

**M42 Junction 6 Improvement  
Scheme Number TR010027  
Volume 6  
6.3 Environmental Statement  
Appendix 4.2 EAST Assessment**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed  
Forms and Procedure) Regulations 2009

January 2019

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

**M42 Junction 6 Improvement  
Development Consent Order 202[- ]**

---

**6.3 Environmental Statement  
Appendix 4.2 EAST Assessment**

---

<b>Regulation Number</b>	Regulation 5(2)(a)
<b>Planning Inspectorate Scheme Reference</b>	TR010027
<b>Application Document Reference</b>	6.3
<b>Author</b>	M42 Junction 6 Improvement Project Team and Highways England

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
1	January 2019	DCO Application

## Appendix 4.2 – EAST Assessment

**East Assessment – Strategic Impact (Page 1)**

Option Theme	North & South Junction		South Junction Only									Interchange	North Junction Only	Do-Minimum/Something Options					
	Option	1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15
Strategic	Identified Problems & Objectives	The scheme objectives have been identified as: <ul style="list-style-type: none"><li>• Provide additional junction capacity at M42 J6 that will provide high quality access to the key stakeholder interests and alleviate the congestion problems that currently exist, thereby unlocking additional investment and further economic growth</li><li>• Enhance accessibility between the key assets in the area and ensure that access to the proposed new High Speed 2 (HS2) station is not compromised</li><li>• Contribute positively to the effective and safe operation of the wider strategic corridor/ through route</li><li>• Deliver a design solution that will not compromise or undermine longer term options. In providing the increased junction capacity, there is a need to recognise that longer term improvements to the Birmingham Motorway Box may also be needed</li><li>• Improve journey reliability and provide added resilience to the strategic network</li><li>• Contribute to reduction in the impact on the wider environment.</li></ul>																	
	Scale of Impact	2 - Minor impact (would have a modest overall impact)	3 - Moderate Impact (would have a modest overall impact)	3 - Moderate Impact (would have a modest overall impact)	3 - Moderate Impact (would have a modest overall impact)	2 - Very small overall impact (would have a very small positive impact, possibly with undesirable consequences)				3 - Moderate Impact (would have a modest overall impact)	2- Very small overall impact (would have a very small positive impact, possibly with undesirable consequences)		4 - Significant impact (expected to significantly alleviate problem)	3 - Moderate Impact (Expected to have a reasonably significant impact on the problem identified)	2 - Minor impact (would have a modest overall impact)		4 - Significant impact (expected to significantly alleviate problem)	2 - Minor impact (would have a modest overall impact)	
	Scale of impact - Comments	Can partially solve the identified problems but has some undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.	Can partially solve the identified problems but has undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.	Can partially solve the identified problems but has some undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.	Can partially solve the identified problems but has some undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.	Can partially solve the identified problems but has undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.				Can partially solve the identified problems but has some undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.	Can partially solve the identified problems but has undesirable impacts due to the scale of the footprint affecting the environment and properties. Does not allow for growth on the M42.		Can solve the identified problems but has some undesirable impacts due to the footprint affecting the environment and properties.	Can solve the identified problems with low impact on the environment.	Will solve the short term growth problem. Unlikely to accommodate growth from HS2 & UKC. Unlikely to be able to offer a high level of service with high level of aspirational growth		Alleviates problems along M42. Marginally improvement to performance of junction. Likely that benefits are derived from widening rather than junction improvements.	Will solve the short term growth problem. Unlikely to accommodate growth from HS2 & UKC. Unlikely to be able to offer a high level of service with high level of aspirational growth.	
	Fit with wider transport and government objectives	The Government will deliver national networks that meet the country's long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means: <ul style="list-style-type: none"><li>• Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs.</li><li>• Networks which support and improve journey quality, reliability and safety.</li><li>• Networks which support the delivery of environmental goals and the move to a low carbon economy.</li><li>• Networks which join up our communities and link effectively to each other.</li></ul> For this scheme this means that it needs to: <ul style="list-style-type: none"><li>• Recognise the strategic importance of the M42 as it forms part of the Trans-European road network.</li><li>• Facilitate the delivery of HS2</li><li>• Facilitate access to National Exhibition Centre (NEC)</li><li>• Facilitate access to Birmingham Airport.</li></ul>																	
	Key uncertainties	HS2 - <b>Proposed</b> High Speed link between London and Crewe. These schemes meet the requirements to facilitate HS2 if it goes ahead. The link to HS2 can be removed if scheme does not progress. UKC - Proposed development for jobs and housing. These schemes meet the requirements to facilitate UKC if it goes ahead. The link to UKC can be removed if scheme does not progress. Birmingham Airport & National Exhibition Centre - Plans for growth of these two facilities. All options allow for growth should it occur. M42 Motorway Service Area - Proposals to construct a new MSA to the south of M42 J6. All options do not prejudice this development.													HS2 - Proposed High Speed link between London and Crewe. These schemes do not meet the requirements to facilitate HS2 if it goes ahead. UKC - Proposed development for jobs and housing. These schemes do not meet the requirements to facilitate UKC if it goes ahead. Birmingham Airport & National Exhibition Centre - Plans for growth of these two facilities. These options will not cater for additional growth should it occur. M42 Motorway Service Area - Proposals to construct a new MSA to the south of M42 J6. All options do not prejudice this development.				

