

1 ASSESSMENT SUMMARY TABLES

OPTION	DESCRIPTION	MAIN CONSTRAINTS	TOTAL SCHEME COST	
OPTION A	Option A is a depressed concept design that provides a grade separated junction, but not a full interchange, with Links at either existing ground level or in depressed (underpass) sections.	Strategic & local road infrastructure including the M2, M3 Lagan Bridge, A12 Westlink & York Street. Rail infrastructure including Dargan Bridge. Services, drainage and utilities infrastructure. Built development at Corporation Street, Little York Street, Little George's Street, Great George's Street & York Street. Surface level car parks & Brownfield Land with potential for future development.	Excl. Optimism Bias	£ 77.318 M
			Incl. Optimism Bias (16.5%)	£ 90.145 M

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT						ASSESSMENT
ENVIRONMENT	Air Quality	Grade-separation would improve air quality at locations predicted to be at risk of exceeding the annual mean NO ₂ NAQS objective values in 2020, though the M2 to Westlink link would result in a small worsening at Garmoyle Street/Dock Street junction. A small worsening would also be experienced at some residential receptor locations on side roads (North Queen Street, Clifton Street and Frederick Street) due to changes in local traffic flows.	Number of properties (in 2020) where local air quality would be:						Neutral
	Improved (PM ₁₀)	Made Worse (PM ₁₀)	Improved (PM _{2.5})	Made Worse (PM _{2.5})	Improved (NO ₂)	Made Worse (NO ₂)			
	2	5	1	5	39	7			
	Cultural Heritage	No direct impact on known cultural heritage assets. Archaeological remains/assets may be affected during ground investigations, site clearance and road construction, particularly considering that depressed links would require extensive excavation. However, conversely this would reduce adverse impact upon setting of Historic Buildings and Landscapes.	One undesignated archaeology asset (AR13) would experience a Slight Adverse residual effect and two would experience Neutral residual effects (AR11 & AR12). There would be Neutral effects on one designated conservation area (HB28). Four designated Historic Buildings would experience Slight Adverse residual effects (HB01, HB03/HL17, HB04 & HB05/HL19) and one would experience Neutral effects (HB28).						Neutral – Slight Adverse
	Ecology & Nature Conservation	No direct impact upon designated ecological sites. Broad-leaf plantation and dense scrub and amenity grassland would be lost adjacent to the M2 Motorway, M3 off-slips and on-slips, and A12 Westlink. No large tracts of semi-natural habitats or hedgerows would be lost. Area has only limited possibilities for wildlife, though foraging areas for bats may be lost and there is potential for disturbance to breeding birds.	N/A (Qualitative Assessment Only)						Slight Adverse
	Landscape Effects	From a landscape perspective, the depressed links would lead to the partition and fragmentation of open space and the severance of physical connections between adjacent sites. However, the visual impact of depressed links is limited to the introduction of high security fencing and parapets. Therefore, existing roadways with associated vehicles, lighting and signage would remain the visually dominant features.	N/A (Qualitative Assessment Only)						Landscape – Moderate Adverse Visual – Slight Adverse
	Land Use	In terms of property demolition, a Large Adverse effect would be experienced with the loss of commercial & government properties. The residual effect of private land loss would be Slight to Moderate Adverse, and new severance would be created. The direct effect upon planning applications would be largely Neutral. The effect upon development land would be largely Moderate Adverse.		Total		Total		Total	Neutral – Large Adverse
	Properties to be demolished	3	Private land parcels directly affected	9	Planning applications directly affected	3			
Noise & Vibration	Larger long term noise level differences (Do-Something 2034 minus Do-Minimum 2020) are generally confined to the area in close proximity to the junction option. No residential properties are likely to qualify for mitigation under the Noise Insulation Regulations (Northern Ireland) 1995.	Long-term traffic noise changes (daytime period): 1655 properties would experience 'Negligible' noise increases, 8 would experience 'No Change' and 44 would experience 'Negligible' noise decreases. For the non-residential receptors within the study area, all 37 would experience 'Negligible' noise increases.						Neutral – Slight Adverse	
Vehicle Travellers	The incorporation of links at or below ground level would provide the most enclosed and potentially adverse views for vehicle travellers. Whilst reductions in driver stress would be experienced,	N/A (Qualitative Assessment Only)						Views – Moderate Adverse Driver Stress – Slight Beneficial	

