Appendix B – WebTAG Appraisal Summary Tables

| Арр | raisal Summary Table Date produced: 15/08/2019 | | |] | Contact: | | | |
|----------|--|--|--|--|--|--|--|----------------------------|
| | Name of scheme: | Armagh East Link - 2007 Option The proposed Armadh East Link is intended to run from the A28 Markethill Boad in the | south to the A3 Portado | own Boad in the north inc | propriating a proposed | - iunction with the A51 Hamiltonshawn Boad | Name Organisation | Colin Bell Mouchel |
| | | | , south to the Ao T ontade | | orporating a proposed | | Role | Project Manager |
| | impacts | Summary of key impacts | | Quantitative | | Qualitative | Monetary | Distributional |
| , m | Business users & transport | Over the 60 year appraisal period, travel time benefits are accrued for business users, with | Value of journey | y time changes(£) | 6.8m | | £(NPV) | 7-pt scale/ vulnerable grp |
| cono | providers | Savings in vehicle operating costs and accident benefits. Overal, benefit to cost ratio (bCA) is 1.255 (low growth), indicating good value for money. A reduction in journey times of approximately 4minutes in both the opening vear and design vear through the city centre may be achieved. | Net | t journey time changes (| 2) | - | £8.0m | |
| ш | | ······································ | £5.5m | £1.3m | Solution Sol | | | |
| | Reliability impact on Business users | The scheme would ease congestion, improving reliability of journeys | <u>_</u> | - | | Moderate Beneficial | | |
| | Regeneration | While Armagh is not specifically targeted as a Regeneration Area, improvements to the road network (including the trunk road network) to provide congestion relief in the city centre along with | | | | | | |
| | | reduced journey times and increased journey time reliability for all road users will provide an opportunity to promote regional economic growth. Encouraging people and business into the city | | | | Madazata Danafisial | | |
| | | centre and the east of the city will become easier with the reduction in traffic, and the overall improved road network and accessibility to this, has a positive impact on both those seeking | | - | | woderate Benenciai | - | |
| | | employment and those wishing to employ. | | | | | | |
| | Wider Impacts | Improvements to the network will increase the accessibility of the area to firms and workers, potentially increasing the level of agglomeration activity. This can lead to higher productivity | | | | | | |
| | | through greater business interaction, better labour market interaction, and/or increased input and output markets due to reduced freight costs, with an overall increase in UK GDP, resulting in a nocitive invest on "wuffror" | | | | | | |
| | | A reduction in transport costs allows an increase in production or output of goods or service markets using the transport A transport intervention which leads to an expansion of output will | | - | | Slight Beneficial | | |
| | | deliver a welfare gain not appraised within other user benefits. Greater access to the overall transport network will incentivise individuals to work and positively impact on the UK GDP through | | | | | | |
| | | labour supply and movement between or to employment. | | | | | | |
| ntal | Noise | Short-term Major increases are concentrated in three locations, Linsey's Heights, Bannvale Villas and Ardmore, Short-term Moderate and Minor increases are principally located in the same areas | Short-term perceptible (>=1) | dB) increases | | | | |
| nme | | but are found further away from the scheme alignment. Long-term increases are located in the same locations as for Short-term, but at a smaller number of receptors; a function of the change in | OSR: 0 Major; 0 Moderate; | 1 Minor | | | | |
| Jviro | | banding between Short and Long-term. | Short-term perceptible (>=1) Dwellings: 11 Major; 37 Mod | dB) decreases derate; 145 Minor | | | | |
| ū | | Short-term Major, Moderate and Minor decreases are found along Drumadd Terrace, Orangefield Drive and in Ardmore. Long-term Moderate and Minor decreases are mostly found in the east of | OSR: 0 Major; 1 Moderate; | 2 Minor | | | | |
| | | Ardmore. | Long-term perceptible (>=30 Dwellings: 33 Major; 34 Moo | dB) increases derate; 58 Minor | | Major Adverse | -£218,977.00 | |
| | | | Long-term perceptible (>=30 | | | | | |
| | | | Dwellings: 0 Major; 9 Moder OSR: 0 Major; 0 Moderate; | rate; 30 Minor 1 Minor | | | | |
| | | | Contro major, o modefate, i minor | | | | | |
| | Air Quality | Overall improvement in local air quality (NO2 and PM10 exposure) predicted across the study area. The majority of properties affected see an improvement in air quality over the 60 year | Local Air Quality: Opening Year Concentrations NO2 Overall Assessment Score = -432.7. Properties within 200m of modelled ro | | in 200m of modelled road | Opening Year NO2 The proposed scheme is anticipated to lead to an improvement in air | | |
| | | արտատութուտ mere are zo anecteo properties situated within Armagh AQMA, there is a small improvement in NO2 exposure at these properties in the opening and design year. | unks with Improvement: 1257; deterioration: 573; no change: 540 PM10 Overall Assessment Score = -62.8. Properties within 200m of modelled in links with Improvement: 552; deterioration 252; as there is a second state of the | | ge. उन्म0 in 200m of modelled road e: 1366 | Vice styles in the Opening Year. It is anticipated to improve NO2 concentrations at 28 receptors within Armagh AQMA declared for NO2 only. | l | |
| | | | Local Air Quality: Design Ye | ar Concentrations | | Opening Year PM10 The proposed scheme is anticipated to lead to an improvement in air | | |
