial Options Appraisa Qualitative	The majority of the extant procedure involves overflight above 1,000ft,	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality
			other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the PIGOT 'do nothing' scenario overflies 7 AQMAs. Overflight of these AQMAs occurs when the aircraft is above	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer	Assessment is deemed not required. This option overflies two AQMAs. When compared to the 'do nothing scenario, this option is deemed to be beneficial as it overflies fewer
Wider Society	Greenhouse Gas impac	t Initial Options Appraisa	1,000fr.	AQMAs.	AQMAs.	AQMAs.	AQMAs.
		Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aiscretized way use islability due to the acture of ander vorticing. Existing	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent	This option has been designed to support continuous descent
			by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support optimal aircraft performance and therefore are predicated to have greater environmental impact compared to the	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this patient of 4.9.4 law (20.4) and ). When ensure that he dependence	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this patient of 2.08 law (31.21 ar ). When every dist the laboration	approaches to EMA. An element of radar vectoring may still be required to manage aircraft separation distances. The track mileage of this patient (4.4.2) with (4.7.9 m). When ensured at the laboration?	approaches to EMA. An element of radar vectoring may still be requir to manage aircraft separation distances. The track mileage of this action is 40.09 Level (27.30 m). When every and the later activities
			proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or	option is 54.84 km (29.61 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing'	option is 57.98 km (31.31 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing'	option is 64.42 km (34.78 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing'	option is 69.08 km (37.30 nm). When compared to the 'do nothing scenario, this option is longer and is therefore expected to result in c increase in greenhouse gas emissions compared to the 'do nothing
			emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With	scenario and is deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of	scenario and is deemed to be of environmental dis-benefit. More in- depth analysis will take place at Stage 3 to confirm the exact volumes of	scenario and is deemed to be of environmental dis-benefit. More in- depth analysis will take place at Stage 3 to confirm the exact volumes of	scenario and is deemed to be of environmental dis-benefit. More in depth analysis will take place at Stage 3 to confirm the exact volumes
			regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do nothing' scenario track is 57.36km (30.97nm) long.	greenhouse gases released.	greenhouse gases released.	greenhouse gases released.	greenhouse gases released.
Wider Society	Capacity and resilience	Initial Options Appraisa Qualitative	Reidining exiani procedures would maintain curreni capacity; nowever,	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more
		acomulite	due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the DTY DVOR and the requirement to adopt PBN procedures as part of the FASI-N	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based
Wider Society	Tranquillity	Initial Options Appraisa	Programme.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.	navigational aids will significantly increase operational resilience through the introduction of PBN.
maan ooclery		Qualitative	<sup>1</sup> : As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community	This option overflies no statutorily identified tranquillity receptors (AONBs or National Parks), nor any identified through community
			engagement. No additional specific areas were identified by community engagement. The 'do nothing' scenario does not overfly any	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	engagement and is therefore comparable to the 'do nothing' scenari and assessed as neutral.
Wider Society	Biodiversity	Initial Options Appraisa Qualitative	AONBs or National Parks.				
		Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas	mixing, there is unlikely to be an impact on local air quality from aircraft	mixing, there is unlikely to be an impact on local air quality from aircraf	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft	mixing, there is unlikely to be an impact on local air quality from aircr
			of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map. CAP1616, Appendix B, para B74, states that because of	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposals will not have an impact on	above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, state that in general, airspace change proposals will not have an impact of
			dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states that in general, airspace change proposal will not	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs). Special Protection Areas (SPAs). Special Areas of	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs). Special Protection Areas (SPAs). Special Areas of	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs). Special Protection Areas (SPAs). Special Areas of	biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientif Interest (SSSIs). Special Protection Areas (SPAs). Special Areas of
			have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the
			potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACF process by Subject Matter Experts.
General	Access	Initial Options Appraisa Qualitative	l:	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a	Impact to General Aviation access is anticipated to be minimal as a
Aviation		Qualitative	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to	consequence of this ACP. All Visual Reference Points and existing Letters of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to
			access under extant operational arrangements.	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage	ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage	ensure their continued validity. Airspace classification requirements a any additional airspace requirements will be reviewed as part of Stag
General Aviation /	Economic impact from increased effective	Initial Options Appraisa Qualitative	l:	3 activities. The introduction of PBN is expected to deliver benefits by increasing	3 activities. The introduction of PBN is expected to deliver benefits by increasing	3 activities. The introduction of PBN is expected to deliver benefits by increasing	3 activities. The introduction of PBN is expected to deliver benefits by increasing
commercial airlines	capacity	Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	airspace capacity which in turn will lead to more predictable flight pa and fewer delays (both in the air or on the ground). This is expected facilitate economic benefit by potentially increasing the frequency of
				transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.
General Aviation /	Fuel burn	Initial Options Appraisa Qualitative	I: The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2
commercial airlines			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison	the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this	the CAP1616 process to quantify fuel burn, this will be conducted in Stage 3. Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this
			in Stage 2, track mileage is used, based on the theory that the shorter the track mileage, the less greenhouse gases are emitted. In the case of	option, it is 54.84 km (29.61 nm) long. When compared to this option, it is 54.84 km (29.61 nm) long. When compared to the 'do nothing' scenario, this option is shorter and at this stage, it is assumed	The shorter the track length, the less tuel is burnt. With regards to this option, it is 57.98 km (31.31 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	The shorter the track length, the less tue is burnt. With regards to this option, it is 64.42 km (34.78 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assumed	option, it is 69.08 km (37.30 nm) long. When compared to the 'do nothing' scenario, this option is longer and at this stage, it is assume
			the 'do nothing' baseline scenario, the track length is 57.36km (30.97nm).	that it will be of economic benefit as less fuel will be burnt. More in- depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More in depth analysis will be carried out in Stage 3 to confirm.	that it will be of economic dis-benefit as more fuel will be burnt. More depth analysis will be carried out in Stage 3 to confirm.
Commercial airlines	Training costs	Initial Options Appraisa Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common aniastics standard access the world
Commercial airlines	Other costs	Initial Options Appraisa Qualitative		common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating	common navigation standard across the world. Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating
			maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs'	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other costs'	procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EMA to assess the 'other co
Airport / Air	Infrastructure costs	Initial Options Appraisa		to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options relate	to commercial airlines of flying PBN procedures. There are no expected additional infrastructure costs. All options rela
navigation service provider		Qualitative	conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground	to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground
Airport / Air	Operational costs	Initial Options Appraisa	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	infrastructure, in particular ground-based navigation aids are no long needed. Some operational costs are anticipated with respect to the
Airport / Air navigation service provider	e perononur cosis	Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the	implementation of new procedures and training of air traffic controlli staff at EMA; however, these cannot be identified at this stage of the
Airport / Air navigation	Deployment costs	Initial Options Appraisa Qualitative		ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air	ACP process. Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of ai
service provider			No deployment costs applicable to extant procedures.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.	traffic controllers; however, these cannot be identified at this stage of the ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisa Qualitative	The 'do nothing' scenario assumes that current operations at EMA are	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the south and south west causing a loss of horizontal and/or vertical	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the south and south west causing a loss of horizontal and/or vertical	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the south and south west causing a loss of horizontal and/or vertical	A hazard relating to arrivals from the south was identified where there the potential for confliction with the new EMA proposed SIDs to the south and south west causing a loss of horizontal and/or vertical
			safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further	separation. This would require ATC tactical intervention and could result in an increase in ATCO workload. This hazard could be further
			commercial agreement to maintain the existing paradiational aid not be implemented), resulting in a possible increase in ATCO workload.	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CADIA of ensurements are first the suret protein and the start of and	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CARI 14 conserve to profile the protocol of the production o	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CADIAL constraints and the superturbation of the langest and the superturbation of the s	mitigated through the design process or procedurally if required. Further assessment will be conducted during Stages 3 and 4 of the CARTA of the conducted during Stages 3 and 4 of the
		Summary of Analys		CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenario, this option performs:	CAP1616 process to confirm the exact nature of all hazards and mitigations. When compared to the 'do nothing' scenaria, this option performs:
				Worse in the following areas:	Better in the following areas:	Worse in the following areas:	Worse in the following areas:
			The 'do nothing' scenario in relation to this ACP is not a viable option as	- Greenhouse gas emissions - Fuel burn	- Noise impact from 4,000ft - Noise impact from 7,000ft - Greenhouse gas emissions	- Greenhouse gas emissions - Fuel burn	- Greenhouse gas emissions - Fuel burn
			it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous descent operations from 7.000ft, which could lead to a	Better in the following areas: - Noise impact from 4,000ft	- Fuel burn - Air Quality	Better in the following areas: - Noise impact from 4,000ft	Better in the following areas: - Noise impact from 4,000ft
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and	- Noise impact from 7,000ft - Air Quality	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	- Noise impact from 7,000ft - Air Quality	- Noise impact from 7,000ft - Air Quality
			Economic impact, the 'do nothing' baseline provides minimal/no change to today's operations. Furthermore, there are very limited costs	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	At this time, it is not possible to fully determine the safety implications of	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.
			incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	this specific option as this option has been assessed in isolation rather than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	At this time, it is not possible to fully determine the safety implications this specific option as this option has been assessed in isolation rather
			radar vectoring.	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	determine the cumulative impact of this option when compared to all the other options.	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to
				determine the cumulative impact of this option when compared to all the other options.		determine the cumulative impact of this option when compared to all the other options.	determine the cumulative impact of this option when compared to all the other options.
			IOA Shortlist Assessment	Based on IOA Shortlist Assessment methodology, Option 13 has been	Based on IOA Shortlist Assessment methodology, Option 14 has been	Based on IOA Shortlist Assessment methodology, Option 23 has been	Based on IOA Shortlist Assessment methodology, Option 24 has been
			OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	deemed the PREFERRED option within this design envelope. PREFERRED	deemed the FAVOURABLE option within this design envelope. FAVOURABLE	deemed the ACCEPTABLE option within this design envelope. ACCEPTABLE	deemed the REJECTED option within this design envelope. REJECTED