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT
		these would be limited by only partial grade-separation of the junction.						
	Road Drainage & the Water Environment	The effect of changes to morphology, routine run-off and pollution spillages to surface waters and groundwater would be largely Neutral. As flood risk is unlikely to increase, the effect is also likely to be Neutral, even though there is the risk of depressed links being inundated during flood events.	N/A (Qualitative Assessment Only)					Neutral
	Geology & Soils	No significant effect is anticipated on designated or non-designated geological areas, superficial or solid geology, the soil environment or areas of mineral extraction. Potential areas of contaminated land may however be encountered at a number of locations throughout the study area, though if encountered would be appropriately remediated.	N/A (Qualitative Assessment Only)					Neutral – Slight Beneficial
SAFETY	Accidents	Although the construction of a new grade-separated interchange will improve the flow of traffic, the application of default accident rates associated with the reduction in speed limits on some sections of the Scheme results in an overall negative impact in terms of road safety.	Growth	Accidents	Deaths	Serious	Slight	<u>Accidents PVB (Central Growth)</u>
			Central	-872.2	-3.8	-62.7	-1,216.1	- £30.161 M
ECONOMY	Transport Economic Efficiency	Development of the strategic road network, contributing to the Government's plan to reduce congestion on trunk roads by targeting bottlenecks and improving access to all areas of the city centre to attract investors and encourage economic growth.	<u>For the Opening Year:</u>		<u>Central Growth:</u>		<u>TEE (Central Growth)</u>	
			Total vehicle-hours saved (2-way)		314,000		Consumer PVB:	£58.022 M
			Peak journey time change (mins/veh)		1.30 mins (average) saved on strategic routes		Business PVB:	£54.225 M
			Off-peak journey time change (mins/veh)		0.45 mins (average) saved on strategic routes		Private PVB:	£0.009 M
							ITR PVB:	- £0.213 M
							Emissions PVB:	£0.119 M
					Government Funding PVC:	£47.211 M		
	Reliability	Improved journey times reliability through the provision of a high quality grade-separated interchange to address acknowledged operational congestion at an existing junction arrangement.	N/A - Qualitative Assessment Only					
ACCESSIBILITY	Pedestrians, Cyclists & Equestrians	Pedestrian movements would generally be improved with partial grade-separation of the junction. Amenity would also be improved as there would be reduced visual intrusion, with strategic links passing under York Street. As such, the significance of effect would be beneficial. The loss of footways in places and increases in proximal traffic would however be an adverse effect. Impact upon cyclist facilities would be largely Neutral, though movements would benefit from changes to the junction. Impact upon equestrian facilities would be Neutral.	N/A (Qualitative Assessment Only)					Slight Adverse – Large Beneficial
	Community Severance	Depressed links would reduce severance with the reduction in strategic traffic interaction, leading to freer flowing conditions (though benefits would be limited by only partial grade-separation). Amenity would also be improved as there would be reduced visual intrusion, with links passing under York Street. The loss of through	N/A (Qualitative Assessment Only)					Slight Adverse – Moderate Beneficial

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT			
		movements onto Great George's Street from Nelson Street would however be an adverse effect. The effect of potentially relocating Northside Park & Ride is likely to be beneficial.									
	Access to Public Transport	The effect on rail infrastructure and provision of services would be Neutral, though connectivity to Yorkgate Rail Station would be improved through partial grade-separation of the junction. Bus services through York Street would also benefit from the junction changes through time savings and efficiency of service. Cessation of through movements onto Great George's Street from Nelson Street would be adverse as a result of change to bus service routes and loss of stops, though Corporation Street would benefit, as Nelson Street services would likely be re-routed onto this road.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
INTEGRATION	Transport Interchange	By improving the standard and layout of the junction, connectivity to Yorkgate Rail Station would be enhanced from York Street (south). The potential for improvements to Dargan Bridge (i.e. widening the single line railway to twin tracks) and the feasibility of providing a new station at Gamble Street would not be adversely affected. Northside Park & Ride would cease to operate as a Park & Ride facility in the long term irrespective of scheme implementation, with alternative facilities potentially being provided at Sandyknowes and/or Templepatrick. Quality Bus Corridors would only be enhanced with scheme implementation.	N/A (Qualitative Assessment Only)					Slight Beneficial			
	Land-Use Planning	Conforms to policies in the RDS, RTS, RSTNTP and BMTP. Specifically the option will help achieve the strategic aims of the RDS (2035) and conforms to its specific regional guidance; to deliver a balanced approach to transport infrastructure. The option will help maximise the potential of the RSTN, using road space more efficiently, improving social inclusion, managing the movement of freight, improve access, manage the movement of people and goods and strengthen gateways for regional competitiveness. The option has also been assessed against the objectives of all relevant planning policy statements and development plans with no significant impacts raised.	N/A (Qualitative Assessment Only)					Moderate Beneficial			
	Other Government Policies	The scheme is supported by proposals contained within the BMTP, which in turn are largely in conformance with other Government Department Objectives for integrated transport within the Belfast Metropolitan Area.	N/A (Qualitative Assessment Only)					Slight Beneficial			
OVERALL ECONOMIC ASSESSMENT OF OPTION A (INCLUDING ACCIDENT BENEFITS)			Low Growth	PVC =	£ 47.211 M	PVB =	£ 58.599 M	NPV =	£ 11.388 M	BCR =	1.241
			Central Growth	PVC =	£ 47.211 M	PVB =	£ 82.000 M	NPV =	£ 34.789 M	BCR =	1.737
			High Growth	PVC =	£ 47.211 M	PVB =	£ 120.854 M	NPV =	£ 73.643 M	BCR =	2.560