| | | | NO2 Overall Assessment So road links with Improvement | core = -264.8. Properties with t: 1026; deterioration: 680; no | in 200m of modelled change: 664 | quality (PM10 exposure). Design Year NO2 | | |
| | | | PM10 Overall Assessment S road links with Improvement | Score = -57.4. Properties with t: 685; deterioration: 387; no c | in 200m of modelled hange: 1298 | The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure) in the Design Year. It is anticipated to improve | Monetary value of change in NOx = $\pounds1,948$ | |
| | | | Regional Air Quality: The 'ne | et total route assessment' in th | e opening year for PM10 | NU2 concentrations at 28 receptors within Armagh AQMA declared for NO2 only. | Monetary value of change in PM10 = £181,461 | |
| | | | ns -os µg/m3. The emissions of NOx decre projection of 60 years | ease as a result of the scheme | e by 2 tonnes for a | The proposed scheme is anticipated to lead to an improvement in air auality (PMI0 exposure). | Overall Benefit = £183,409 | |
| | | | projection of 60 years. | | Not expected to have an exceedance from PCM links in the opening or | | | |
| | | | | | | design year. Maximum roadside NO2 concentration for PCM links in opening year (2020) is predicted to be 20.8 µg/m3 | | |
| | | | | | | | | |
| | - | | | | | | | |
| | Greenhouse gases | There is an overall decrease in emissions of CO2(eq) as a result of the scheme over the 60 year appaisal period. | Change in non-traded carbo | on over 60y (tCO2e) | -9,183 | There is an overall decrease in emissions of CO2(eq) as a result of the scheme. The change in opening year (2020) carbon dioxide emissions to the scheme (CO2) between the scheme and with a scheme and with the scheme the scheme and the scheme and with the scheme an | | |
| | | | Change in traded carbon ov | rer 60y (tCO2e) | N/A | In tonnes (tCU2e) between the with scheme and without scheme scenario is -144 in the opening year 2020. Over the 60 year appraisal period a decrease is predicted of 9.183 tCO2e | £424,280 | |
| | | | | | | | | |
| | Landscape | There are no national landscape designations. The landscape around the developed Armagh City is characterised by a small scale pattern of | | | | | | |
| | | irregular shaped fields and mixed urban development over a rolling drumlin landscape. The urban fringe is fragmented by a variety of land uses and there is a marked change between the open the land the part and the urban endpand for the standard the standard the sector of the sec | | | | | | |
| | | ramiland to the east and the urban edge of Armagn. The control of the 2007 Option passes through areas of residential housing estates to the north and south, commercial premises and industry in batwan as well as occessional small pastoral fields hordered by overgrown mature. | | | | | | |
| | | hedgerows. Vegetation is typically associated with properties and field boundaries and while this would be disrupted at a local level the pattern or landcover is not distinctive or important at a wider | | | | | | |
| | | scale. The effects on the landscape character would be limited to the introduction of another man made | | N/A | | Neutral | N/A | |
| | | element to the edge of an urban fringe landscape. The proposed option would effectively fit into the existing pattern of the urban fringe with limited effects on tranquility, cultural associations or | | | | | | |
| | | landcover. | | | | | | |
| | | | | | | | | |
| | Townscape | There are no designations that relate to townscape. The townscape within the northern and southern extents of the study area are characterised by | | | | | | |
| | | dense residential areas with Armagh to the west and rolling farmland to the east. Through the middle of the study area residential estates are interspersed by a mix of buildings including larger | | | | | | |
| | | warehouses. The effects on the townscape would be limited to the introduction of another man made element within residential areas. However the proposed option would effectively fit into the | | N/A | | Neutral | N/A | |
| | | existing layout and appearance of the townscape with minimal effects on density, human interaction or scale. The proposed improvements will therefore likely have no significant effect on | | | | | | |
| | | the surrounding built environment. | | | | | | |
| | Historic Environment | There are four listed buildings and two registered parks, gardens or demesnes within the study | | | | | | |
| | | area. Industrial heritage assets comprise two extant road bridges and the sites of four demolished mills. Known archaeological assets are restricted to the area of Linsey's Heights and comprise a possible ecclestatical site reputed to have been re-used in the 1440s for famine burials, elements of a potential prehistoric ritual landscape, settlement activity of Neolithic date, and settlement activity of early medivad date including a possible rath and accelestaciate andosure. The setting of the option comprises parts of the eastern urban fringe of Armagh and areas of small regular fields enclored burbaceness, which wears calculated during the lateward of the 20th honton. | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | enclosed by hedgerows, which were rationalised during the latter part of the 20th century. The construction and operation of the 2007 Option would result in a neutral impact on known designated and undesignated heritage assets and a minor adverse impact on the character of | | N/A | | Slight Adverse | N/A | |
| | | the historic landscape. The construction phase could have a major adverse impact on potential unknown sub-surface archaeological assets. | | | | | | |
| | | - | | | | | | |