0 2 024 the style of the route is 'indirect' approach has not been minimised a alternative respite option to a ute.

apploach has not been minimized on alternative resplice option to a route. In a othermative resplice option to a tracket. In the eart of Hinkley from where the diverse of the end of the end of the assandar unway centreline. If the end of the end of the end of the assandar unway centreline. If the end of the end of the end of the assandar unway centreline. If the end of the end of the end of the assandar unway centreline. If a which is below the optimum of Rumay 09 opticaches. If a which is below the optimum of Rumay 09 opticaches. If a which is below the optimum of Rumay 10 and 10 and 10 and 10 and 10 and 10 coverly approximately 28,350 usations of 50,000. The statement of nor 3,5200. The penetral noise incom 4,000 his is estimated to an of 38,200. The penetral noise incoment of the optimum of a statement of the optimum of the optimum of the optimum smatrix, this option is estimated to an of 3,820. The penetral noise incoment of 24,500 panet a statement on been than of a statement on been than one is estimated to overfly and impact a tertion loss is incompact the optimum of the statement of the optimum of the optimum of the optimum and as likely to diffect fewer people hing scenario.

support continuous descent dar vectoring may still be required noes. The track mileage of this en compared to the da nothing therefore expected to result in an as compared to the da nothing' ironmental dis-benefit. More in-3 to confirm the exact volumes of es released.

tes that because of dispersion and ct on local air quality from aircraft (5, Appendi B, para BBO, states coals will not have an impact on round-board intrastructure. The ignated Sites of Special Scientific Arras (SPA), Special Areas of the, as identified on the DEFRA tes a gradentified impact to the casessed in Stateg 3 of the ACP Matter Experts.

s anticipated to be minimal as a l Reference Points and existing General Aviation access will be able) prior to implementation to ce classification requirements and will be reviewed as part of Stage ies.

La classification requirements that will be reviewed as part of Stage iss. to deliver benefits by increasing d to more predictable flight paths in the ground). This is expected to light increasing the frequency of air semper numbers and increasing a carried. It is used, within Stage 2 of b turn, this will be conducted in parison, the logic applied is that tue is burn. Within Stage 2 of b turn, this will be conducted in parison, the logic applied is that tue is burn. Within segreds to this as more fuel will be burnt. Hore in our in Stage 3 to confirm. Trave training will be required to cadrete as the voltates to Flight ation and the bases the other cost for EAA to assess the 'other cost' for EAA to assess the 'other cost' astructure costs. All options reliber no addinional informature in and noviged to ground and noviged to india sere no longer d. Lipipated with respect to the

sed novgation acids are no longer dicipated with respect to the dirations of air raffic controlling be identified at this stoge of the test of the second second training of air work be identified within stoge of costs. Such was identified where there is new EMA proposed SIDs to the so f horizontal and/or vertical todical intervention and could ad. This hazard could be further as or procedurally if required. d during Stoges 3 and 4 of the sort.

termine the safety implications of een assessed in isolation rather of a wider system. Additional I 4 of the CAP 1616 process to s option when compared to all