OPTION	DESCRIPTION	MAIN CONSTRAINTS	TOTAL SCHEME COST	
OPTION B	Option B is an elevated concept design that provides a full interchange, with Links in both depressed corridors and on elevated overbridge structures.	Strategic & local road infrastructure including the M2, M3 Lagan Bridge, A12 Westlink & York Street. Rail infrastructure including Dargan Bridge. Services, drainage and utilities infrastructure. Built development at Corporation Street, Little York Street, Little George's Street, Great George's Street & York Street. Surface level car parks & Brownfield Land with potential for future development.	Excl. Optimism Bias	£ 85.631 M
			Incl. Optimism Bias (16.5%)	£ 99.760 M

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT						ASSESSMENT	
ENVIRONMENT	Air Quality	Grade-separation would improve air quality at locations predicted to be at risk of exceeding the annual mean NO ₂ NAQS objective values in 2020, with those on Little George's Street (adjacent to the Westlink) experiencing a Moderate Beneficial effect. The M2 to Westlink link would however result in a small worsening at Garmoyle Street/Dock Street junction. A small worsening would also be experienced at some residential receptor locations on side roads (North Queen Street, Clifton Street and Frederick Street) due to changes in local traffic flows.	Number of properties (in 2020) where local air quality would be:						Slight Beneficial	
		Improved (PM ₁₀)	Made Worse (PM ₁₀)	Improved (PM _{2.5})	Made Worse (PM _{2.5})	Improved (NO ₂)	Made Worse (NO ₂)			
		11	5	10	4	72	25			
		Cultural Heritage	No direct impact on known cultural heritage assets. Archaeological remains/assets may be affected during ground investigations, site clearance and road construction, though this would be minimised considering that elevated links would require less intrusive ground works, reducing potential for dissection/truncation of remains. Conversely, this would result in greater impact upon setting of Historic Buildings and Landscapes due to the elevation of links above ground level.	Two Scheduled Monuments (AR02 & AR03) and one undesignated archaeology asset (AR13) would experience Slight Adverse residual effects. Two undesignated archaeology assets would experience Neutral residual effects (AR11 & AR12). Five Historic Landscapes features (HL18, HL20, HL24, HL60 & HL67) would experience Neutral residual effects. Four designated Historic Buildings (HB01, HB03/HL17, HB04 & HB05/HL19) would experience Slight Adverse residual effects and three (HB02, HB07 and HB28) would experience Neutral effects.						Neutral – Slight Adverse
		Ecology & Nature Conservation	No direct impact upon designated ecological sites. Broad-leaf plantation and dense scrub and amenity grassland would be lost adjacent to the M2 Motorway, M3 off-slips and on-slips, and A12 Westlink. No large tracts of semi-natural habitats or hedgerows would be lost. Area has only limited possibilities for wildlife, though foraging areas for bats may be lost and there is potential for disturbance to breeding birds.	N/A (Qualitative Assessment Only)						
		Landscape Effects	From a landscape perspective, the elevation of links would maximise the potential for land parcels to remain intact, minimising the negative effects associated with a site which is spatially segregated from the surrounding cityscape. However, the visual impact of elevated links would be significant with the incorporation of links at or above ground level increasing the prominence of the junction within the cityscape. The elevated links would become the visually dominant features.	N/A (Qualitative Assessment Only)						
		Land Use	In terms of property demolition, a Neutral effect would be experienced with the loss of a commercial outbuilding (which could be mitigated). The residual effect of private land loss would be Slight to Moderate Adverse, and severance would be minimal. The direct effect upon planning applications would be largely Neutral. The effect upon development land would be largely Moderate Adverse.		Total		Total		Total	Neutral – Moderate Adverse
			Properties to be demolished	1	Private land parcels directly affected	11	Planning applications directly affected	3		
	Noise & Vibration	Larger long term noise level differences (Do-Something 2034 minus Do-Minimum 2020) are generally confined to the area in close proximity to the junction option. No residential properties are likely to qualify for mitigation under the Noise Insulation Regulations	Long-term traffic noise changes (daytime period): 1650 properties would experience 'Negligible' noise increases, 11 would experience 'No Change' and 46 would experience 'Negligible' noise decreases. For the non-residential receptors within the study area, all 37 would experience 'Negligible' noise increases.						Neutral – Slight Adverse	

