APPENDIX J

Appraisal Summary Tables

Assessment Summary Table – Overall scheme

Scheme Option – A1 Junction Improvements Phase 2		**Description –** Median Closures and installation of a continuous safety barrier; Minor road junction closures/amendments; Provision of 4 compact grade separated junctions; Provision of a northbound on-slip at Castlewellan Road, Banbridge.	**Problems –** Proliferation of access, junctions and median gaps on the A1 resulting in reduced route safety and journey times.	**Present Value Cost** **£53,753k**
OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
ENVIRONMENT	**Noise**	**Construction phase** During the construction phase of the proposed development, noise levels will be temporarily increased in the vicinity of some of the nearest noise sensitive properties to the proposal. Subject to the use of noise barriers construction noise levels will be maintained below the recommended noise threshold limits. **Operational phase** There is no predicted operational noise impact as a result of the proposed scheme. The modelled results indicate that all properties modelled will experience a minor or negligible impact from the proposed road improvement scheme in accordance with the methodologies described in *Design Manual for Roads and Bridges, Volume 11, Part 3, Section 7.*	**Construction phase** Worst case construction noise level of 89dB(A) at 10m used to assess potential impact at 373 receptors. Potential noise impact >89dB(A) at 31 receptors, pre-mitigation. **Operational phase** 248 receptors modelled using CadnaA software to determine predicted operational impact. At 247 receptors, impact negligible. One receptor will experience a minor adverse impact.	Slight Adverse
	Local Air Quality	**Demolition and Construction Phase** With the implementation of appropriate dust management measures, there are not predicted to be any significant residual impacts from construction activities. The results of the risk assessment of construction dust impacts undertaken using the IAQM dust guidance, indicates that before the implementation of mitigation and controls, the risk of dust impacts will be medium (moderate adverse) /high (substantial adverse). Implementation of the highly-recommended mitigation measures described in the IAQM construction dust guidance should reduce the residual dust effects to a level categorised as "not significant". **Operation Phase** The Proposed Scheme is predicted to lead to some increases and decreases in annual mean NO_2, PM_{10} or $PM_{2.5}$ pollutant concentrations at human exposure receptor locations within the study area. None of these increases exceed the long term or short term means set in the air quality objectives (AQOs) for these pollutants in either the "Do Minimum" or "Do Something" scenarios. Mitigation measures are not required and no significant impacts are predicted. There are no relevant designated sites within close proximity to the Proposed Scheme. Mitigation measures are not required and there are not considered to be any significant impacts on Nitrogen (N) deposition at designated sites.	Zero receptors with exceedances of 24-hour mean for all modelled pollutants.	Neutral

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Greenhouse Gases	N/A	The predicted changes are negligible in terms of GHGs and impact on regional climate. The increases from the Proposed Scheme are very low in comparison to 2015 Northern Ireland (All Sector) emissions. Calculations give a figure of four percent (~4%) between the Opening and Design Year (comparison of without and with scenarios). The predicted changes are negligible in terms of GHGs and impact on regional climate and are not significant.	Neutral

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Landscape	Following the effective implementation and establishment of the proposed mitigation measures (planting), predicted landscape and visual effects associated with the proposed development will be reduced. However, it is considered that bridge structures and embankments in close proximity to residential dwellings will continue to cause long term effects, although these features would gradually integrate into the surrounding landscape, as mitigation planting matures, and will be perceived as part of the visual pattern of the route.		Moderate Adverse

Residential Visual Impacts (after Mitigation) - Degree of Visual Impact	**Number of Property Groups Before Mitigation**	**Number of Property Groups After Mitigation**
Major to Substantial Negative Visual Impact	7	0
Moderate to Major Negative Visual Impact	14	7
Minor to Moderate Negative Visual Impact	22	14
Minor	55	21
None	178	234