			DO NOTHING' BASELINE	LEICE Direct R09_A_S_O5	LEICE Direct R09_A_S_O6	LEICE Indirect R09_A_S_011	LEICE Indirect R09_A_S_012
			For arrivals from the south, the ido nothing' scenario for in terms of today's operation is based around the existing PIGOT Hold. A modal tack has been derived to provide an accurate representation of what accurs haday. The ido nothing' scenario for arrivals consists of modal tacks that have been created based upon current poperations where most arrivals are radio vectored by pri traffic controllers from the Hold to the Frind Approach Fix (FAF). In addition to the modal tacks, a polygon has also been created that represents an area where current operations and approaches are dispersed due to radio vectoring and preteriolity may affect people on the ground. All due is based on current around performance data. If addition of a rodio vectoring area where appropriate. The tack length has been calculated on the distance from the start of the modal tack to the Arrival end "(Touchdown point) of the Runway.	The AF for this option is LEICE and the style of the route is 'direct' which means the distance to the final approach has been minimized. This option starts of LF LEICE, near the Ring Power Stadium in Laiceater from where the route tracks north-west over the junction between the MI and the A/4 and posses the norther weed of list stock. The route turns north just to the west of Swadilincote before turning right to join the extended turway cartelline ease of Button type. There is spassible to the FA (2.55m) when FM2 CPS criteria and MSD for a possible to the FA (2.55m) when FM2 CPS criteria and MSD for potention nithted or the existing FA for furway 09 approaches. The descent gradem to the FA is a CPS which is below the optimum range for low noise approaches but a within the occeptable range for CDAa delined within ICAO guidance.	Ine AFF for this option is LEICE and tayle of the route is 'direct' which     reaces the distance to the final approach has been minimized. It follows     a near dentical track as Option 5 but routes further wast before joining     the final opproach.     The option starts at UF ELECE, near the King Power Stadium in Leicater     the way to be tools and/wave our the ipriation between the MI     and the A46 and posses the northern edge of listock. The route turns     on the other out-order soft wave over the ipriation beads on the minimum of the RWAT in out concests the UF for the IF which is placed on fars     controlled anyone. The FAF is at 2,000H, which is the platform allude     for the estimy R4F for known 900 exponents.     The defined entities the R4F is 1,91* which is below the optimum     range for low notice approaches but within the acceptable range for     CDA4 defined within ICAO guidance.     Interver 092	The IAF for this option is LEICE and the style of the route is "indirect" which means the distance to the final caprococh has not been minimized bot has been designed a function of the steps of the st	The IAF for this option is EIICC and the style which means the distance to the final opprova- but has been designed to provide an altern 'direct' route. It follows an identical initial too further were before joining the fir The option starts at UAF EIICC, earer the King from where the route those's directly north ore long/theroscoph, passing scale, for early the 'source of second scale and the therman of Buron upon Teret before turning right Council and a the Z (5). Inny which is keeping controlled cargaces. The FAF is at 2000th, The Gene target the Council and the Council Council and the C (5) and which is keeping controlled cargaces. The FAF is at 2000th, The Gene target for the Council and the Council Council and the C (5) and which is keeping controlled cargaces. The FAF is at 2000th, The Gene target for the council and the council and the CDA defined within ICAQ. Reverse 078
Communities	Noise impoct on health and quality of life	Initial Options Approisal Qualitative	For comparison purposes in the ICA, in terms of potential noise impact, initial quantitive onparison purposes in the ICA, in terms of potential noise impact, initial quantitive onparison is advertified that the PIGOT 'do nothing' scenario for Rumwy 05 is estimated to overfly approximately 136,800 households with an approximate population of 265,200 kinain account of 24,800 planned property developments, this option is estimated to overfly and impact a total population of 313,300. From 4,000h: is estimated to overfly approximately 45,530 households with an approximate population of 82,000 kinaig account of 4,500 planned property developments, this option is estimated to overfly and impact a total population of 90,100.	From 7,000ft, this option is estimated to overfly approximately 54,350	From 7,000ft, this option is estimated to overfly approximately 57,900 hooseholds with an option is estimated to overfly approximate population of 11,010. Taking account of 1,900 planned property developments, this option is estimated to overfly and imposed to total opolution of 119,900. The optional noise impact on health and quality of life from 7,000 his assessed as likely to effect lever people than the do nothing scenario. From 4,000 h, this option is estimated to overfly approximately 10,200 households with approximate population of 18,100. Taking account of 1,000 planned proceerly developments, this option is estimated to overfly and impact a total population of 0,100 house and a likely to other and quality of life from 4,000 is reasened an likely to other flever people than the do nothing scenario.	From 7,000ft, this option is estimated to everify approximately 87,900 households with an option in estimated to everify approximate population of 181,000. Taking account of 11,150 planned property developments, this option is estimated to overfly and imposed to total oppolation of 023,900. The potential noise impact on health and quality of life from 7,000 his is assessed as likely to effect levere people than the 4 containing scenario. From 4,000 h, this option is estimated to overfly approximately 11,850 households with an option developments, this option is estimated to overfly and impoct abut population of 21,700. Taking account 03,500 planned property developments, this option is estimated to overfly and impoct a dual population 40,700 h is cassed as likely to utilet fever people than the 'do nothing' scenario.	From 7,000ft, this option is estimated to we households with an option is estimated to over of 11,750 planned property developments, overfly and imposed to total population of 213 impact on health and quality developments, diffect lever people than the do nothing sce option is estimated to overfly approximately population approximate population of 25,800. Taking a property developments, this option is estimate that population or 40,000 is imposed at lite quality of life from 4,000ft is measured at than the 'do nothing' scen
Communities	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overlight above 1,000fr, other than the areas in the immediate vicinity or final approach to EMA. In terms of AQMAs, the PIGOT do nothing scenario overling 7 AQMAs. Overlight of these AQMAs accurs when the aircraft is above 1,000fr.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1016, para B72 of tall Air Quality Assessment is desmed not required. This option overlies three AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fever AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 of tall Air Quality Assessment is desmed not required. This option overfiles five AQMAs. When compared to the 'do nothing' scenario, this option is desmed to be beneficial as it overfiles fever AQMAs.	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1016, per B72 a full Air Quality Assessment is desmed not required. This option overflies three AQMAs. When compared to the 'do nothing' scenario, this option is desmed to be beneficial as it overflies ferver AQMAs.	There is not likely to be a change in aviation e 1,000 feet. As per CAP1616, para B72 a ful deemed not requirec This option averflies six AQMAs. When com scenario, this option is deemed to be benef AQMAs.
Wider Society		Initial Options Appraisal: Qualitative	Current arrival options do not facilitate continuous descent approaches to EMA from 7,000 ft. It must be noted that the exact track length flow hay aircraft may vary studying due to the familie of radia versioning. Eating proceedings do not support any studying due to the study of the proposed captions. Within 50ga 2 of the 2016 16 process, there is no requirement for a charge process to conduct quantitative fael burn or emissions analysis; this will be conducted in Stage 3. In address to the study of the due to the study of the study of the due to study are sensitive to an study sensitive to the study of the study of the study of the due to the due and the study of the study of the due to the due and the study of the due to the due and the due to the due to the due and the due to the due and the due to the due and the due to the due to the due and the due and the due to the due to the due and the due and the due to the due to the due and the due to the due to the due to the due to the due and the due and the due to the due and the due to the due to the due to the due and the due to t	This option has been designed to support continuous descent reproceedures to EUA. An observed of nadar rectoring may all be required to manage increase supporting the transformation of the option is 5.6.27 km (30.38 km). When compared to the do nothing scenario; this option is shorter and is therefore expected to reall in a reduction in greenhouse gas emissions compared to the bid nothing's scenario; deemed to be of unincommental bench. Now in degth nothing's will take place at Stage 3 to confirm the each volumes of greenhouse gass released.	This option has been designed to support continuous discant exproperturbs to EMA. An obtained of adda rectoring may all be required to manage increase supporting the transformation of the option is 59 77 km (32, 33 km). When compared to the ido nothing sciencito, in 59 77 km (32, 33 km). When compared to the ido nothing sciencito, preserbouse gas emissions compared to the ido nothing sciencito, generation and a simple model. When is depicted to result in an increase in generational environment di barbanelli. More in depict analysis will take place at Stage 3 to confirm the eact volumes of greenhouse gases released.	is 65.48 km (35.34 km), When compared to the 40 nothing sconato; this option is looper and is therefore aspected to result in an increase in greenhouse gas emissions compand to the 40 nothing' scenario and ale deemed to be of environment dil-scheeft. More in-depti analysis will take place at Stage 3 to confirm the eact volumes of greenhouse gases released.	is 69.97 km (37.78 nm). When compared to this option is longer and is therefore expected greenhouse gas emissions compared to the ' deemed to be of environmental dis-benefit. N take place at Stage 3 to confirm the exact vol released.