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT
		(Northern Ireland) 1995.						
	Vehicle Travellers	The incorporation of links at or above ground level would provide the greatest benefit in terms of views from the road. Full grade-separation of the junction would also maximise reductions in driver stress.	N/A (Qualitative Assessment Only)					Views – Slight Beneficial Driver Stress – Slight Beneficial
	Road Drainage & the Water Environment	The effect of changes to morphology, routine run-off and pollution spillages to surface waters and groundwater would be largely Neutral. As flood risk is unlikely to increase, the effect is also likely to be Neutral, even though there is a risk of the depressed link being inundated during flood events.	N/A (Qualitative Assessment Only)					Neutral
	Geology & Soils	No significant effect is anticipated on designated or non-designated geological areas, superficial or solid geology, the soil environment or areas of mineral extraction. Potential areas of contaminated land may however be encountered at a number of locations throughout the study area, though if encountered would be appropriately remediated.	N/A (Qualitative Assessment Only)					Neutral – Slight Beneficial
SAFETY	Accidents	Although the construction of a new grade-separated interchange will improve the flow of traffic, the application of default accident rates associated with the reduction in speed limits on some sections of the Scheme results in an overall negative impact in terms of road safety	Growth	Accidents	Deaths	Serious	Slight	Accidents PVB (Central Growth)
			Central	-453.6	-2.2	-31.4	-645.3	- £15.690 M
ECONOMY	Transport Economic Efficiency	Development of the strategic road network, contributing to the Government's plan to reduce congestion on trunk roads by targeting bottlenecks and improving access to all areas of the city centre to attract investors and encourage economic growth.	<u>For the Opening Year:</u>		<u>Central Growth:</u>		<u>TEE (Central Growth)</u>	
			Total vehicle-hours saved (2-way)		374,000		Consumer PVB:	£65.030 M
			Peak journey time change (mins/veh)		1.52 mins (average) saved on strategic routes		Business PVB:	£60.656 M
			Off-peak journey time change (mins/veh)		0.56 mins (average) saved on strategic routes		Private PVB:	- £0.086 M
							ITR PVB:	£0.369 M
							Emissions PVB:	- £0.293 M
					Government Funding PVC:	£52.123 M		
	Reliability	Improved journey times reliability through the provision of a high quality grade-separated interchange to address acknowledged operational congestion at an existing junction arrangement.	N/A - Qualitative Assessment Only					
ACCESSIBILITY	Pedestrians, Cyclists & Equestrians	Pedestrian movements would benefit from full grade-separation of the junction; however with incorporation of links at or above ground level, amenity would be adversely affected through visual intrusion. The loss of footways in places and increases in proximal traffic would also be an adverse effect. Impact upon cyclist facilities would be largely Neutral, though movements would benefit from changes to the junction. Impact upon equestrian facilities would be Neutral.	N/A (Qualitative Assessment Only)					Slight Adverse – Moderate Beneficial

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT			
	Community Severance	Elevated links would reduce severance with a reduction in strategic traffic interaction, leading to freer flowing conditions, however would negatively affect amenity due to the visual intrusion of overhead structures. The loss of through movements onto Great George's Street from Nelson Street would also be an adverse effect. The effect of potentially relocating Northside Park & Ride is however likely to be beneficial.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
	Access to Public Transport	The effect on rail infrastructure and provision of services would be Neutral, though connectivity to Yorkgate Rail Station would be improved through full grade-separation of the junction. Bus services through York Street would also benefit from the junction changes through time savings and efficiency of service. Cessation of through movements onto Great George's Street from Nelson Street would be adverse as a result of change to bus service routes and loss of stops, though Corporation Street would benefit, as Nelson Street services would likely be re-routed onto this road.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
INTEGRATION	Transport Interchange	By improving the standard and layout of the junction, connectivity to Yorkgate Rail Station would be enhanced from York Street (south). The potential for improvements to Dargan Bridge (i.e. widening the single line railway to twin tracks) and the feasibility of providing a new station at Gamble Street would not be adversely affected. Northside Park & Ride would cease to operate as a Park & Ride facility in the long term irrespective of scheme implementation, with alternative facilities potentially being provided at Sandyknowes and/or Templepatrick. Quality Bus Corridors would only be enhanced with scheme implementation.	N/A (Qualitative Assessment Only)					Slight Beneficial			
	Land-Use Planning	Conforms to policies in the RDS, RTS, RSTNTP and BMTP. Specifically the option will help achieve the strategic aims of the RDS (2035) and conforms to its specific regional guidance; to deliver a balanced approach to transport infrastructure. The option will help maximise the potential of the RSTN, using road space more efficiently, managing the movement of freight, improve access, manage the movement of people and goods and strengthen gateways for regional competitiveness. The option has also been assessed against the objectives of all relevant planning policy statements and development plans with no significant impacts raised.	N/A (Qualitative Assessment Only)					Moderate Beneficial			
	Other Government Policies	The scheme is supported by proposals contained within the BMTP, which in turn are largely in conformance with other Government Department Objectives for integrated transport within the Belfast Metropolitan Area.	N/A (Qualitative Assessment Only)					Slight Beneficial			
OVERALL ECONOMIC ASSESSMENT OF OPTION B (INCLUDING ACCIDENT BENEFITS)			Low Growth	PVC =	£ 52.123 M	PVB =	£ 86.215 M	NPV =	£ 34.092 M	BCR =	1.654
			Central Growth	PVC =	£ 52.123 M	PVB =	£ 109.986 M	NPV =	£ 57.863 M	BCR =	2.110
			High Growth	PVC =	£ 52.123 M	PVB =	£ 149.438 M	NPV =	£ 97.316 M	BCR =	2.861