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Townscape	There are direct impacts on a small number of outbuildings and sheds. As existing road has no adverse impact on setting for townscape of adjacent settlements. The route will require a one residential property to be lost.	N/A	**Slight Adverse**
	Heritage of Historic Resources	The proposed development has avoided Large/Very Large significance of effect on the recorded resource. However, it may pose slight/moderate direct or indirect impact to a small number of recorded cultural heritage sites. The indirect impacts during the construction phase will be of a visual nature, such as machinery and equipment, which will be temporary. The construction phase will involve ground reduction in many areas and this will include (as noted above) in close proximity to a small number of recorded archaeological sites that may affect features directly associated with same. There is potential impact on previously unrecorded archaeology and is considered to be of potential slight/moderate significance of effect. The mitigation measures shall provide for either the avoidance of negative impacts on the cultural heritage resource or the proper and adequate recording of this resource (including currently unknown archaeological features). The potential operational phase impacts on the cultural heritage resource are likely to be of a visual nature. There is a potential for changes to the views to and from some cultural heritage sites. However, these changes may be considered neutral.	4 No. recorded Archaeological sites directly/indirectly effected Unrecorded archaeological resource: potential direct effect **Operational phase (pre-mitigation)** 1 No. recorded Built Heritage site indirectly effected (visual) 1 No. recorded (scheduled) Archaeological site indirectly effected (visual)	**Slight to Moderate Adverse**
	Biodiversity	The project will not adversely affect the integrity of any European site following the implementation of mitigation measures. The proposed development will have a Significant Negative Effect (Minor Adverse) on habitats of local ecological value and a Significant Negative Effect (Moderate Adverse) on NIPH of regional ecological value in the absence of mitigation measures. The implementation of the badger sett compensatory measures will reduce the likely significance of effects on badgers from a Significant Negative Effect (Moderate Adverse) to Significant Negative Effect (Minor Adverse). An Ecological Exclusion Zone will be set up around invasive non-native Japanese Knotweed at Listullycurran Road Junction.	Habitat Type – Approximate loss of habitat Improved grassland c. 20.5 ha Semi-improved grassland c. 2.6 ha Marshy grassland c. 0.3 ha Amenity grassland c. 4.5 ha Arable land c. 0.5 ha Broadleaved plantation woodland c. 4.3 ha Mixed plantation woodland c. 1.8 ha Conifer plantation woodland c. 0.2 ha Semi-natural broadleaved woodland c. 0.8 ha Dense scrub c. 1.0 ha Hedgerow and tree line c. 9674 m	**Slight Adverse**

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Water Environment	Provided the mitigation measures proposed are implemented, the impact from the construction stage is considered to be negligible to slight adverse and short term. With the mitigation measures for the storm drainage system and hydromorphological alterations, the operational phase impact on water quality is considered to be neutral/negligible over the long term. With regard to flood risk, the importance of the floodplains has been determined to be 'Low'. As the modelling results showed that there are no changes to the predicted flood risk as a result of the proposed watercourse works, the magnitude has been determined to be 'Negligible' .As the runoff from the proposed works will be controlled to greenfield runoff by the use of SuDS, the potential for flooding from increased surface water runoff has also been given a magnitude of 'Negligible'.	N/A N/A (Qualitative assessment only)	**Neutral**
	Physical Fitness	Given the very low numbers of pedestrians and cyclists affected, the construction stage impact will be negligible. During operation stage any existing pedestrian facilities will be retained and there will be no direct impact. At proposed Compact Grade Separated Junctions (CGSJ), pedestrian facilities provided are a direct beneficial effect which is deemed to be significant beneficial. The central barrier proposed along the A1 will not materially change accessibility for pedestrians as the numbers executing this unsafe practice is extremely low. The impact on accessibility is therefore minor beneficial due to enhanced safety. No cycling facilities are proposed and none exist currently. Bus stops are viewed as the main pedestrian trip generators. All mainline bus stops will be replaced with bus stop facilities at the four proposed CGSJ resulting in a moderate beneficial impact.	N/A	**Slight Beneficial**