| | Biodiversity | There are no statutory or non-statutory policy consequation designations with the state | | | | | | |
| | Circlinetally | There are no statutory or non-statutory nature conservation designations within the study area. The construction and operation of the 2007 Option will result in the loss and fragmentation of habitatis. Including heptenetry and matter trace resulting in a Statish Advance international to the | | | | | | |
| | | habitats. Following the implementation of mitigation and compensation measures, impact on ness semi-improved grassland and watercourses are likely to be Neutral. | | | | | | |
| | | The construction and operation of the 2007 Option will also result in the loss of habitats suitable for nesting birds. The impact of this may be compensated for, however the loss of established | | N1/A | | Slight Adverse (Impact on bats and badgers unknown at this stage. | N1/4 | |
| | | habitat is likely to result in a Slight Adverse impact on breeding birds. Further survey work is required to determine the impact of the 2007 Option on bats and badgers. At this state, the impact on these seconds is University. | | N/A | | Further survey work required before impacts can be determined) | N/A | |
| | | | | | | | | |
| | | | | | | | | |
| | Water Environment | Surface water features in the area comprise an unnamed tributary of Callan River (Derryscollop), the Killeen Water plus other unnamed tributaries and field drains. One are understore body in | | | | | | |
| | | assessed, the Keady Groundwater body. There is one standing water body within 1km of the scheme. The presence of public water subolies in the area has not here confirmed. The | | | | | | |
| | | construction and operation of the scheme could have a slight adverse impact on these features. | | | | | | |
| | | Impacts include increased flood risk along surface watercourses as a result of an increase in run- off. Pollution from construction activities, accidental spillage and routine run-off may impact surface | | N/A | | Slight Adverse | N/A | |
| | | water ourses. Potential changes to groundwater flow may occur as a result of cuttings, and potential contamination of groundwater as a result of accidential spillage and routine runoff. Other innards include direct or indicate lase a closubial GMDTE-set and routine runoff. | | | | | | |
| | | magaana malaare ameen on minimeen isoso of potentikal cave of ES as a result of groundwater changes. | | | | | | |
| | 0 | 0 + 0 | | | - | | | |
| ocial | Commuting and Other users | Uver the 60 year appraisal period, travel time benefits are accrued for business users, with savings in vehicle operating costs and accident benefits. Overall, benefit to cost ratio (BCR) is 1.255 (low grouph) indicating acod value for anomal A conduction in the same of the same | Value of journey Net | y time changes(£) t journey time changes (t | £4.9m | | 05 4 | |
| S | | Aminutes in both the opening year and design year through the city centre may be achieved. | 0 to 2min £3.8m | 2 to 5min £1.1m | > 5min £0.0m | - | £5.4M | |
| | Reliability impact on Commuting and Other users | The scheme would ease congestion, improving reliability of journeys | | | | Large Beneficial | - | |
| | Physical activity | Pedestrian and cycling provision is being provided as part of the link scheme. It is hoped that by maintaining, upgrading where appropriate or necessary, and integrating the existing NMI provision | | | | | | |
| | | with the introducion of new facilities, physical activity will increase. | | | | Moderate Beneficial | - | |
| | Journey quality | Driver stress levels would reduce through the town with reduced traffic volumes. Driver stress levels along the scheme would be reduced as a result of an increase in speed and less frustration | Reduction of 8.5% in AADT 7,700 to 7,100 in the Openin | 2-way flows through the city (a ng Year and 10.6% from 9.404 | along The Mall) from 0 to 8,500 in the Desige | Moderate Beneficial | - | |
| | Accidents | driving conditions. The scheme will lead to reduction in accidents in the area. Over the 60 year anoraisal neriod a | Year. Accidents saved = 79 (1 No | . Fatal, 6 No. Serious and 69 | No. Slight) | | £4,580.000 | |
| | | modelled reduction of 79 accidents and 105 casualties is anticipated. | Fatal casualties saved = 1 Serious casualties saved = 1 | 12 | ÷ 7 | | the second s | |
| | Security | | Slight casualties saved = 92 | 2 | | | | |
| | Security | Invervent much road as well as on existing roads speeds for road users on the link road as well as on existing roads in the city centre, improving road user security as a result. Street lighting will be provided along the learnth of the scheme | | | | Slight Beneficial | - | |
| | Access to services | Improves access the private car network. | | | | Moderate Beneficial | - | |
| | Severance | Removal of the scheme will be by public sector Removal of traffic from the city centre will decrease severance for residents and users within the city centre. Provision has been made to rescheme a severance for residents and users within the | | • | | N/A | • | |
| | Option and non-use unities | cuty centred. Provision has been made for continued access to the city centre using a number of priority junctions and at grade junctions. Not annicable to this type of enhance. | | | | Moderate Beneficial | | |
| 6 | Cost to Broad Transport | Total Construction and Land Cost | | N/A | | N/A | - | |
| ublic | Budget | i ona construction and Edill COSL | | - | | | £18.51m | |
| – | Indirect Tax Revenues | Forecast results indicative that drivers will consume less fuel and thus pay less fuel tax to the government. | | - | | - | £0.5m | |