OPTION	DESCRIPTION	MAIN CONSTRAINTS	TOTAL SCHEME COST	
OPTION C	Option C is a depressed concept design that provides a full interchange, with Links at either existing ground level or in depressed sections.	Strategic & local road infrastructure including the M2, M3 Lagan Bridge, A12 Westlink & York Street. Rail infrastructure including Dargan Bridge. Services, drainage and utilities infrastructure. Built development at Corporation Street, Little York Street, Little George's Street, Great George's Street & York Street. Surface level car parks & Brownfield Land with potential for future development.	Excl. Optimism Bias	£ 88.697 M
			Incl. Optimism Bias (16.5%)	£ 103.331 M

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT						ASSESSMENT
ENVIRONMENT	Air Quality	Grade-separation would improve air quality at locations predicted to be at risk of exceeding the annual mean NO ₂ NAQS objective values in 2020, though the M2 to Westlink link would result in a small worsening at Garmoyle Street/Dock Street junction. A small worsening would also be experienced at some residential receptor locations on side roads (North Queen Street, Clifton Street and Frederick Street) due to changes in local traffic flows.	Number of properties (in 2020) where local air quality would be:						Neutral – Slight Beneficial
	Improved (PM ₁₀)	Made Worse (PM ₁₀)	Improved (PM _{2.5})	Made Worse (PM _{2.5})	Improved (NO ₂)	Made Worse (NO ₂)			
	4	5	2	5	30	8			
	Cultural Heritage	No direct impact on known cultural heritage assets. Archaeological remains/assets may be affected during ground investigations, site clearance and road construction, particularly considering that depressed links would require extensive excavation. However, conversely this would reduce impact upon setting of Historic Buildings and Landscapes.	One undesignated archaeology asset (AR13) would experience a Slight Adverse residual effect and two (AR11 & AR12) would experience Neutral residual effects.						Neutral – Slight Adverse
	Two Historic Landscapes features (HL67 & HL68) would experience Neutral residual effects.								
	Four designated Historic Buildings (HB01, HB03 /HL17, HB04 and HB05 /HL19) would experience Slight Adverse residual effects and one (HB28) would experience Neutral effects.								
	Ecology & Nature Conservation	No direct impact upon designated ecological sites. Broad-leaf plantation and dense scrub and amenity grassland would be lost adjacent to the M2 Motorway, M3 off-slips and on-slips, and A12 Westlink. No large tracts of semi-natural habitats or hedgerows would be lost. Area has only limited possibilities for wildlife, though foraging areas for bats may be lost and there is potential for disturbance to breeding birds.	N/A (Qualitative Assessment Only)						Slight Adverse
	Landscape Effects	From a landscape perspective, the depressed links would lead to the partition and fragmentation of open space and the severance of physical connections between adjacent sites. However, the visual impact of depressed links is limited to the introduction of high security fencing and parapets. Therefore, existing roadways with associated vehicles, lighting and signage would remain the visually dominant features.	N/A (Qualitative Assessment Only)						Landscape – Moderate Adverse Visual – Slight Adverse
Land Use	In terms of property demolition, a Large Adverse effect would be experienced with the loss of commercial & government properties. The residual effect of private land loss would be largely Moderate Adverse, and new severance would be created. The direct effect upon planning applications would be largely Neutral. The effect upon development land would be Moderate to Large Adverse.	Properties to be demolished	Total	Private land parcels directly affected	Total	Planning applications directly affected	Total	Neutral – Large Adverse	
3	11	3							
Noise & Vibration	Larger long term noise level differences (Do-Something 2034 minus Do-Minimum 2020) are generally confined to the area in close proximity to the junction option. No residential properties are likely to qualify for mitigation under the Noise Insulation Regulations (Northern Ireland) 1995.	Long-term traffic noise changes (daytime period): 1674 properties would experience 'Negligible' noise increases, 13 would experience 'No Change' and 20 would experience 'Negligible' noise decreases. For the non-residential receptors within the study area, all 37 would experience 'Negligible' noise increases.						Slight Adverse	
Vehicle Travellers	The incorporation of links at or below ground level would provide the most enclosed and potentially adverse views for vehicle	N/A						Views – Moderate Adverse	