Wider Society	Capacity and resilience	Initial Options Appraisal: Qualitative Initial Options Appraisal:	Retaining extant procedures would maintain current capacity: however, due to the reliance upon ground-based norigational aids, resilience could be significantly affected, following the removal of the DTY DVCR and the requirement to adopt PBN procedures as part of the FASI-N Programme.	The introduction of PBN routes is expected to deliver benefits by increasing airpace capacity which subsequently leads to more predictable flight paths and fewer delays [both in the air and an the ground]. The reduction of the reliance an outdated ground based novigational aids will significantly increase operational relience through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing airpace capacity which subsequently leads to more predictable flight paths and fewer delays [both in the air and an the ground). The reduction of the reliance an outdated ground based novigational aids will significantly increase operational resilence through the introduction of PBN.	The introduction of PBN routes is expected to deliver benefits by increasing arispace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	The introduction of PBN routes is expected increasing airspace capacity which subse predictable flight paths and fewer delays (b ground). The reduction of the reliance on navigational aids will significantly increase op the introduction of PB
Wider Society	Tranquillity	Initial Options Appraisat: Qualitative	As per CAP1616, Appendix B, pore B76, charge sponsor are majored to consider transpully with space inference on CAP188 and National Parkin only, unless other areas have been identified through community engagement. No additional specific areas were identified by community engagement. The do nothing scenario does not overfly any ACNBs or National Parks.	This option overflies no statutorily identified tranquility receptors (AONB) or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutorily identified tranquility receptors (AONBs or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as neutral.	This option overflies no statutorily identified tranquility receptors (AONB or National Parks), nor any identified through community engagement and is therefore comparable to the do nothing' scenario and assessed a neutral.	or National Parks), nor any identified through
Wider Society	Biodiversity	Initial Options Appraisal: Qualitative	The change sponsor has mapped the designated Stes of Special Scientific Interest (SSSI), Special Protection Areas (SPAs), Special Areas of Conservation (SAC4) and ARMSR titles, and dentified on the DETRA MAGC Map. CAP 1616, Appendix B, para B74, status that because of dispersion and mixing, there is unlikely to be an impact on local and quality from arciance takoes 1, 2016. Horthermore, CAP 1616, Appendix B, para B80, states that in general, airpace change proposal will not have an impact an local and indurently as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any potential impact to the designated site around EMA will be casessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispension and mixing, there is unlikely to be an impact on local ir quality from aircraft backers. JOBN: Furthermons, CAP1616, Appendix B, parates BB, states that in general, anguate change proposals will not have an impact on bodinersity ps they do not involve ground state diffractorities. The bodinersity ps they do not involve ground state diffractorities. The states ISSN, Special Protection Areas (SPA), Special Areas of Conservation (SAC2) and RAVASK states, an identified on the DFRA MAGIC Map and calcinate that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local in quality from aircraft babore 1,000K. Turkmenno, CAP1616, Appendix B, para B80, states that in general, anguace change proposals will not have an impact on badnership and you do not involve ground its dial intractive. The badnership and they do not involve ground its dial intractive. The there is a state of the state of the state of the state of the intervent ISSNB, Special Protection Areas (PAA), Special Areas of Conservation (PAC2) and RAVASE that, an identified and the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that because of dispersion and mixing. There is unlikely to be an impact on local ir quality from aircraft blower 1,000F. Terhermono, CAP1616, Appendix B, para BB, states that in general, airpace charge proposals will and have an impact on bodnershy and two don airwole ground set and instructure. The bodnershy and two don airwole ground set and instructure. The interest [SS18], Special Protection Areas (SPA), Special Areas of Conservation (SAC) and RAVASA state, an identified on the DFFRA MAGIC Map and actionvelopes that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	CAP1616, Appendix B, para B74, states that mixing, there is unlikely to be an impact on to below 10,000F. Holfmermore, CAP1616, App that in general, angoace thange proposals biodivensity and they do not involve ground- to the state of the state of the state of the interest ISSN, Secial Travestron Areng Conservation SACI, and RAMSA sites, an MAGIC Map and acknowledges that any designated sites around EMA will be assess process by Subject Matter
General Aviation	Access	Initial Options Appraisal: Qualitative	No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	Impact to General Aviation access is anticipated to be minimal as a consequence of the ACP. All Vasal Reference Points and wising Letter of Agreement pertaining to General Aviation access will be reviewed an updated (where applicable) prior to implementation to ensure their continued validity. Arispace Cascillacion requirements and any additional airpace requirements will be reviewed as part of Stage 3 activities.	Impact to General Aviation access is anticipated to be minimal as a consequence of the ACP. All Vasal Reference Points and wising Letter of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Arispace Casalication requirements and any additional airpace requirements will be reviewed as part of Stage 3 activities.	Impact to General Aviation access is anticipated to be minimal as a consequence of the ACP. All Vasue Meenere Points and wising Letter of Agreement pertaining to General Aviation access will be reviewed an updated (where applicable) prior to implementation to ensure their continued value), Ariapace Casalication requirement and any additional ainpace requirements will be reviewed as part of Stage 3 activities.	Impact to General Aviation access is anticip consequence of this ACP. All Visual Reference of Agreement pertaining to General Aviation o updated (where applicable) prior to implem continued validity. Airspace classification additional airspace requirements will be rev activities.
General Aviation / commercial airlines	Economic impact from increased effective capacity	Initial Options Appraisal: Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delsp. (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing paths are transport movements, increasing passarger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the cir or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air transport movements, increasing passarger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (bath in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing paths and the transport movements, increasing passarger numbers and increasing cargo tonnage carried.	The introduction of PBN is expected to deliv airspace capacity which in turn will lead to m and fewer delays (both in the air or on the gr facilitate economic benefit by potentially incr transport movements, increasing passenger cargo tannage carrie