| Арри | aisal Summary Table | | Date produced: 15/08/2019 | | Contact: | |
|---------------|--|--|---|--|--|---|
| | Name of scheme: Description of scheme: | Armagh East Link - Option 16 The proposed Armagh East Link is intended to run from the A28 Markethill Boad in the | south to the A3 Portadown Boad in the north, incorporating a proposed in | nction with the A51 Hamiltonsbawn Boad. | Name Organisation | Colin Bell Mouchel |
| | | | ······································ | | Role | Project Manager |
| | Impacts | Summary of key impacts | Quantitative | Assessment Qualitative | Monetary £(NPV) | Distributional 7-pt scale/ vulnerable grp |
| Economy | Business users & transport providers | Over the 60 year appraisal period, travel time benefits are accrued for business users, with savings in vehicle operating costs and accident benefits. Overall, benefit to cost ratio (BCR) is 0.339 (low growth), indicating poor value for money. A reduction in journey times of approximately 4minutes in both the opening year and design year through the city centre may be achieved. | Value of journey time changes(£) £11.4m Net journey time changes (£) 0 to 2min 2 to 5min 5 5min | | £12.4m | |
| | Reliability impact on Business | The scheme would ease connection improving reliability of journeys | £8.6m £2.8m £0.0m | | | |
| | Regeneration | While Armagh is not specifically targeteen in poring reaction y or pornega While Armagh is not specifically targeted as a Regeneration Area, improvements to the road network (including the trunk road network) to provide congestion relief in the city centre along with reduced journey times and increased journey time reliability for all road users will provide an opportunity to promote regional economic growth. Encouraging people and business into the city centre and the east of the city will become easier with the reduction in traffic, and the overall improved road network and accessibility to this, has a positive impact on both those seeking employment and those wishing to employ. | | Moderate Beneficial Moderate Beneficial | - - | |
| | Wider Impacts | Improvements to the network will increase the accessibility of the area to firms and workers, potentially increasing the level of agglomeration activity. This can lead to higher productivity through greater business interaction, better labour market interaction, and/or increased input and output markets due to reduced reight costs, with an overall increase in UK GDP, resulting in a positive inpact on "vedfare". A reduction in transport costs allows an increase in production or output of goods or service markets using the transport. A transport intervention which leads to an expansion of output will deliver a welfare gain not appreside within other user benefits. Greater access to the overall transport network will increntive individuals to work and positively impact on the UK GDP through labour supply and movement between or to employment. | | Slight Beneficial | | |
| Environmental | Noise | Short-term Major increases are concentrated in three locations, Linsey's Heights, Lowrys Avenue and Bannvale Villas. Short-term Moderate and Minor increases are principally located in the same areas, but are further away from the scheme alignment. Long-term increases are boated in the same locations as for Short-term but at a smaller number of receptors, a function of the change in banding between Short and Long-term. Short-term Milior decreases are found along Drumadd Terrace, Orangefield Drive and in Ardmore. No Long-term perceptible decreases are predicted for Option 16. | Short-term perceptible (>=1dB) increases Dwellings: 41 Major; 31 Moderate; 64 Minor OSR: 1 Major; 3 Moderate; 1 Minor Short-term perceptible (>=1dB) decreases Dwellings: 0 Major; 0 Moderate; 140 Minor OSR: 0 Major; 0 Moderate; 0 Minor Long-term perceptible (>=3dB) increases Dwellings: 16 Major; 33 Moderate; 54 Minor OSR: 0 Major; 1 Moderate; 5 Minor Long-term perceptible (>=3dB) decreases Dwellings: 0 Major; 0 Moderate; 0 Minor OSR: 0 Major; 0 Moderate; 0 Minor | Moderate Adverse | £104,391.00 | |
| | Air Quality | Overall improvement in local air quality (NO2 and PM10 exposure) predicted across the study area. The majority of properties affected see an improvement in air quality over the 60 year appraisal period. There are 28 affected properties situated within Armagh AQMA, there is a small improvement in NO2 exposure at these properties in the opening and design year. | Local Air Quality: Opening Year Concentrations NO2 Overall Assessment Score – 599.3 Properties within 200m of modelled links with Improvement: 1611; deterration: 337; no change: 451 PM10 Overall Assessment Score – 882. Properties within 200m of modelled links with Improvement: 709; deterioration: 175; no change: 1515 Local Air Quality: Design Year Concentrations NO2 Overall Assessment Score – 424.4. Properties within 200m of modelled links with Improvement: 136; deterioration: 136; no change: 711 PM10 Overall Assessment Score – 424.4. Properties within 200m of modelled links with Improvement: 1362; deterioration: 206; no change: 711 PM10 Overall Assessment Score – 370. Properties within 200m of modelled links with Improvement: 1362; deterioration: 206; no change: 1435 Regional Air Quality: The 'net total route assessment' in the opening year for PM10 is -89 µg/m3. The emissions of NOx increase as a result of the scheme by 3 tonnes for a projection of 60 years. | Opening Year NO2 The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure) in the Opening Year. It is anticipated to improve NO2 concentrations at 28 receptors within Armagh AOMA declared for NO2 only. Opening Year PM10 The proposed scheme is anticipated to lead to an improvement in air quality (PM10 exposure). Design Year NO2 The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure). Design Year NO2 The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure). Design Year NO2 Design Year PM10 The proposed scheme is anticipated to lead to an improvement in air quality (PM10 exposure). Not expected to have an exceedance from PCM links in the opening or design year. Maximum roadside NO2 concentration for PCM links in opening year (2020) is predicted to be 20.8 µg/m3 | Monetary value of change in NOx = -£2,001 Monetary value of change in PM10 = £271,697 Overall Benefit = £269,696 | |