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Journey Ambience	Following completion of the proposed development views from the road will predominantly be retained for vehicle travel. Driver stress will improve due to proposed development. It is anticipated that frustration, fear of potential accidents and uncertainty will greatly reduce as a result of the proposed development resulting in large or very large beneficial significant effect. Following completion of the proposed development journey reliability is expected to increase due to the safety improvements with a large or very large beneficial significant effect. Following completion of the proposed development journey reliability is expected to increase due to the safety improvements with a large or very large beneficial significant effect.	N/A	**Substantial Beneficial**
SAFETY	**Collisions**	Very significant collision number and cost reduction arising from median closures and the provision of a central median and closure/amendment/improvement of minor side road junctions.	£97,859k collision benefits over 60 years Number of collision reduced by 1697 Fatal casualties reduced by 35 Serious casualties reduced by 309 Slight casualties reduced by 2,569	
	Security	Improvement to perceived driver and passenger safety due to reduced delays at junctions.	N/A	**Slight Beneficial**
ECONOMY	**Public Accounts**	Cost of constructing scheme would be borne by Government.	PVB = 118,976k PVC = 53,955k NPV = 65,021k BCR = 2.21	**BCR 2.21**
	Business Users & Providers	Benefits to business users arising from improved journey times due to reduced delays at junctions and improvements in journey speed consistency on the dual carriageway. Offset by additional journey length associated detours.	Business Benefits = £11,807k (COBA only)	**-£11,807k**
	Consumer Users	Benefits to users arising from improved journey times due to reduced delays at junctions and improvements in journey speed consistency on the dual carriageway. Offset by additional journey length associated detours.	Consumer User Benefits = £11,152k (COBA only)	**-£11,152k**
	Reliability	Journey time reliability improved by the banning of right turns at junctions which would reduce delays for A1 mainline traffic, however offset to some extent by additional journey length associated with diversions.	N/A	**Slight Beneficial**

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OBJECTIVE	**SUB-OBJECTIVE**	**QUALITATIVE IMPACTS**	**QUANTITATIVE MEASURE**	**ASSESSMENT**
	Wider Economic Impacts	Removal of right turning traffic crossing the A1 dual carriageway will enhance the route and improve the perception of the standard of this section of the A1, making the general area more attractive for people to work, visit and live in.	N/A	**Slight Beneficial**
ACCESSIBILITY	**Option Values**	No change	N/A	**Neutral**
	Severance	The closure of the median crossovers may increase severance for Non Motorised Users and local residents, however this will be lessened with the inclusion of dedicated pedestrian facilities at bus stops. The proposed compact grade separated junction locations will provide safer routes for pedestrians crossing the A1, however journey length will increase.	N/A	**Slight Adverse**
	Access to the Transport System	The over-bridges provided at the compact grade separated junctions will improve connectivity to the bus stops on both sides of the dual carriageway. Footway connections to the bus stops will also be improved. However, the route of the bus service which currently turns right off the A1 onto Dromore Road towards Hillsborough will have to be altered as a result of the median closures, which will be a disbenefit to bus users who board/alight on Dromore Road.	N/A	**Slight Beneficial**
INTEGRATION	**Transport Interchange**	Existing roadside unsafe bus stops will be removed and replaced with safer bus stop facilities at new junctions.	N/A	**Neutral**
	Land Use Policy	The proposal complies with the SPPS. The proposal is not in conflict with any Development Plan. The proposed development demonstrably complies with the requirements of all PPS's including PPS6 where compliance has been ensured by provision of mitigation measures during the construction phase.		**Neutral**
	Other Government Policies	The Investment Strategy for Northern Ireland 2011-2021 identifies investment in the proposed project. This project will assist in the delivery of the Regional Development Strategy 2035 & Regional Strategic Transport Network Transport Plan 2015 strategic objectives.	N/A	**Moderate Beneficial**