General Aviation / commercial airlines	Fuel burn	Initial Options Appraisal: Qualitative	The existing EMA procedures for annuals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn malayis. This will be converted in days 3, or that the soluble is compared in a Stage 2, taked includes a sub-quarter bar 3 and the soluble is compared and an soluble 2, taked on the case of the 'do nothing' baseline scenario, the text gracehouse gas and (30,97nm).	This option supports continuous descent operations, reducing the overal amount of fuel burnt. There is no requirement within Stage 2 of the APTIO 16 process to quantify lab burn, this will be conducted in Stage 3. Therefore, to early be a comparison, the togic applied is that the 18 is 50.27 the QBO3 there is any there compared to the do nothing central, this option is shorter and of this stage. It is assumed that that be of economic electronic also show will be continue.	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the 2016 15 process to quarify lab burnt, this will be conducted in Stage 3. Therefore, to engly be a comparison, the logic applied is that the 3. Burndrow, to engly be a comparison, the logic applied is that the 3. B 59 70 fm (22.38 km) long When compared both the one-fully common, this option is longer and of this stage, it is assumed that studies be of economic dio-burnt to more failed will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	This option supports continuous descent operations, reducing the overal amount of hall burnt. There is no requirement within Stage 2 of the APT161 is proceed to quantify the burn, this will be conducted in Stage 3. Therefore, to enable as comparison, the logic applied is that the burn of the stage of the stage of the stage of the stage of the 1 the 654 Bit m S254 min Hings Manne compared both the onething scenario, this option is longer and at this stage, it is a summed that that be of economic of cohomet a more failed will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	This option supports continuous descent oper amount of luad burnt. There is no requirem CAP 16 6 process to quantify the burnt, this 3. Therefore, to each or comparison, the list of 97 the (17.75 km) fload When corr scenario, this option is longer and at this stage be of economic of economic dis-hearing as m in-depth analysis will be carried out in
Commercial airlines	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which would be practised by crews through existing simulator exercises.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a common navigation standard across the world.	It is anticipated that no extra pilot/crew trai enable pilots to fly the new PBN procedure common navigation standard acr
Commercial airlines	Other costs	Initial Options Appraisal: Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be casts associated with maintaining legacy systems to continue flying conventional navigation but there are too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	Other casts to commercial airlines may include updates to Flight Management Systems (FMS), novigation databases and operating procedures, increased pilot hire casts versus training etc. It is not proportionate at this stage of the ACP for EMA to asses the "other costs" to commercial airlines of flying PBN procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), novigation databases and operating procedures, increased pilot hire costs versus training etc. It's not propriate this stage of the ACP for EMA to asses the 'other costs' to commercial airlines of flying PBN procedures.	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), novigation databases and operating procedures, increased pilot hire costs versus training etc. It is not proportionate at this stage of the ACP for EAA to asses the "other costs" to commercial airlines of flying PBN procedures.	Other costs to commercial airlines may in Management Systems (FMS), navigation di procedures, increased pilot hire costs vers proportionale at his stage of the ACP for EM- to commercial airlines of flying PB
Airport / Air navigation service provider Airport / Air	Infrastructure costs	Initial Options Appraisal: Qualitative Initial Options Appraisal:	No additional infrastructure is required at EMA to maintain extrat conventional procedures, however, maintaining accessibility to current ground-based expipment (spentrate by HRV) may become prohibitively represente aduld a CAP1781 RNAV solatifulion not be implemented prior to the proposed removal date.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the relations on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is requirece as the introduction of PBN reduces the relance on ground infrastructure, in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is require as the introduction of PBN reduces the relationce on ground infrastructure in particular ground-based navigation aids are no longer needed. Some operational costs are anticipated with respect to the	There are no expected additional infrastructuu to the implementation of PBN and no addition as the introduction of PBN reduces the reliance in particular ground-based navigation aids Some operational costs are anticipated
navigation service provider		Qualitative	No change to operational costs is attributable to maintaining the extant procedures.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACF process.	implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACI process.	implementation of new procedures and traini
Airport / Air navigation service provider	Deployment costs	Initial Options Appraisal: Qualitative	No deployment costs applicable to extant procedures.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated with respect to the implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	Some deployment costs are anticipated implementation of the new departure proce traffic controllers; however, these cannot be id ACP process.
Safety Assessment	Safety Assessment	Initial Options Appraisal: Qualitative Summary of Analysi	The 'do nothing' scenario assumes that current operations at EMA are safe including use of the extant conventional procedures. Following the removal of ground-based invipational diak incredit antimage BMA would continuosal require radar vectoring (should CAP1781 or a commercial agreement to maintain the existing novigational aid not be implemented), resulting in a possible increase in ATCO workload.	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new ENA proposed SIDs to the sourd and south was coursing a loss of horizontal and/or vertice aspenation. This would require ATC tactical intervention and could result in an increase in ATC ownchood. This hazard could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during Stoges 3 and 4 of the CAP1616 process to confirm the eacd nature of all hazards and mitigations. When compared to the 'do nating' scenario, this option performs:	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new ENA proposed SIDs to the south and south was coursing a loss of horizontal and/or vertice aspenation. This would require ATC tactical intervention and could result in an increase in ATC ownfolds. This hazard could be further mitigated through the design process or procedurally if required. Further assement will be conducted during Supps 3 and 4 of the CAP1616 process to confirm the eacd nature of all hazards and mitigations. When compared to the 'do nothing scenario, this option performs:	A hozard relating to arrivals from the south was identified where there is the potential for confliction with the new ENA proposed SIDs to the sourd and south wat coursing a loss of horizontal and/or vertice aspensiton. This would require ATC bactical intervention and could result in an increase in ATC ownidoad. This harand could be further mitigated through the design process or procedurally if required. Further assessment will be conducted during dages 3 and 4 of the CAP1616 process to confirm the eacd nature of all hozards and mitigations. When compared to the 'do nothing scenario, this option performs:	A hozard relating to arrivals from the south with the potential for collicition with the new EMA, and south wet coursing a loss of horizontal a This would require ATC tactical intervention increase in ATC ownorkad. This hazard co- through the design process or process Further assessment will be conducted durin CAP1616 process to continue the acto an miligations. When compared to the 'do nothing' scenario.
			The ido nothing scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airpace modernisation. The existing arrival arrangements do not enable continuous detection detections from 7,000th, which could lead to a granulity, Bolandwing, General Avalon access and Economic events. In terms of Tranquility, Bolandwing, General Avalon access and Economic Furthermone, them are warp timeled costs incorrect as a result of this scenario. From a addre pesception, it is a sourced that our arrent bM operations are side. It is acknowledged that ATCO workload is likely to increase due to the enduring requirement for radar vectoring.	Better in the following areas:	Wone in the following areas: - Greenhouse gas emissions - Teul burn Better in the following areas: - Noise impact from 7,000t - Aric Burgoth Tom 7,000t - Aric Quality Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the sofety implications of this specific option as this option has been assessed in solation rather than as a set of design options as part of wider speties. At this time, it is not possible to fully determine the sofety implications of this specific option as this option has been assessed in solation rather into as a set of design options as part of a wider spiten. Additional andysis will be required in Stage 3 and 4 of the CAP 1016 process to other options.	Wone in the following areas: - Greenhouse gas emissions - Teel burn Better in the following areas: - Noise impact Tom 7,000t - Ar Gualhy Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather than as as of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 10.16 process to determine the coundative impact of this option when compared to all the other options.	Their compacts of the density of classifier of the second
			IOA Shortlist Assessment OPTION SHORTLIST CLASSIFICATION FOR STAGE 3	Based on IOA Shortlist Assessment methodology, Option 05 has been deemed the PREFERRED option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 06 has been deemed the FAVOURABLE option within this design envelope.	Based on IOA Shortlist Assessment methodology, Option 11 has been deemed the ACCEPTABLE option within this design envelope.	Based on IOA Shortlist Assessment methodolog deemed the REJECTED option within this desig REJECTED
			Structure Condition OK SIAGE 3	I NOT ENTED	IN COMPLE	NOUL INDEL	REJECTED