**East Assessment – Strategic Impact (Page 2)**

Option Theme	North & South Junction		South Junction Only									Interchange	North Junction Only	Do-Minimum/Something Options																			
	Option	1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15														
Strategic	Wider transport and government objectives - Comments	3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2. Removes free flow lane to Airport & Birmingham International Rail Station, adds additional junctions for access from south. Facilitates NEC access for M42north traffic, detrimental for M42 south traffic due to additional junction.		3 - Reasonable fit Does not improve the corridor capacity of the M42. Reduces capacity of mainline due to additional off-slips and associated weaving between J6 & Southern roundabout. Link roads improve access to Airport & HS2. Detrimental for egressing NEC traffic to M42southbound.		3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2. Detrimental to M42 south traffic for Airport, Birmingham International Rail Station & NEC as it introduces additional junction(s). Removes free flow lane to Airport & Birmingham International Rail Station.		2 - Low fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2. Detrimental to Airport, Birmingham International Rail Station, NEC & UKC as it introduces additional junction. Link to west does not benefit to Airport due to length of diversion.		3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2 and Airport. Detrimental to M42 south traffic for NEC as it introduces an additional junction.		3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2. Detrimental to M42 south traffic for Airport & NEC as it introduces additional junction(s). Removes free flow lane to Airport & Birmingham International Rail Station.		2 - Low fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2. Detrimental to NEC - introduces a new junction. Removes free flow lane BIA & Rail Station, adds new junction& uses local roads for access from south.		3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2, NEC/UKC. Detrimental to M42 traffic for BIA, NEC & Birmingham Int. Rail Station as it introduces additional junctions and removes free flow lane from A45E.		3 - Reasonable fit. Does not improve the corridor capacity of the M42. Facilitates access to HS2, NEC/UKC. Detrimental to M42 traffic for BIA, NEC & Birmingham Int. Rail Station as it introduces additional junctions and removes free flow lane from A45E.		4 - Good fit. Improves the corridor capacity of the M42. Facilitates access to HS2, Airport, Birmingham International Rail Station and UKC. Neutral for NEC as it facilitates some movements but is detrimental to A45west approach and egress to M42 & A45E.		2 - Low fit. Does not improve the corridor capacity of the M42. Does not remove strategic turning movements from J6. Facilitates access to HS2 and NEC. Provides good alternative access to Airport & Birmingham International Rail Station from M42N.		1 - Poor fit. Does not improve the corridor capacity of the M42. Does not facilitate access to any Stakeholder er. Facilitates access to proposed MSA.		1 - Poor fit. Does not improve the corridor capacity of the M42. Does not facilitates access to HS2. UKC, Airport & Birmingham International Rail Station) to M42northbound. Detrimental for NEC traffic. Detrimental for National Motorcycle Museum.		4 - Good fit. Improves capacity of M42. Facilitates access to HS2, UKC, Airport & Birmingham International Rail Station. Detrimental to National Motorcycle Museum.		1 - Poor fit. Does not improve the corridor capacity of the M42. Does not facilitate access to HS2. Does not improve situation for any stakeholder.		1 - Poor fit. Does not improve the corridor capacity of the M42. Does not facilitate access to HS2. Facilitates egress from A45west (Airport & Birmingham International Rail Station) to M42northbound.	
	Fit with other objectives	Common policies and aims of Solihull MBC, North Warwickshire DC, West Midlands LEP and West Midlands Local Integrated Transport Authority (Midlands Connect) are: • To facilitate the growth of the economy and create jobs. • To improve connectivity. • To optimise assets. • To strengthen network resilience by avoiding or reducing congestion and disruption.																															
	Fit with other objectives - Comments	4 - Good fit Facilitates growth, improves connectivity and strengthens resilience. Optimises assets by facilitating multi-modal trips		4 - Good fit Facilitates growth, improves connectivity and strengthens resilience. Optimises assets by facilitating multi-modal trips										4 - Good fit Facilitates growth, improves connectivity and strengthens resilience. Optimises assets by facilitating multi-modal trips		4 - Good fit Facilitates growth, improves connectivity and strengthens resilience. Optimises assets by facilitating multi-modal trips		1 - Poor fit Does not facilitate growth, does not improves connectivity, does not optimise assets and does not strengthens resilience.		3 - Reasonable fit Facilitates growth but does not improve connectivity. Small benefit to optimise assets and resilience		1 - Poor fit Does not facilitate growth, does not improves connectivity, does not optimise assets and does not strengthens resilience.											
	Degree of consensus over outcomes?	A workshop has been undertaken with representatives from Birmingham Airport, HS2, NEC and Solihull MBC. This was done with 5 options from 3 themes (North & South Junctions, South Junction Only, and the Interchange).													No opinions have been sought from Stakeholders on these options																		
	Degree of consensus over outcomes? - Comments	None.																															