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT
		travellers. However full grade-separation of the junction would maximise reductions in driver stress.	(Qualitative Assessment Only)					Driver Stress – Slight Beneficial
	Road Drainage & the Water Environment	The effect of changes to morphology, routine run-off and pollution spillages to surface waters and groundwater would be Neutral. As flood risk is unlikely to increase, the effect is also likely to be largely Neutral, even though there is the risk of depressed links being inundated during flood events.	N/A (Qualitative Assessment Only)					Neutral
	Geology & Soils	No significant effect is anticipated on designated or non-designated geological areas, superficial or solid geology, the soil environment or areas of mineral extraction. Potential areas of contaminated land may however be encountered at a number of locations throughout the study area, though if encountered would be appropriately remediated.	N/A (Qualitative Assessment Only)					Neutral – Slight Beneficial
SAFETY	Accidents	Although the construction of a new grade-separated interchange will improve the flow of traffic, the application of default accident rates associated with the reduction in speed limits on some sections of the Scheme results in an overall negative impact in terms of road safety	Growth	Accidents	Deaths	Serious	Slight	Accidents PVB (Central Growth)
			Central	-955.9	-4.2	-68.1	-1,336.5	- £33.043 M
ECONOMY	Transport Economic Efficiency	Development of the strategic road network, contributing to the Government's plan to reduce congestion on trunk roads by targeting bottlenecks and improving access to all areas of the city centre to attract investors and encourage economic growth.	<u>For the Opening Year:</u>		<u>Central Growth:</u>		<u>TEE (Central Growth)</u>	
			Total vehicle-hours saved (2-way)		381,000		Consumer PVB:	£69.264 M
			Peak journey time change (mins/veh)		1.50 mins (average) saved on strategic routes		Business PVB:	£64.395 M
			Off-peak journey time change (mins/veh)		0.55 mins (average) saved on strategic routes		Private PVB:	£0.071 M
							ITR PVB:	- £0.620 M
							Emissions PVB:	£0.403 M
							Government Funding PVC:	£54.143 M
	Reliability	Improved journey times reliability through the provision of a high quality grade-separated interchange to address acknowledged operational congestion at an existing junction arrangement.	N/A - Qualitative Assessment Only					
ACCESSIBILITY	Pedestrians, Cyclists & Equestrians	Pedestrian movements would benefit from full grade-separation of the junction. Amenity would also be improved as there would be reduced visual intrusion, with strategic links passing under York Street. As such, the significance of effect would be beneficial. The loss of footways in places and increases in proximal traffic would however be an adverse effect. Impact upon cyclist facilities would be largely Neutral, though movements would benefit from changes to the junction. Impact upon equestrian facilities would be Neutral.	N/A (Qualitative Assessment Only)					Slight Adverse – Large Beneficial

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT			
	Community Severance	Depressed links would reduce severance with a reduction in strategic traffic interaction, leading to freer flowing conditions. Amenity would also be improved as there would be reduced visual intrusion, with strategic links passing under York Street. The loss of through movements onto Great George's Street from Nelson Street would however be an adverse effect. The effect of potentially relocating Northside Park & Ride is likely to be beneficial.	N/A (Qualitative Assessment Only)					Slight Adverse – Moderate Beneficial			
	Access to Public Transport	The effect on rail infrastructure and provision of services would be Neutral; though connectivity to Yorkgate Rail Station would be improved through full grade-separation of the junction. Bus services through York Street would also benefit from the junction changes through time savings and efficiency of service. Cessation of through movements onto Great George's Street from Nelson Street would be adverse as a result of change to bus service routes and loss of stops, though Corporation Street would benefit, as Nelson Street services would likely be re-routed onto this road.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
INTEGRATION	Transport Interchange	By improving the standard and layout of the junction, connectivity to Yorkgate Rail Station would be enhanced from York Street (south). The potential for improvements to Dargan Bridge (i.e. widening the single line railway to twin tracks) and the feasibility of providing a new station at Gamble Street would not be adversely affected. Northside Park & Ride would cease to operate as a Park & Ride facility in the long term irrespective of scheme implementation, with alternative facilities potentially being provided at Sandyknowes and/or Templepatrick. Quality Bus Corridors would only be enhanced with scheme implementation.	N/A (Qualitative Assessment Only)					Slight Beneficial			
	Land-Use Planning	Conforms to policies in the RDS, RTS, RSTNTP and BMTP. Specifically the option will help achieve the strategic aims of the RDS (2035) and conforms to its specific regional guidance; to deliver a balanced approach to transport infrastructure. The option will help maximise the potential of the RSTN, using road space more efficiently, improving social inclusion, managing the movement of freight, improve access, manage the movement of people and goods and strengthen gateways for regional competitiveness. The option has also been assessed against the objectives of all relevant planning policy statements and development plans with no significant impacts raised.	N/A (Qualitative Assessment Only)					Moderate Beneficial			
	Other Government Policies	The scheme is supported by proposals contained within the BMTP, which in turn are largely in conformance with other Government Department Objectives for integrated transport within the Belfast Metropolitan Area.	N/A (Qualitative Assessment Only)					Slight Beneficial			
OVERALL ECONOMIC ASSESSMENT OF OPTION C (INCLUDING ACCIDENT BENEFITS)			Low Growth	PVC =	£ 54.143 M	PVB =	£ 73.962 M	NPV =	£ 19.819 M	BCR =	1.366
			Central Growth	PVC =	£ 54.143 M	PVB =	£ 100.471 M	NPV =	£ 46.328 M	BCR =	1.856
			High Growth	PVC =	£ 54.143 M	PVB =	£ 142.501 M	NPV =	£ 88.359 M	BCR =	2.632