2 style of the route is 'indirect' rouch has not been minimized termitive respite option to a final opproach. In grover Stadium in Laicetter over Laicetter to Mountoorth is the souther part of and just north of Ashby-de-loo-north and wellins the edge to join the extended runway

to join the extended runway s IF which is placed as far as sing the route within existing which is the platform altitude O9 approaches. which is below the optimum hin the acceptable range for D guidance.

werfly approximately 92,800 n of 189,100. Taking account is, this option is estimated to 30,000. The potential noise 0,000 is assessed as likely to 0,000 it assessed as likely to 0,000 it is assessed as likely to a scenario 4,000 km molecular assessments and a second as likely to a scenario 4,000 km molecular assessments as a scenario 4,000 km molecular as a scenario 4,000 km molecular as a scenario 4,000 km mo

1 emissions by location below full Air Quality Assessment is ired red. ompared to the 'do nothing' neficial as it overflies fewer

port continuous descent rectoring may still be required te track mileage of this option d to the 'do nothing' scenario, ted to result in an increase in e' do nothing' scenario and is I. More in-depth nandysis will volumes of greenhouse gases

tted to deliver benefits by ssequently leads to more (both in the air and on the n outdated ground based operational resilience through PBN.

I tranquillity receptors (AONBs ugh community engagement ing' scenario and assessed as

nat because of dispersion and I local air quality from aircraft hypendia B, para B40, states with Mark There are impact an ted State of Special Scientific (I SPA), Special Areas of as identified on the DEFRA (I SPA), Special Areas of as identified on the DEFRA my potential impact to the essed in Stage 3 of the ACP er Experts. (Expand: to be minimal as a nace Parity and environment lementation to ensure their on requirements and any reviewed as part of Stage 3

eliver benefits by acreasing more predictable flight paths ground). This is expected to creasing the frequency of air remaining the second of the second the logic applied is that the second the logic applied is that the second the logic applied is that the second the se

uids are no longer needed. Ated with respect to the animal of air traffic controlling infilied at this stage of the ACP and the sequent to the acceleration of the sequence of the is identified where there is a dardied where there is a und/or vertical separation. This na dardies are and the sequence and/or vertical separation. This day and a dard with nature of all hazards and a di hazards and a dards and a do the nature of all hazards and and and and and and and and nature of all hazards and a dards and a dards and a dards and a dards and a do the nature of all hazards and a dards and

, this option performs:

a because there is no

ine the safety implications of assessed in isolation rather wider system. Additional of the CAP 1616 process to ion when compared to all the