**East Assessment – Economic Impact (Page 1)**

Option Theme		North & South Junction		South Junction								Interchange	North Junction	Do-Minimum/Something Options					
Option Number		1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15
Economic Growth	Connectivity	These options have two additional junctions as well as J6 for M42 traffic to travel through, slowing average speeds. The severing of the free flow lane to the Airport and Birmingham International will also impose a delay to traffic. However, the average journey length will be marginally shorter.	The majority of traffic benefits from this layout. The A45E & W to M42S will have an additional junction to negotiate. For this option it is likely that both the distance and journey time will be significantly beneficial, mainly due to the additional diverge links on the M42.	No change for M42N traffic. M42S traffic will have an additional junction to travel through, slowing average speeds. The severing of the free flow lane to the Airport and Birmingham International will also impose a delay to traffic. Overall, there is likely to be a small benefit in both journey time and distance.		The link South Junction to A45W will benefit A45 traffic but not the Stakeholders in the vicinity of J6. Stakeholders will continue to use the existing J6, traffic to/from M42S will have an additional junction to travel through. Overall, there is likely to be a small disbenefit in journey time but a small benefit in journey distance.	The majority of traffic benefits from this layout. The A45E & W to M42S will have an additional junction to negotiate, slowing average journey times. For this option it is likely that both the distance and journey time will have a small benefit.	M42S traffic will have an additional junction to travel through, slowing average speeds. The severing of the free flow lane to the Airport and Birmingham International will also impose a delay to traffic. Overall, there is likely to be a small benefit in both journey time and distance.	M42S traffic will have an additional junction to travel through, slowing average speeds. M42S traffic will need to join with the local road network traffic along Catherine de Barnes Lane. The severing of the free flow lane to the Airport and B'ham International will impose a delay to traffic. Overall, there is likely to be a small benefit in both journey time and distance.		M42S traffic will have an additional junction to travel through, slowing average speeds. The severing of the free flow lane to the Airport and Birmingham International will also impose a delay to traffic. Overall, there is likely to be a small benefit in both journey time and distance.	Journey times will be beneficial with the free flow links. There will be a disbenefit in connectivity for traffic leaving the NEC.	M42N traffic to the A45E & W will need to travel through an additional junction, slowing average travel times. M42S traffic unaffected. Improved connectivity to HS2, UKC, NEC from the north. Airport and Birmingham International Rail Station have an alternative connection from M42N. This option does not relieve J6 of strategic traffic.	No change	No change	Improved capacity on main line will and free flow left turn links will be significantly beneficial to journey times.	No change	The free flow left turn lane from A45W to M42N will have a small benefit to journey times	
	Reliability	The dispersal of flows on the new, high standard links should help to improve reliability of journey time. However, the increased number of junctions will increase the probability of collisions disrupting the network.	The dispersal of flows on the new, high standard links should help to improve reliability of journey time. However, the increased number of junctions will increase the probability of collisions disrupting the network.	Additional diverge slips on M42 will increase weaving on M42, leading to increased probability of collisions occurring.	As above		Only M42S traffic from the Airport, B'ham International & NEC have an additional junction to travel through.	As above		The introduction of local network traffic from Catherine de Barnes Lane will increase the probability of collisions disrupting the network.	As above	Improved capacity on main line will improve reliability. Removing conflicts at junction by increasing free flow links will significantly improve reliability.	Journey reliability will be improved for local Stakeholders.	No change	No change	Improved capacity on main line and free flow left turn links will improve reliability.	No change	The free flow left turn lane from A45W to M42N will be beneficial to reliability for this movement	
	Wider Economic Impacts	The scale of the wider economic impacts will be assessed during Stage 3.																	