OPTION	DESCRIPTION	MAIN CONSTRAINTS	TOTAL SCHEME COST	
OPTION D	Option D is an elevated concept design that provides a grade separated junction, but not a full interchange, with Links at either existing ground level or on elevated overbridge structures.	Strategic & local road infrastructure including the M2, M3 Lagan Bridge, A12 Westlink & York Street. Rail infrastructure including Dargan Bridge. Services, drainage and utilities infrastructure. Built development at Corporation Street, Little York Street, Little George's Street, Great George's Street & York Street. Surface level car parks & Brownfield Land with potential for future development.	Excl. Optimism Bias	£ 88.778 M
			Incl. Optimism Bias (16.5%)	£ 103.426 M

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT						ASSESSMENT
ENVIRONMENT	Air Quality	Grade-separation would improve air quality at locations predicted to be at risk of exceeding the annual mean NO ₂ NAQS objective values in 2020, with those on Little George's Street (adjacent to the Westlink) experiencing a Moderate Beneficial effect. The M2 to Westlink link would however result in a small worsening at Garmoyle Street/Dock Street junction. A small worsening would also be experienced at some residential receptor locations on side roads (North Queen Street, Clifton Street and Frederick Street) due to changes in local traffic flows.	Number of properties (in 2020) where local air quality would be:						Slight Beneficial
	Improved (PM ₁₀)	Made Worse (PM ₁₀)	Improved (PM _{2.5})	Made Worse (PM _{2.5})	Improved (NO ₂)	Made Worse (NO ₂)			
	1	5	5	5	88	88			
	Cultural Heritage	No direct impact on known cultural heritage assets. Archaeological remains/assets may be affected during ground investigations, site clearance and road construction, though this would be minimised considering that elevated links would require less intrusive ground works, reducing potential for dissection/truncation of remains. Conversely, this would result in greater impact upon setting of Historic Buildings and Landscapes due to the elevation of links above ground level.	Two Scheduled Monuments (AR02 & AR03) and one undesignated archaeology asset (AR13) would experience Slight Adverse residual effects. Two undesignated archaeology assets (AR11 & AR12) would experience Neutral effects.						Neutral – Slight Adverse
	Six Historic Landscapes features (HL16, HL18, HL20, HL24, HL60 and HL67) would experience Neutral residual effects.								
	Four designated Historic Buildings (HB01, HB03/HL17, HB04 & HB05/HL19) would experience Slight Adverse residual effects and three would experience Neutral effects (HB02, HB07 & HB28).								
	Ecology & Nature Conservation	No direct impact upon designated ecological sites. Broad-leaf plantation and dense scrub and amenity grassland would be lost adjacent to the M2 Motorway, M3 off-slips and on-slips, and A12 Westlink. No large tracts of semi-natural habitats or hedgerows would be lost. Area has only limited possibilities for wildlife, though foraging areas for bats may be lost and there is potential for disturbance to breeding birds.	N/A (Qualitative Assessment Only)						Slight Adverse
Landscape Effects	From a landscape perspective, the elevation of links would maximise the potential for land parcels to remain intact, minimising the negative effects associated with a site which is spatially segregated from the surrounding cityscape. However, the visual impact of elevated links would be significant with the incorporation of links at or above ground level increasing the prominence of the junction within the cityscape. The elevated links would become the visually dominant features.	N/A (Qualitative Assessment Only)						Landscape – Slight Adverse Visual – Moderate Adverse	
Land Use	In terms of property demolition, a Neutral effect would be experienced with the loss of a commercial outbuilding (which could be mitigated). The residual effect of private land loss would be largely Slight Adverse, and severance would be minimal. The direct effect upon planning applications would be largely Neutral. The effect upon development land would be largely Moderate Adverse.		Total		Total		Total	Neutral – Moderate Adverse	
Properties to be demolished	1	Private land parcels directly affected	8	Planning applications directly affected	3				
Noise & Vibration	Larger long term noise level differences (Do-Something 2034 minus Do-Minimum 2020) are generally confined to the area in close proximity to the option. No residential properties are likely to qualify for mitigation under the Noise Insulation Regulations (Northern	Long-term traffic noise changes (daytime period): 20 properties would experience 'Minor' noise increases, 1661 properties would experience 'Negligible' noise increases, 5 would experience 'No Change' and 21 would experience 'Negligible' noise decreases. For the non-residential receptors within the study area, 34 would experience 'Negligible' noise increases and 3 would experience 'Minor' noise						Slight Adverse	