| | Greenhouse gases | There is an overall decrease in emissions of CO2(eq) as a result of the scheme over the 60 year appaisal period. | Change in non-traded carbon over 60y (ICO2e) -25,054 Change in traded carbon over 60y (ICO2e) N/A | There is an overall decrease in emissions of CO2(eq) as a result of the scheme. The change in opening year (2020) carbon dioxide emissions in tonnes (ICO2) between the with scheme and without scheme scenario is -389 in the opening year 2020. Over the 60 year appraisal period a decrease is predicted of 25,054 tCO2e. | £1,157,857 | |
| | | There are no national landscape designations. The landscape around the developed Armagh Chy is characterised by a small scale pattern of irregular shaped fields over a rolling drumlin landscape. The urban fringe is fragmented by a variety of land uses and there is a marked change between the open farmland to the east and the urban edge of Armagh. The effects on the landscape character would be limited to the introduction of another man made element to the edge of an urban fringe whole be limited to the introduction of another man made element to the edge of an urban fringe with limited effects on tranquility, cultural associations or landcover in the northern half of the option while to the south, where the route sifts eastwards and extends into the rural farmland away from the urban edge, there would be a minor effect on the drumlin landform as the route cuts through the rolling farmland over a short distance before connecting with the A28. It would also be visually exposed locally through a short section of low lying landscape immediately north of the A28. | N/A | Slight Adverse | N/A | |
| | Townscape Historic Environment | N/A There are three listed buildings and one registered parks, gardens or demesnes within the study | N/A | N/A | N/A | |
| | | area. Inclustrial heritage assets comprise two extant road bridges and the sites of three demolished mills. Known archaeotogical assets are restricted to the area of Linsey's Heights and comprise a possible ecclesiastical site reputed to have been re-used in the 1840s for famine burials, elements of a potential perhistoric ritual andscape, settlement activity ON Noolihio data, and settlement activity of early medieval date including a possible rath and acclesiastical enclosure. The setting of the option comprises parts of the eastern urban finge of Armagh and small regular agricultural fields enclosed by hedgerows, which were rationalised during the latter part of the 20th century. The construction and operation of Option 16 would have a neutral impact on known designated and undesignated netralge assets and a moderate adverse impact on the character of the historic landscape. The construction phase could have a major adverse impact on potential unknown sub- surface archaeological assets. | N/A | Slight Adverse | N/A | |
| | Biodiversity | There are no statutory or non-statutory nature conservation designations within the study area. The construction and operation of Option 16 will result in the loss and fragmentation of habitats, including hedgerows and mature trees, resulting in a Slight Adverse impact on these habitats. Following the implementation of mitigation and compensation measures, impacts on semi-improved grassland and watercourses are likely to be Neutral. The construction and operation of Option 16 will also result in the loss of habitats suitable for nesting birds. The impact of this may be compensated for, however the loss of established habitat is likely to result in a Slight Adverse impact on breeding birds. Further survey work is required to determine the impact of Option 16 on bats and badgers. At this stage, the impact on these species is Unknown. | NA | Slight Adverse (Impact on bats and badgers unknown at this stage. Further survey work required before impacts can be determined) | N/A | |
| | Water Environment | Surface water features in the area comprise an unnamed tributary of Callan River (Derryscollop), the Killeen Water plus other unnamed tributaries and field drains. One groundwater body is assessed, the Keady Groundwater body. There is one standing water body within 1km of the scheme. The presence of public water supplies in the area has not been confirmed. The construction and operation of the scheme could have a Slight Adverse impact on these features. Impacts include increased flood risk along surface watercourses as a result of an increase in run- off. Pollution from construction activities, accidental spillage and routine run-off may impact surface watercourses. Potential changes to groundwater flow may occur as a result of cuttines, and potential containnation of groundwater as a result of accidental spillage and routine run. Other impacts include direct or indirect loss of potential GWDTEs as a result of groundwater changes. | N/A | Slight Adverse | N/A | |