East Assessment – Economic Impact (Page 2)

Option Theme		North & South Junction		South Junction								Interchange	North Junction	Do-Minimum/Something Options						
Option Number		1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15	
Economic Growth	Resilience	The "North & South Junction" options add resilience to the network by providing a parallel route to the M42 for 2km to the south of J6 and 1km to the north of J6. It provides an alternative link to Birmingham Airport, HS2 and UKC.		The "South Junction Only" options add resilience to the network by providing a parallel route to the M42 for 2km to the south of J6. They provide an alternative link to Birmingham Airport, HS2, UKC and the wider local network.									Good resilience as all movements are isolated due to free flow links.	Adds resilience by providing a parallel route to the M42 1km north of J6. North Jn provides alternative link to Airport, HS2, UKC and the wider local network.	These options do not alter the resilience of the network.					
	Delivery of Housing	On the assumption that the majority of housing growth will be delivered within UKC, these options facilitate the delivery of housing growth with the Northern Jn providing direct access.		On the assumption that the majority of housing growth will be delivered within UKC, all the "South Junction Only" options do not prejudice the delivery of housing growth.									On the assumption that the majority of housing growth will be delivered within UKC, delivery of housing growth is facilitated.		The proposed UKC development has a housing element within its masterplan. All options do not prejudice the delivery of UKC, however, the scale of developer led highway network improvements would be greater with these options in order to access the site.					
Carbon emissions	Activity (change in vehicle kms)	Indicative modelling shows that there will be a <b>marginal benefit</b> due to an overall decrease in vehicle km.		Indicative modelling shows that there will be a <b>marginal benefit</b> due to an overall decrease in vehicle km.									No change	Indicative modelling shows a marginal benefit due to an overall decrease in vehicle km.	No change					
	Embedded	All these proposals will generate embedded carbon due to the construction work. The amount will vary according to the amount of construction in the scheme. Relative to other options this one is rated High.																		
		Relative to other options this one is rated High.		Relative to other options this one is rated Medium.									Relative to other options rated High.	Relative to others, Medium.	Relative to other options this one is rated Low.		Relative to other options, rated Medium.	Relative to other options this one is rated Low.		
	Switch to low carbon fuel	Alterations to the network are not anticipated to lead to a change in use of low carbon fuel.																		
	Efficiency (fuel per veh/km)	No material impact																		
Overall effect	Operationally there is no real differentiator between the options. However for embedded carbon, the more construction involved, the higher the overall embedded carbon will be.																			

**East Assessment – Economic Impact (Page 3)**

Option Theme		North & South Junction		South Junction								Interchange	North Junction	Do-Minimum/Something Options						
Option Number		1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15	
Socio-distributional impacts and the regions	Severance	Where a Public Right of Way (PRoW) crosses, it is likely that provision can be made for these to be temporarily diverted during construction and reinstated after scheme opening.											Crosses PRoW at 2 locations	No impacts on PRoW	No impacts on PRoW					
		Crosses PRoW at 8 locations	Crosses PRoW at 13 locations	Crosses PRoW at 12 locations	Crosses PRoW at 5 locations	Crosses PRoW at 11 locations	Crosses PRoW at 12 locations													
	Accidents	The increased number of junctions and associated stop lines / conflict points will increase the probability of a collision. These will be designed to current standards so this risk is minimised. There is likely to be a reduction in collisions due to the reduction in congestion.											The free flow lanes will reduce the number of stop lines and conflict points so should reduce the probability of a collision.	The increased number of junctions and associated stop lines will increase the probability of a collision.	Increasing the number of lanes on the gyratory increases the probability of collision due to drivers moving across lanes; especially traffic for NEC & airport who will not be regular users.	Access to the National Motorcycle Museum is severely compromised with this option leading to the potential for vehicles to make an unpredictable manoeuvre.	The potential safety impacts of 5-lane arrangement is not known at this stage.	Driver confusion over the layout may lead to an increased number of collisions.	Movements from A45W to M42 N are removed from signalisation. However these movements will merge with M42 northbound slip road traffic at a higher speed.	
	User Benefits	The User Benefits have not been assessed at this stage but initial model outputs indicate that there will be the following time travel saving:												Substantial benefit	Significant disbenefit	Small benefit	Small benefit	Significant benefit	Small benefit	Small disbenefit
		Substantial disbenefit	Significant benefit																	
	Personal Affordability	Has no significant impact.																		
	Regeneration	Regeneration in the area is led by UKC East & West. All these options facilitate the development of these sites.														Regeneration in the area is led by UKC East & West. All these options will not facilitate the development of these sites due to the lack of increased capacity in the network.				
Regional Imbalance	These schemes on their own do not address regional imbalance. However, as they facilitate access to UKC and HS2, they will help counter regional imbalance.														These schemes do not help to counterbalance regional imbalance.					