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT
		Ireland) 1995.	increases.					
	Vehicle Travellers	The incorporation of links at or above ground level would provide the greatest benefit in terms of views from the road. Whilst reductions in driver stress would be experienced, these would be limited by only partial grade-separation of the junction.	N/A (Qualitative Assessment Only)					Views – Moderate Beneficial Driver Stress – Slight Beneficial
	Road Drainage & the Water Environment	The effect of changes to morphology, flood risk, routine run-off and pollution spillages to surface waters and groundwater would be largely Neutral.	N/A (Qualitative Assessment Only)					Neutral
	Geology & Soils	No significant effect is anticipated on designated or non-designated geological areas, superficial or solid geology, the soil environment or areas of mineral extraction. Potential areas of contaminated land may however be encountered at a number of locations throughout the study area, though if encountered would be appropriately remediated.	N/A (Qualitative Assessment Only)					Neutral – Slight Beneficial
SAFETY	Accidents	Although the construction of a new grade-separated interchange will improve the flow of traffic, the application of default accident rates associated with the reduction in speed limits on some sections of the Scheme results in an overall negative impact in terms of road safety	Growth	Accidents	Deaths	Serious	Slight	Accidents PVB (Central Growth)
			Central	-17.2	-0.1	-0.4	-31.3	- £0.463 M
ECONOMY	Transport Economic Efficiency	Improved journey times reliability through the provision of a high quality grade-separated interchange to address acknowledged operational congestion at an existing junction arrangement.	<u>For the Opening Year:</u>		<u>Central Growth:</u>		<u>TEE (Central Growth)</u>	
			Total vehicle-hours saved (2-way)		-292,000		Consumer PVB:	- £50.180 M
			Peak journey time change (mins/veh)		1.51 mins (average) saved on strategic routes		Business PVB:	- £45.881 M
			Off-peak journey time change (mins/veh)		0.52 mins (average) saved on strategic routes		Private PVB:	- £0.649 M
							ITR PVB:	£3.414 M
							Emissions PVB:	- £2.414 M
					Government Funding PVC:	£53.700 M		
	Reliability	Improved journey times reliability through the provision of a high quality grade-separated interchange to address acknowledged operational congestion at an existing junction arrangement.	N/A - Qualitative Assessment Only					
ACCESSIBILITY	Pedestrians, Cyclists & Equestrians	Pedestrian movements would generally be improved with partial grade-separation of the junction. With incorporation of links at or above ground level, amenity would be adversely affected through visual intrusion. The loss of footways in places and increases in proximal traffic would also be an adverse effect. Impact upon cyclist facilities would be largely Neutral, though movements would benefit from changes to the junction. Impact upon equestrian facilities would be Neutral.	N/A (Qualitative Assessment Only)					Slight Adverse – Moderate Beneficial

OBJECTIVE	SUB OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE ASSESSMENT					ASSESSMENT			
	Community Severance	Elevated links would reduce severance with a reduction in strategic traffic interaction, leading to freer flowing conditions (though benefits would be limited by only partial grade-separation). Amenity would also be adversely affected due to the visual intrusion of overhead structures. The loss of through movements onto Great George's Street from Nelson Street would also be an adverse effect. The effect of potentially relocating Northside Park & Ride is however likely to be beneficial.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
	Access to Public Transport	The effect on rail infrastructure and provision of services would be Neutral; though connectivity to Yorkgate Rail Station would be improved through partial grade-separation of the junction. Bus services through York Street would also benefit from the junction changes through time savings and efficiency of service. Cessation of through movements onto Great George's Street from Nelson Street would be adverse as a result of change to bus service routes and loss of stops, though Corporation Street would benefit, as Nelson Street services would likely be re-routed onto this road.	N/A (Qualitative Assessment Only)					Slight Adverse – Slight Beneficial			
INTEGRATION	Transport Interchange	By improving the standard and layout of the junction, connectivity to Yorkgate Rail Station would be enhanced from York Street (south). The potential for improvements to Dargan Bridge (i.e. widening the single line railway to twin tracks) and the feasibility of providing a new station at Gamble Street would not be adversely affected. Northside Park & Ride would cease to operate as a Park & Ride facility in the long term irrespective of scheme implementation, with alternative facilities potentially being provided at Sandyknowes and/or Templepatrick. Quality Bus Corridors would only be enhanced with scheme implementation.	N/A (Qualitative Assessment Only)					Slight Beneficial			
	Land-Use Planning	Conforms to policies in the RDS, RTS, RSTNTP and BMTP. Specifically the option will help achieve the strategic aims of the RDS (2035) and conforms to its specific regional guidance; to deliver a balanced approach to transport infrastructure. The option will help maximise the potential of the RSTN, using road space more efficiently, managing the movement of freight, improve access, manage the movement of people and goods and strengthen gateways for regional competitiveness. The option has also been assessed against the objectives of all relevant planning policy statements and development plans with no significant impacts raised.	N/A (Qualitative Assessment Only)					Moderate Beneficial			
	Other Government Policies	The scheme is supported by proposals contained within the BMTP, which in turn are largely in conformance with other Government Department Objectives for integrated transport within the Belfast Metropolitan Area.	N/A (Qualitative Assessment Only)					Slight Beneficial			
OVERALL ECONOMIC ASSESSMENT OF OPTION D (INCLUDING ACCIDENT BENEFITS)			Low Growth	PVC =	£ 53.700 M	PVB =	- £ 84.927 M	NPV =	- £ 138.627 M	BCR =	- 1.582
			Central Growth	PVC =	£ 53.700 M	PVB =	- £ 96.173 M	NPV =	- £ 149.872 M	BCR =	- 1.791
			High Growth	PVC =	£ 53.700 M	PVB =	- £ 84.547 M	NPV =	- £ 138.246 M	BCR =	- 1.574