			DO NOTHING' BASELINE	STAPL Direct R09 A \$ 015	STAPL Direct R09_A.S.O16	STAPL Indirect R09 A S O21	STAPL Indirect R09 A S O22
			For arrivals from the south, the 'do nothing' scenario for in terms of		The IAF for this option is STAPL and the style of the route is 'direct' which	The IAF for this option is STAPL and the style of the route is 'indirect'	The IAF for this option is STAPL and the style of the route is 'indirect' which means the distance to the final approach has not been minimised
			today's operation is based around the existing PIGOT Hold. A modal track has been derived to provide an accurate representation of what occurs today. The 'do nothing' scenario for arrivals consists of modal	The IAF for this option is STAPL and the style of the route is 'direct' which means the distance to the final approach has been minimised. The option starts at IAF STAPL at Stapleton north of Hinkley from where it approach to the start of the start	means the distance to the final approach has been minimised. It follows an identical initial track as Option 15 but routes further west before joining the final approach. The option starts at IAF STAPL at Stapleton north of Hinkley from where it	which means the distance to the final approach has not been minimised but has been designed to provide an alternative respite option to a 'direct' route. The option starts at IAF STAPL at Stapleton north of Hinkley from where	but has been designed to provide an alternative respite option to a 'direct' route. It follows the same route as Option 21 but routes further west before joining the final approach.
			tracks that have been created based upon current operations where most arrivals are radar vectored by air traffic controllers from the Hold to the Final Approach Fix (FAF). In addition to the modal track, a polygon has also been created that represents an area where current operations and	tracks north, turning north-west to over fly lbstock but remaining south of Cadiville. It continues on this track to fly south of Ashby-de-la-Zouch until south west of Swadlincote where the route turns north before turning right to join the extended runway centreline east of Surton upon Trent.	tracks north, turning north-west to over fly lbstock but remaining south of Cookville. It continues on this track to fly south of Ashby-de-la-Zouch until west of Swadlincate where it turns north and overflies the edge of Burton upon Trent before turning right to join the extended runway	the route initially tracks north-east until close to Thornton where the route turns north to pass east of Coalville. The route then turns west and passes to the north of Coalville and Ashby-de-la-Zouch and over the southern portion of Swadlincote, before turning right to join the extended	The option starts at IAF STAPL at Stapleton north of Hinkley from where the route initially tracks north-east until close to Thomton where the route turns north to pass east of Coalville. The route then turns west and passes to the north of Coalville and Ashby-de-la-Zouch and over the
			approaches are dispersed due to radar vectoring and potentially may affect people on the ground. All data is based on current aircraft performance data. he overflight analysis conducted on this transition was based on the modal track created using Noise and Track Keeping	This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85mm) when PANS OPS criteria and MSD for a 90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Rumary 09 approaches.	centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5.1 nm) whilst keeping the route within existing	runway centreline east of Burton upon Trent. This RNAV 1 route connects the IAF to the IF which is placed as close as possible to the FAF (3.85nm) when PANS OPS criteria and MSD for a	southern portion of Swadlincote, before turning right over the eastern edge of Burton upon Trent to join the extended runway centreline. This RNAV 1 arrival connects the IAF to the IF which is placed as far as possible from the FAF (5.1 nm) whilst keeping the route within existing
			data from an altitude of 7,000ft with the addition of a radar vectoring area where appropriate. The track length has been calculated on the distance from the start of the modal track to the Arrival end (Touchdown	The descent gradient to the Example AI of which is within the optimum range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.	controlled airspace. The FAF is at 2,000ft, which is the platform allitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 2.18° which is close to the optimum range for low noise approaches but is within the acceptable range for	90° turn is taken into consideration. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Rumway 09 approaches. The descent gradient to the FAF is 1.95° which is below the optimum range for low noise approaches but is within the acceptable range for	controlled airspace. The FAF is at 2,000ft, which is the platform altitude for the existing FAF for Runway 09 approaches. The descent gradient to the FAF is 1.76° which is below the optimum
			point) of the Runway.		CDAs defined within ICAO guidance.	CDAs defined within ICAO guidance.	range for low noise approaches but is within the acceptable range for CDAs defined within ICAO guidance.
Group Communities	Impact Noise impact on health and quality of life	Level of Analysis Initial Options Appraisal: Qualitative	Runway 09	Runway 09	Runway 09	Runway 09	Runway 09
			For comparison purposes in the IOA, in terms of potential noise impact, initial quantitive analysis has identified that the PIGOT 'do nothing' scenario for Runway 09 is estimated to overfly:	From 7,000ft, this option is estimated to overfly approximately 16,450 households with an approximate population of 30,600. Taking account of 1,850 planned property developments, this option is estimated to overfly and impact a total population of 34,000. The potential noise	From 7,000ft, this option is estimated to overfly approximately 19,650 households with an approximate population of 35,600. Taking account of 2,650 planned property developments, this option is estimated to overfly and impact a total cooulation of 40,400. The optential noise	From 7,000ff, this option is estimated to overfly approximately 19,850 households with an approximate population of 36,300. Taking account of 3,650 planned property developments, this option is estimated to overfly and impact a tatle population of 43,400. The potential poise	From 7,000ft, this option is estimated to overfly approximately 24,900 households with an approximate population of 44,600. Taking account of 4,300 planned property developments, this option is estimated to overfly and immart a tatel nonulation of 52 300. The notential poise
			From 7,000ft: is estimated to overfly approximately 136,800 households with an approximate population of 265,200. Taking account of 24,800 planned property developments, this option is estimated to overfly and	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 7,800 households with an	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 10,500 households with an	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 11,200 households with an	impact on health and quality of life from 7,000ft is assessed as likely to affect fewer people than the 'do nothing' scenario. From 4,000ft, this option is estimated to overfly approximately 16,150 households with an
			impact a total population of 313,300. From 4,000ff: is estimated to overfly approximately 45,350 households with an approximate population of 82,000. Taking account of 4,500	approximate population of 14,500. Taking account of 350 planned property developments, this option is estimated to overfly and impact a total population of 15,100. The potential noise impact on health and audity of life from 4.000f is assessed as likely to affect fever people	approximate population of 18,400. Taking account of 1,150 planned property developments, this option is estimated to overfly and impact a total population of 20,400. The potential noise impact on health and auditive filte from 4.000th is assessed as likely to affect fever people	approximate population of 20,300. Taking account of 2,300 planned property developments, this option is estimated to overfly and impact a total population of 24,500. The potential noise impact on health and audity of life from 4.000f is assessed as likely to affect fever people	approximate population of 28,400. Taking account of 2,800 planned property developments, this option is estimated to overfly and impact a total population of 33,300. The potential noise impact on health and auality of life from 4,000ft is assessed as likely to affect fever people
			planned property development, this option is estimated to overfly and impact a total population of 90,100.	than the 'do nothing' scenario.	than the 'do nothing' scenario.	douiny of the norm 4,000 is assessed as likely to diffect rever people than the 'do nothing' scenario.	than the 'do nothing' scenario.
Communities A	Air Quality	Initial Options Appraisal: Qualitative	No change to air quality is predicted in maintaining baseline conditions. The majority of the extant procedure involves overflight above 1,000ft,	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is	There is not likely to be a change in aviation emissions by location below 1,000 feet. As per CAP1616, para B72 a full Air Quality Assessment is
			other than the areas in the immediate vicinity or final approach to EMA. In terms of AQWAs, the PIGOT 'do nothing' scenario overflies 7 AQWAs. Overflight of these AQWAs occurs when the aircraft is above 1.000ft.	deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	deemed not required. This option overflies no AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.	deemed not required. This option overflies two AQMAs. When compared to the 'do nothing' scenario, this option is deemed to be beneficial as it overflies fewer AQMAs.
Wider Society C	Greenhouse Gas impact	Initial Options Appraisal: Qualitative		AQMAS.	AQMAS.	AQMAS.	AQIVIAS.
			Current arrival options do not facilitate continuous descent approaches to EMA from 7,000ft. It must be noted that the exact track length flown by aircraft may vary slightly due to the nature of radar vectoring. Existing procedures do not support outpinal aircraft performance and therefore	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required	This option has been designed to support continuous descent approaches to EMA. An element of radar vectoring may still be required
			are predicated to have greater environmental impact compared to the proposed options. Within Stage 2 of the CAP1616 process, there is no requirement for a change sponsor to conduct quantitative fuel burn or	to manage aircraft separation distances. The track mileage of this option is 50.72 km (27.38 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is	to manage aircraft separation distances. The track mileage of this option is \$4,33 km (29.33 nm). When compared to the 'do nothing' scenario, this option is shorter and is therefore expected to result in a reduction in greenhouse gas emissions compared to the 'do nothing' scenario and is	to manage aircraft separation distances. The track mileage of this option is 59.40 km (32.07 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is	to manage aircraft separation distances. The track mileage of this option is $64.07$ km (34.60 nm). When compared to the 'do nothing' scenario, this option is longer and is therefore expected to result in an increase in greenhouse gas emissions compared to the 'do nothing' scenario and is
			emissions analysis; this will be conducted in Stage 3. In order to make a comparison, track mileage is used as a proxy using the theory that the shorter the track mileage, the less greenhouse gases are emitted. With regards to the 'do nothing' scenario track lengths, the PIGOT 27 'do	deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.	deemed to be of environmental dis-benefit. More in-depth analysis will take place at Stage 3 to confirm the exact volumes of greenhouse gases released.
			nothing' scenario track is 57.36km (30.97nm) long.				
Wider Society C	Capacity and resilience	Initial Options Appraisal: Qualitative	Retaining estant procedures would maintain current capacity; however, due to the reliance upon ground-based navigational aids, resilience could be significantly affected, following the removal of the DTY DVOR	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based	The introduction of PBN routes is expected to deliver benefits by increasing airspace capacity which subsequently leads to more predictable flight paths and fewer delays (both in the air and on the ground). The reduction of the reliance on outdated ground based
Wider Society T	Tranquillity	Initial Options Appraisal:	and the requirement to adopt PBN procedures as part of the FASI-N Programme.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.	ground). The reduction of the reliance on outdated ground based navigational aids will significantly increase operational resilience through the introduction of PBN.
		Qualitative	As per CAP1616, Appendix B, para B76, change sponsors are required to consider Tranquillity with specific reference to AONBs and National Parks only, unless other areas have been identified through community engagement. No additional specific areas were identified by community	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	and is therefore comparable to the 'do nothing' scenario and assessed as	or National Parks), nor any identified through community engagement and is therefore comparable to the 'do nothing' scenario and assessed as	
Wider Society B	Biodiversity	Initial Options Appraisal:	engagement. The 'do nothing' scenario does not overfly any AONBs or National Parks.	neutral.	neutral.	neutral.	neutral.
		Qualitative	The change sponsor has mapped the designated Sites of Special Scientific Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA		CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states	CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B, para B80, states