**East Assessment – Economic Impact (Page 4)**

Option Theme		North & South Junction		South Junction								Interchange	North Junction	Do-Minimum/Something Options										
Option Number		1D	1E	2A	2B	2D	2G	2H	2J	2K	2L	2M	3D	4B	5/5A	7	11	14	15					
Local environment	Air Quality	There is potential for adverse impact on AQ with the introduction on new slips near residential areas and a SSSI within 200m		There is potential for adverse impact on AQ with the introduction on new slips near residential areas and a SSSI within 200m			There is potential for adverse impact on AQ with the introduction on new slips near residential areas		There is potential for adverse impact on AQ with the introduction on new slips near residential areas and a SSSI within 200m					There is potential for adverse impacts on AQ with residential properties within 200m of the junction.	There is potential for adverse impacts on AQ with receptors within 200m.	Relatively small impacts from the works	There is potential for adverse impacts on AQ with residential properties within 200m of the junction	There is potential for adverse impacts on AQ with receptors within 200m of the proposed widening	Relatively small impacts from the works					
	Noise	This Option does not reduce absolute disturbance from noise with the introduction of new slips near residential areas.																						
		There are 3 noise Important Areas in proximity to this option		There are 2 noise Important Areas in proximity to this option.		1 noise Important Area in proximity.	5 Noise Important Areas in proximity.	4 noise Important Areas in proximity.	There is 1 noise Important Area in proximity to this option.				2 noise Important Areas in proximity.	No noise Important Areas in proximity.	Relatively small impacts from the works. There are two noise Important Areas in proximity to this option	There is potential for adverse impacts on noise with residential properties within 200m of the junction. 2 NIA's in proximity	Does not reduce absolute disturbance from noise. 3 Noise Important Areas in proximity. Potential for mitigation and in places improvement through acoustic barriers/low noise surfacing.	Relatively small impacts from the works. There are 2 noise Important Areas in proximity to this option						
	There will be some potential for mitigation and in places improvement through acoustic barriers/low noise surfacing.											The majority of the impact likely be limited to the interchange area.	The majority of the impact likely be limited to the interchange area.											
	Natural Environment, Heritage & Landscape	This option requires a large area of land take with associated adverse impacts on land use, ecology, archaeology and landscape. No statutory designated areas are affected by land take.												This option has a small land take which reduces potential impacts on ecology, archaeology, land use and landscape		All on junction improvements. Small impacts from the works	This option has a small land take which reduces potential impacts on ecology, archaeology, land use and landscape.	Small land take as involves the alteration of signage within and outside the B'ham Box Network to encourage drivers to take other routes.	This option has a small land take which reduces potential impacts on ecology, archaeology, land use and landscape.					
			Some cumulative impacts with the MSA, including Asbury Copse		This is likely to be slightly less than 2A with a smaller footprint	Southern Junction positioned to reduce impact on ancient woodland	This scheme has a particularly larger land take requirement	The impacts are likely to be greater than 2A with a larger land take to the east	Likely to be slightly less than 2A. Requires demolition of residential properties	This option has a smaller land take by utilising Catherine de Barnes Road.	Southern Junction positioned to reduce impact on ancient woodland.													
Streetscape & Urban Environment	Not Applicable.																							
Well being	There is not anticipated to be any change to the physical activity in the area; to injury or deaths as the new links and junctions will be to Standards; to crime; to terrorism or to severance. Access to range of goods, services, people, places, should be improved by easing congestion on the trunk road network in the area.												There is not anticipated to be any change to the physical activity in the area; to injury or deaths as the new links and junctions will be to Standards; to crime; to terrorism or to severance.								No change to access to range of goods, services, people, places.			
Expected VFM	The expected VFM has not determined at this stage.																							
	Not done at this stage.																							
Expected VFM Comments	Not done at this stage.																							