| Social | Commuting and Other users | Over the 60 year appraisal period, travel time benefits are accrued for business users, with savings in vehicle operating costs and accident benefits. Overall, benefit to cost ratio (BCR) is 0.339 (low growth), indicating poor value for money. A reduction in journey times of approximately 4minutes in both the opening year and design year through the city centre may be achieved. | Value of journey time changes(£) £9.4m Net journey time changes (£) 0 to 2min 2 to 5min > 5min £7.0m £2.4m £0.0m | | £9.7m | |
| | Reliability impact on Commuting and Other users | The scheme would ease congestion, improving reliability of journeys | | Large Beneficial | - | |
| | Physical activity | Pedestrian and cycling provision is being provided as part of the link scheme. It is hoped that by maintaining, upgrading where appropriate or necessary, and integrating the existing NMU provision with the interduction of a contract the second scheme is a second scheme and the second scheme is a second scheme and scheme is a second scheme and scheme is a second scheme and scheme a | | Moderate Reneficial | | |
| | Journey quality | with the introducion of new facilities, physical activity will increase. Driver stress levels would reduce through the town with reduced traffic volumes. Driver stress levels along the scheme would be reduced as a result of an increase in speed and less frustrating driving conditions. | - Reduction of 13.2% in AADT 2-way flows through the city (along The Mall) from 7,700 to 6,800 in the Opening Year and 13.2% from 9,400 to 8,300 in the Design | woderate Beneficial Moderate Beneficial | - - | |
| | Accidents | The scheme will lead to reduction in accidents in the area. Over the 60 year appraisal period, a modelled reduction of 37 accidents and 43 casualties is anticipated. | vear. Accidents saved = 37 (0 No. Fatal, 2 No. Serious and 34 No. Slight) Fatal casuallies saved = 0 Serious casuallies saved = 5 Sight casuallies saved = 37 | - | £1,910,000 | |
| | Security Access to services | New link road will increase road speeds for road users on the link road as well as on existing roads in the city centre, improving road user security as a result. Street lighting will be provided at all junctions and along the urban length of the scheme. Improves access to the private car network. | | Slight Beneficial Moderate Beneficial | | |
| | Affordability Severance | Funding of the scheme will be by public sector Removal of traffic from the city centre will decrease severance for residents and users within the citv | | N/A | - | |
| | | centre. Provision has been made for continued access to the city centre using a number of priority junctions and at grade junctions. | - | Moderate Beneficial | - | |
| | Option and non-use values | Not applicable to this type of scheme | N/A | N/A | - | |
| ublic unt | Cost to Broad Transport Budget | Total Construction and Land Cost. | - | - | £28.30m | |
| ΔCCD | Indirect Tax Revenues | Forecast results indicative that drivers will consume less fuel and thus pay less fuel tax to the government. | - | - | £0.5m | |

| Appraisal Summary Table | | | Date produced: 15/08/2019 | | | |
|-------------------------|---|---|--|---|---|---|
| | Name of scheme: Description of scheme: | Armagh East Link - Option 12 The proposed Armagh East Link is intended to run from the A28 Markethill Road in the | south to the A3 Portadown Road in the north, incorporating a proposed jur | action with the A51 Hamiltonsbawn Road. | Name Organisation | Colin Bell Mouchel |
| | Imposto | Cumman of kay importo | | Assooment | Role | Project Manager |
| | impacts | Summary of key impacts | Quantitative | Qualitative | Monetary £(NPV) | Distributional 7-pt scale/ vulnerable grp |
| Economy | Business users & transport providers | Over the 60 year appraisal period, travel time benefits are accrued for business users, with savings in vehicle operating costs and accident benefits. Overall, benefit to cost ratio (BCR) is 0.968 (low growth), indicating value for money. A reduction in journey times of approximately 5.5minutes in both the opening year and design year through the city centre may be achieved. | Value of journey time changes(£) £3.2m Net journey time changes (£) 0 to 2min 2 to 5min > 5min | | £3.4m | |
| | Reliability impact on Business | The scheme would ease congestion, improving reliability of journeys | £2.4m £0.8m £0.0m | Moderate Beneficial | - | |
| | Regeneration | While Armagh is not specifically targeted as a Regeneration Area, improvements to the road network (including the trunk road network) to provide congestion relief in the city centre along with reduced journey times and increased journey time reliability for all road users will provide an opportunity to promote regional economic growth. Encouraging people and business into the city centre and the east of the city will become easier with the reduction in traffic, and the overall improved road network and accessibility to this, has a positive impact on both those seeking employment and those wishing to employ. | | Moderate Beneficial | | |
| | Wider Impacts | Improvements to the network will increase the accessibility of the area to firms and workers, potentially increasing the level of agglomeration activity. This can lead to higher productivity through greater business interaction, better labour market interaction, and/or increased input and output markets due to reduced freight costs, with an overall increase in UK GDP, resulting in a positive impact on "vettare". A reduction in transport costs allows an increase in production or output of goods or service markets using the transport. A transport intervention which leads to an expansion of output will deliver a welfare gain not appraised within other user benefits. Greater access to the overall transport network will incentivise individuals to work and positively impact on the UK GDP through labour supply and movement between or to employment. | - - | Slight Beneficial | | |