			MAGiC Map. CAP1616, Appendix B, para B74, states that because of dispersion and mixing, there is unlikely to be an impact on local air quality from aircraft above 1,000ft. Furthermore, CAP1616, Appendix B,	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific	that in general, airspace change proposals will not have an impact on biodiversity as they do not involve ground-based infrastructure. The change sponsor has mapped the designated Sites of Special Scientific
			para 880, states that in general, airspace change proposal will not have an impact on biodiversity as they do not involve ground-based infrastructure. However, the change sponsor acknowledges that any	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGIC Map and acknowledges that any potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP	Interest (SSSIs), Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and RAMSAR sites, as identified on the DEFRA MAGiC Map and acknowledges that any potential impact to the
			potential impact to the designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EVA will be assessed in stage 3 or the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in stage 3 or the ACP process by Subject Matter Experts.	designated sites around EMA will be assessed in Stage 3 of the ACP process by Subject Matter Experts.
General Aviation A	Access	Initial Options Appraisal: Qualitative		Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letters	Impact to General Aviation access is anticipated to be minimal as a consequence of this ACP. All Visual Reference Points and existing Letter
			No change to existing airspace arrangements. Any General Aviation users of airspace in the vicinity of EMA will maintain their current level of access under extant operational arrangements.	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3	of Agreement pertaining to General Aviation access will be reviewed and updated (where applicable) prior to implementation to ensure their continued validity. Airspace classification requirements and any additional airspace requirements will be reviewed as part of Stage 3
General Aviation / E	Economic impact from	Initial Options Appraisal:		activities. The introduction of PBN is expected to deliver benefits by increasing	activities. The introduction of PBN is expected to deliver benefits by increasing	activities. The introduction of PBN is expected to deliver benefits by increasing	activities. The introduction of PBN is expected to deliver benefits by increasing
commercial airlines in c	increased effective capacity	Qualitative	No increase to effective capacity anticipated for continued use of extant procedures, therefore no economic benefit for GA/airlines.	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	Ine introduction or PDIV is expected to deliver benefits by increasing airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air	airspace capacity which in turn will lead to more predictable flight paths and fewer delays (both in the air or on the ground). This is expected to facilitate economic benefit by potentially increasing the frequency of air
	Fuel burn	Initial Options Appraisal:		transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.	transport movements, increasing passenger numbers and increasing cargo tonnage carried.
commercial airlines		Qualitative	The existing EMA procedures for arrivals do not facilitate continuous descent operations. Within Stage 2 of the CAP1616 process, there is no	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous descent operations, reducing the overall amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage	This option supports continuous descent operations, reducing the overal amount of fuel burnt. There is no requirement within Stage 2 of the CAP1616 process to quantify fuel burn, this will be conducted in Stage
			requirement for a change sponsor to conduct quantitative fuel burn analysis. This will be covered in Stage 3. In order to make a comparison in Stage 2, track mileage is used, based on the theory that the shorter the	<ol> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 50.72 km (27.38 nm) long. When compared to the 'do nothing'</li> </ol>	<ol> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 54.33 km (29.33 nm) long. When compared to the 'do nothing'</li> </ol>	<ol> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option, it is 59.40 km (32.07 nm) long. When compared to the 'do nothing'</li> </ol>	<ol> <li>Therefore, to enable a comparison, the logic applied is that the shorter the track length, the less fuel is burnt. With regards to this option it is 64.07 km (34.60 nm) long. When compared to the 'do nothing'</li> </ol>
			track mileage, the less greenhouse gases are emitted. In the case of the 'do nothing' baseline scenario, the track length is 57.36km (30.97nm).	scenario, this option is shorter and at this stage, it is assumed that it will be of economic of economic benefit as less fuel will be burnt. More in- depth analysis will be carried out in Stage 3 to confirm.	scenario, this option is shorter and at this stage, it is assumed that it will be of economic benefit as less fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.	scenario, this option is longer and at this stage, it is assumed that it will be of economic dis-benefit as more fuel will be burnt. More in-depth analysis will be carried out in Stage 3 to confirm.
Commercial airlines T	Training costs	Initial Options Appraisal: Qualitative	Standard training would be applicable for existing procedures which	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a	It is anticipated that no extra pilot/crew training will be required to enable pilots to fly the new PBN procedures as PBN has become a
Commercial airlines (	Other costs	Initial Options Appraisal:	would be practised by crews through existing simulator exercises.	common navigation standard across the world.	common navigation standard across the world.	common navigation standard across the world.	common navigation standard across the world.
		Qualitative	It is not proportionate at this stage for EMA to assess potential other costs for commercial airlines - there may be costs associated with maintaining legacy systems to continue flying conventional navigation but there are	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased piloh hire costs versus training etc. It is not	Other costs to commercial airlines may include updates to Flight Management Systems (FMS), navigation databases and operating procedures, increased pilot hire costs versus training etc. It is not
Airport / Air II	Infrastructure costs	Initial Options Appraisal:	too many variables (e.g. aircraft types, on-board system capability etc.) to consider these effectively.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.	proportionate at this stage of the ACP for EMA to assess the 'other costs' to commercial airlines of flying PBN procedures.
navigation service provider		Qualitative	No additional infrastructure is required at EMA to maintain estant conventional procedures; however, maintaining accessibility to current ground-based equipment (operated by NERL) may become prohibitively	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is required as the introduction of PBN reduces the reliance on ground infrastructure.	There are no expected additional infrastructure costs. All options relate to the implementation of PBN and no additional infrastructure is requires as the introduction of PBN reduces the reliance on ground infrastructure.
A*	Onemi	land O r	expensive should a CAP1781 RNAV substitution not be implemented prior to the proposed removal date.	as the introduction of this reduces the reliance on ground introstructure, in particular ground-based navigation aids are no longer needed.	as the introduction of this reduces the reliance on ground intrastructure, in particular ground-based navigation aids are no longer needed.	as the introduction or tak reduces the reliance on ground intrastructure, in particular ground-based navigation aids are no longer needed.	as the introduction of the reduces the reliance on ground intrastructure in particular ground-based navigation aids are no longer needed.
Airport / Air C navigation service provider	Operational costs	Initial Options Appraisal: Qualitative	No change to operational costs is attributable to maintaining the extant procedures.		Some operational costs are anticipated with respect to the implementation of new procedures and training of air traffic controlling staff at EMA; however, these cannot be identified at this stage of the ACP		
Airport / Air D	Deployment costs	Initial Options Appraisal: Qualitative		process. Some deployment costs are anticipated with respect to the implementation of the new departure procedurer and training of nir.	process. Some deployment costs are anticipated with respect to the implementation of the new departure procedurer and training of nic	process. Some deployment costs are anticipated with respect to the implementation of the new departure procedurer and training of nic	process. Some deployment costs are anticipated with respect to the
provider Safety Assessment S	Safety Assessment		No deployment costs applicable to extant procedures.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of the ACP process.	implementation of the new departure procedures and training of air traffic controllers; however, these cannot be identified at this stage of th ACP process.
Suvery Assessment S	Junery Assessment	Initial Options Appraisal: Qualitative	The 'do nothing' scenario assumes that current operations at EMA are	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the south	the potential for confliction with the new EMA proposed SIDs to the south	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the south	A hazard relating to arrivals from the south was identified where there is the potential for confliction with the new EMA proposed SIDs to the sout
			safe including use of the extant conventional procedures. Following the removal of ground-based navigational aids, aircraft arriving at EMA would continuously require radar vectoring (should CAP1781 or a	and south west causing a loss of horizontal and/or vertical separation. This would require ATC tractical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and south west causing a loss of horizontal and/or vertical separation. This would require ATC tractical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and south west causing a loss of horizontal and/or vertical separation. This would require ATC tractical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.	and south west causing a loss of horizontal and/or vertical separation. This would require ATC tractical intervention and could result in an increase in ATCO workload. This hazard could be further mitigated through the design process or procedurally if required.
			commercial agreement to maintain the existing navigational aid not be implemented), resulting in a possible increase in ATCO workload.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.	Further assessment will be conducted during Stages 3 and 4 of the CAP1616 process to confirm the exact nature of all hazards and mitigations.
		Summary of Analysis	9	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:	When compared to the 'do nothing' scenario, this option performs:
				Better in the following areas: • Noise impact from 4,000ft • Noise impact from 7,000ft • Greenhouse gas emissions	Warse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn	Worse in the following areas: - Greenhouse gas emissions - Fuel burn
			The 'do nothing' scenario in relation to this ACP is not a viable option as it does not provide a sustainable solution in terms of airspace modernisation. The existing arrival arrangements do not enable continuous desent operations fram 7.000H, which could lead to a	- Fuel burn - Air Quality	Better in the following areas: - Noise impact from 4,000H - Noise impact from 7,000H	Better in the following areas: - Noise impact from 4,000ft - Noise impact from 7,000ft	Better in the following areas: - Noise impact from 4,000t - Noise impact from 7,000t
			greater volume of fuel burn, emissions and noise at lower levels. In terms of Tranquillity, Biodiversity, General Aviation access and Economic impact, the 'do nothing' baseline provides minimal/no change to today's	Equal/neutral in terms of the remaining criteria because there is no change when compared to today's operation.	• Air Quality Equal/neutral in terms of the remaining criteria because there is no	- Air Quality Equal/neutral in terms of the remaining criteria because there is no	Air Quality Equal/neutral in terms of the remaining criteria because there is no
			operations. Furthermore, there are very limited costs incurred as a result of this scenario. From a safety perspective, it is assumed that current EMA operations are safe. It is acknowledged that ATCO workload is likely to	analysis will be required in Stage 3 and 4 of the CAP 1616 process to	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	change when compared to today's operation. At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather	change when compared to today's operation, At this time, it is not possible to fully determine the safety implications of this specific option as this option has been assessed in isolation rather
			increase due to the enduring requirement for radar vectoring.	determine the cumulative impact of this option when compared to all the other options.	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the	than as a set of design options as part of a wider system. Additional analysis will be required in Stage 3 and 4 of the CAP 1616 process to determine the cumulative impact of this option when compared to all the
				Based on IOA Shortlist Assessment methodology, Option 15 has been	other options. Based on IOA Shortlist Assessment methodology, Option 16 has been	other options. Based on IOA Shortlist Assessment methodology, Option 21 has been	other options. Based on IOA Shortlist Assessment methodology, Option 22 has been
			IOA Shortlist Assessment option shortlist classification for stage 3	Neemed The PREFERRED option within this design envelope. PREFERRED	deemed the FAVOURABLE option within this design envelope.	deemed the ACCEPTABLE option within this design envelope. ACCEPTABLE	deemed the REJECTED option within this design envelope.