| Environmental | Noise | Short-term Major increases are mostly found on and around Killury Park Road and in the vicinity of the northerm end of the scheme. Short-term Moderate and Minor increases are located in the same area as the Major impacts detailed above. Long-term increases are located in the same location as for Short-term, but at a smaller number of receptors; a function of the change in banding between Short and Long-term. Short-term Minor decreases are found along Drumadd Terrace, Orangefield Drive and in Ardmore. No Long-term perceptible decreases are predicted for Option 12. | Short-term perceptible (>=1dB) increases Dwellings: 34 Major; 28 Moderate; 104 Minor OSR: 2 Major; 1 Moderate; 11 Minor Short-term perceptible (>=1dB) decreases Dwellings: 0 Moderate; 179 Minor OSR: 0 Moderate; 0 Minor Long-term perceptible (>=3dB) increases Dwellings: 17 Major; 23 Moderate; 49 Minor OSR: 1 Major; 1 Moderate; 34 Minor Pwellings: 17 Moderate; 34 Minor OSR: 1 Major; 1 Moderate; 34 Minor OSR: 0 Major; 0 Moderate; 0 Minor OSR: 0 Major; 0 Moderate; 0 Minor | Moderate Adverse | £170,262.00 | |
| | Air Quality | Overall improvement in air quality (NO2 and PM10 exposure) predicted across the study area. The majority or properties affected see an improvement in air quality over the 60 year appraisal period. There are 28 affected properties situated within Armagh AQMA, there is a small improvement in NO2 exposure at these properties in the opening and design year. | Local Air Quality: Opening Year Concentrations NO2 Overall Assessment Score = -822.2. Properties within 200m of modelled road links with Improvement: 1968; deterioration: 137; no change: 336 PM10 Overall Assessment Score = -182.8. Properties within 200m of modelled road links with Improvement: 911; deterioration: 21; no change: 1509 Local Air Quality: Design Year Concentrations NO2 Overall Assessment Score = -579.9. Properties within 200m of modelled road links with Improvement: 1891; deterioration: 616; no change: 136 PM10 Overall Assessment Score = -171.6. Properties within 200m of modelled road links with Improvement: 1889; deterioration: 112; no change: 136 PM10 Overall Assessment Score = -121.6. Properties within 200m of modelled road links With Improvement: 1886; deterioration: 112; no change: 1443 Regional Air Quality: The 'net total route assessment' in the opening year for PM10 is -128 μg/m3. The emissions of NOx decrease as a result of the scheme by 5 tonnes for a projection of 60 years. | Opening Year NO2 The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure) in the Opening Year. It is anticipated to improve NO2 concentrations at 28 receptors within Armagh AQMA declared for NO2 only. Opening Year PM10 The proposed scheme is anticipated to lead to an improvement in air quality (PM10 exposure). Design Year NO2 The proposed scheme is anticipated to lead to an improvement in air quality (NO2 exposure) in the Design Year. It is anticipated to improve NO2 concentrations at 28 receptors within Armagh AQMA declared for NO2 only. Design Year PM10 The proposed scheme is anticipated to lead to an improvement in air quality (NO1 exposure). Design Year PM10 The proposed scheme is anticipated to lead to an improvement in air quality (PM10 exposure). Not expected to have an exceedance from PCM links in the opening or design year. Maximum roadside NO2 concentration for PCM links in opening year (2020) is predicted to be 20.8 µg/m3 | Monetary value of change in NOx = £4,669 Monetary value of change in PM10 = £381,718 Overall Benefit = £386,387 | |
| | Greenhouse gases | There is an overall decrease in emissions of CO2(eq) as a result of the scheme over the 60 year appaisal period. | Change in non-traded carbon over 60y (ICO2e) -22,044 Change in traded carbon over 60y (ICO2e) N/A | There is an overall decrease in emissions of CO2(eq) as a result of the scheme. The change in opening year (2020) carbon dioxide emissions in tonnes ((CO2e) between the with scheme and without scheme scenario is -329 in the opening year 2020. Over the 60 year appraisal period an decrease is predicted of 22,044 tCO2e. | £1.019,465 | |
| | Lanoscape | There are no national analoscape designations. The corridor of the Option 12 initially passes through an area of residential housing at the northern end before passing through rural drumlin farmland to the east of Armagh and approaching the A28 to the south. The landscape to the east of the developed Armagh Chy is characterised by a small scale pattern of irregular shaped fields over a rolling drumlin landscape. The effects on the landscape character would be limited to the introduction of another man made element to the edge of an urban fringe landscape, disruption to the local pattern of fields and vegetation cover and the affect on drumlin landforms. The proposed option would also extend the extents from which tranquility can be afforded lithough with mitigation the effects on pattern and landform would not be significant. There would be no effects on cultural association. | NA | Slight Adverse | N/A | |
| | Townscape Historic Environment | N/A There is one listed building within the study area. Industrial heritage assets comprise three rail bridges and one road bridge of 19th century date. Known archaeological assets include a focus of activity at Linseys Heights which comprises a potential ecclesiastical site reputed to have been re- used in the 1440s for famine burits, elements of a potential prehistoric ritual andscape, settlement activity of Neolithic date and settlement activity of early medieval date, including a possible rath and ecclesiastical enclosure. An extant early medieval rath and a tree ring (a possible reused rath) are also recorded c.150m to the east of the option. The option passes through a predominantly agricultural landscape of small regular fields enclosed by hedgerows. The construction and operation of Option 12 would have a slight adverse impact on the listed building, a neutral impact on known undesignated heritage assets and a moderate adverse impact on the character of the historic landscape. The construction phase could have a align adverse impact on potential unknown sub-surface archaeological assets. | N/A N/A | N/A Moderate Adverse | N/A N/A | |
| | Biodiversity | There are no statutory or non-statutory nature conservation designations within the study area. The construction and operation of Option 12 will result in the loss and fragmentation of habitats, including hedgerows and mature trees, resulting in a Slight Adverse impact on these habitats. Following the implementation of mitigation and compensation measures, impacts on semi-improved grassland and waterourses are likely to be Neutral. The construction and operation of Option 12 will also result in the loss of habitats suitable for nesting birds. The impact of this may be compensated for, however the loss of established habitat is likely to result in a Slight Adverse impact on breeding birds. Further survey work is required to determine the impact of Option 12 on bats and badgers. At this stage, the impact on these species is Unknown. | NA | Slight Adverse (Impact on bats and badgers unknown at this stage. Further survey work required before impacts can be determined) | N/A | |
| | Water Environment | Surface water leatures in the area comprise an unnamed indulary of calain hiver (prescoip), the Killeen Water pixs ofter unnamed indularies and field drains. One groundwater body is assessed, the Keady Groundwater body. There is one standing water body within 1km of the scheme. The presence of public water supplies in the area has not been confirmed. The construction and operation of the scheme could have a Skight Adverse impact on these features. Impacts include increased flood risk along surface watercourses as a result of an increase in run- oft. Polution from construction activities, accidential spillage and routine run-oft may impact surface watercourses. Polential changes to groundwater flow may occur as a result of cutings, and potential contamination of groundwater as a result of accidential spillage and routine runoft. Other impacts include direct or indirect loss of potential GWDTEs as a result of groundwater changes. | NA | Slight Adverse | N/A | |
| Social | Commuting and Other users | Over the 60 year appraisal period, travel time benefits are accrued for business users, with savings in vehicle operating costs and accident benefits. Overall, benefit to cost ratio (BCR) is 0.968 (low growth), indicating value for money. A reduction in journey times of approximately 5.5minutes in both the opening year and design year through the city centre may be achieved. | Value of journey time changes(£) £2.2m Net journey time changes (£) 0 to 2min 2 to 5min > 5min £1.3m £0.9m £0.0m | | £1.9m | |
| | Reliability impact on Commuting and Other users Physical activity | The scheme would ease congestion, improving reliability of journeys Pedestrian and cycling provision is being provided as part of the link scheme. It is hoped that by maintaining, upgrading where appropriate or necessary, and integrating the existing NMU provision with the introducion of new facilities, physical activity will increase. | | Large Beneficial Moderate Beneficial | · · · | |
| | Journey quality | Driver stress levels would reduce through the town with reduced traffic volumes. Driver stress levels along the scheme would be reduced on a routh of a levels along the scheme would be reduced on a routh of a levels along the scheme stress of the scheme stress | Reduction of 6.9% in AADT 2-way flows through the city (along The Mall) from 7,200 in the Council of Council o | Madenate Prince 11 | | |
| | Accidents | whose outry are science would be reduced as a result or an increase in speed and less trustrating driving conditions. The scheme will lead to reduction in accidents in the area. Over the 60 year appraisal period, a modelled reduction of 15 accidents and 16 casuallies is anticipated. | r./vu to /.zuu in the Opening Year and 6.8% from 9,400 to 8,800 in the Design Year. Accidents saved = 15 (0 No. Fatal, 1 No. Serious and 14 No. Slight) Fatal casualities saved = 0 Serious casualities saved = 2 | Moderate Beneficial | - £716,000 | |
| | Security Access to services | New link road will increase road speeds for road users on the link road as well as on existing roads in the city centre, improving road user security as a result. Street lighting will only be provided at junctions. | Slight casualties saved = 14 - - | Slight Beneficial Moderate Beneficial | | |
| | Affordability Severance | Funding of the scheme will be by public sector Removal of traffic from the city centre will decrease severance for residents and users within the city centre. Provision has been made for continued access to the city centre using a number of priority junctions and at grade junctions. | · · · · · · · · · · · · · · · · · · · | N/A Moderate Beneficial | | |
| 0 ÷ | Cost to Broad Transport | Total Construction and Land Cost. | N/A | N/A | - | |
| Account | Budget Indirect Tax Revenues | Forecast results indicative that drivers will consume less fuel and thus pay less fuel tax to the government. | | - - | £31.08m £0.0m | |