

| DART+ West - MCA Stage 2 | | | | | | | |
|--|------------------|-----|------------------------------------|--|---|---|--|
| Barberstown Level Crossing Assessment | | | | | | | |
| | Parameter | | Criteria | Sub-Criteria (Quantitative/Qualitative) | Option 2 | Option 4 | Option 5 |
| | | | | | Road realignment with skewed roadbridge over canal and railway circa 130m southwest of level crossing. Pedestrian / Cycle facilities provided for along diverted road. Level Crossing closed. Turnback facilities provided at railway | Road realignment with square roadbridge over canal and railway circa 180m southwest of level crossing. Pedestrian / Cycle facilities provided for along diverted road. Level Crossing closed. Turnback facilities provided at railway | Pedestrian / cycle Bridge at Crossing, Turnback facilities at railway, Level Crossing Closed, No replacement road access |
| 1 | Economy | 1.1 | Construction and Land Cost | Assessment of cost of construction of option, land costs and temporary works | Significant comparative disadvantage over other options | Significant comparative disadvantage over other options | Significant comparative advantage over other options |
| | | | | | This option includes the costs of urban roadworks across green fields to cross the railway and canal via raised embankment and a single span bridge. Includes 2No, roundabouts. | This option includes the costs of urban roadworks across green fields to cross the railway and canal via raised embankment and a single span bridge. Includes 2No, roundabouts. | Construction costs of this option will be comparative to other options as the provision of a pedestrian cycle bridge within the canal environs will require significant temporary and permanent works. The cost to acquire land will be lower than other options providing full access |
| | | 1.2 | Long Term Maintenance costs | Ongoing annual maintenance costs associated with varied options | Some comparative disadvantage over other options | Some comparative disadvantage over other options | Some comparative advantage over other options |
| | | | | | An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs. | An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs. | A pedestrian/cyclist overbridge would require minimal maintenance in short term with regular inspections and remedial works in the long term. The long term maintenance low compared to other options. |

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| | 1.3 | Traffic Functionality /economic benefit | Benefits to vehicular traffic through reduction in journey time lengths and delays through removal of level crossings. Consideration of potentially longer routes for traffic. | Significant comparative advantage over other options | Significant comparative advantage over other options | Significant comparative disadvantage over other options |
| | | | | Some improvement in journey time; potential for induced trips; diversion required for local residents. | Some improvement in journey time; potential for induced trips; diversion required for local residents. | Displacement of mobility impaired and cycle traffic onto ramped alternative routes; increase in journey times for local residents. Removal of vehicular access over the level crossing results in displaced flows - 1218 vehicles AM peak hour and 1110 vehicles PM peak hour. Additional traffic delay will result along adjacent access routes - 7% AM peak hour and 5% PM peak hour. Benchmark journey times will increase by up to 8%, |
| | 2.1 | Transport Integration | Impact on scope for and ease of interchange between modes. Impact on the operation of other transport services both during construction and in operation. New interchange nodes and facilities; Reduced walking and wait times associated with interchanges. Modal shift figures during construction and operations. Changes to journey times to transport nodes. | Some comparative advantage over other options | Some comparative advantage over other options | Some comparative disadvantage over other options |
| | | | | Some improvement in journey time; Shared pedestrian & cycle facility; Access to Royal Canal Cycle Route retained, albeit via slightly more circuitous route. | Some improvement in journey time; Shared pedestrian & cycle facility; Access to Royal Canal Cycle Route retained, albeit via slightly more circuitous route. | Reduction in local permeability. |

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| 2 | Integration | 2.2 | Land Use Integration | Impact on land use strategies and local plans. Assessment of support for land use factors local land use and planning. Inclusion of project in relevant local planning documents. | Option 2 is located within a section of land zoned for "High Amenity" by the Fingal DP, the option also travels across Open Space zoned land and the GDA Cycle Network (along the Royal Canal). It then travels north west into an areas designated (map based zoning objective LAP 13.A) for the Barnhill LAP 2019. The introduction of a new road infrastructure into a High Amenity area is considered to be a major negative impact and would be inconsistent with this landuse zoning. | Option 4 is located within a section of land zoned for "High Amenity" by the Fingal DP. This option travels into the LAP 13.A Barnhill LAP through zoned open space lands as part of the Barnhill LAP. This option links to the Barnhill - Ongar road network and could support overall land use and transport planning integration over the long-term. | Option 5 is located within a small section of land zoned for "Open Space" by the Fingal DP. The introduction of a new infrastructure into a Open Space area is inconsistent with the 'Open Space' landuse zoning objective. Subject to further transport studies, this option could have the potential to support sustainable transport planning integration. |
| | | | | | However, it travels on the edge of this zoning and in proximity to the existing road network and could provide a direct connection into the LAP lands. Subject to further studies this option could have the potential to facilitate land use and transport planning integration. | | |
| | | | | | | | |
| | | 2.3 | Geographical Integration | Alternative level crossing options are mostly neutral in respect of Geographical Integration due to localised nature of the level crossings. As a consequence all options are rated comparable to one another. | Comparable to other options | Comparable to other options | Comparable to other options |
| | | | | | No significant effect on geographical integration. | No significant effect on geographical integration. | No impact on Geographical Integration |
| | | | | | | | |
| 2.4 | Other Government Policy Integration | Integration with the other Government policy such as the NPF and RSES. | Comparable to other options | Comparable to other options | Comparable to other options | | |
| | | | This option would support the delivery of the higher level national and regional planning policies regarding the DART | This option would support the delivery of the higher level national and regional planning policies regarding the DART | This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion | | |

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| Parameter | Criteria | Sub-Criteria (Quantitative/Qualitative) | Option 2 | Option 4 | Option 5 | |
| | 3.1 | Noise and Vibration | Estimated number of sensitive properties within 100m of the works. Options closer to more sensitive locations will have an increased risk of generating a noise impact. However, qualitative criteria are also used where necessary to differentiate between the options. | Some comparative disadvantage over other options | Some comparative disadvantage over other options | Some comparative advantage over other options |
| | | | | New overbridge will have some construction phase impacts, however, only 1 dwelling within 100m. | New overbridge will have some construction phase impacts, however, 8 dwellings within 100m. | Removes vehicular traffic which will reduce the noise levels in the locality. 2 dwellings within 100m |
| | 3.2 | Air Quality and Climate | Estimated number of number of receptors within 50m reviewed as part of appraisal. Options closer to more sensitive locations will have an increased risk of changes in air quality during construction or operational phases. However, qualitative criteria are also used where necessary to differentiate between the options. | Some comparative disadvantage over other options | Some comparative disadvantage over other options | Some comparative advantage over other options |
| | | | One dwelling within 50m. Potential for construction phase dust impact is not significant when mitigation measures are put in place. | 4 dwellings within 50m. Longer route means potentially more embodied energy with respect to construction materials. Potential for construction phase dust impact is not significant when mitigation measures are put in place. | 1 dwelling within 50m. Removes vehicle traffic locally therefore reducing local impact. Traffic data not available at time of assessment therefore no assessment of traffic redistribution has been undertaken. Potential for construction phase dust impact is not significant when mitigation measures are put in place. | |
| | 3.3 | Landscape and Visual (including light) | Key landscape characteristics affected; Impact on landscape character; Impacts on landscape features, protected landscapes. Key visual characteristics affected; Impacts on properties, amenities, protected views, key views. | Comparable to other options | Comparable to other options | Comparable to other options |
| | | | Option to avoid potential impact on boundary to Luttrellstown Castle estate (the latter is an architectural conservation area, and a protected structure). Tree Preservation Objectives for lands north of Luttrellstown estate. Significant landscape and visual impact on Royal Canal corridor. Significant visual impact for two residential properties to north/northwest of eastern roundabout. | Significant landscape and visual impact for boundary to Luttrellstown Castle estate (the latter is an architectural conservation area, and a protected structure). Tree Preservation Objectives within Luttrellstown estate. Significant landscape and visual impact on Royal Canal corridor. Significant visual impact for residential properties, one to northwest of eastern roundabout, and one southwest of western roundabout. | Significant visual impact for three dwellings (including canalside cottage) in close proximity. Potential significant impact on Royal Canal and on associated trees and vegetation. | |

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| 3 | Environment | 3.4 | Biodiversity (flora and fauna) | Potential compliance/conflict with biodiversity objectives; Indirect impacts on protected species, designated sites; Overall effect on nature conservation resource. | <p>Comparable to other options</p> <p>Hydrologically connected to South Dublin Bay and River Tolka Estuary SPA. No risk of LSE. Potential impacts to Royal Canal pNHA. Loss of treeline, hedgerow and agricultural grassland habitats.</p> | <p>Comparable to other options</p> <p>Hydrologically connected to South Dublin Bay and River Tolka Estuary SPA. No risk of LSE. Potential impacts to Royal Canal pNHA. Loss of treeline, hedgerow and agricultural grassland habitats.</p> | <p>Comparable to other options</p> <p>Hydrologically connected to South Dublin Bay and River Tolka Estuary SPA. No risk of LSE. Potential impacts to Royal Canal pNHA. Loss of hedgerow and agricultural grassland habitats.</p> |
| | | 3.5 | Cultural, Archaeological and Architectural Heritage | Overall effect on cultural, archaeological and architecture heritage resource. Likely effects on RPS, National Monuments, SMRs, Conservation areas, etc. Number of designated sites/structures (by level of designation) directly impacted by scheme (landtake) | <p>Comparable to other options</p> <p>Potential indirect impacts on the Royal Canal (RPS No. 944a) and Peckenhams bridge (RPS 0711) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.</p> | <p>Comparable to other options</p> <p>Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.</p> | <p>Comparable to other options</p> <p>Potential indirect impacts on Royal Canal (RPS 944a). Potential to encounter archaeological deposits that may survive in undeveloped areas.</p> |
| | | 3.6 | Water Resources | Overall potential significant effects on water resource attributes likely to be affected during construction and operation. | <p>Some comparative disadvantage over other options</p> <p>Proposed route indicated to have increased flood risk compared to other options. Potential negative impact on surface and groundwater quality during operational phase. Potential negative impact on groundwater quality during construction phase.</p> | <p>Some comparative disadvantage over other options</p> <p>Proposed route indicated to have increased flood risk compared to other options. Potential negative impact on surface and groundwater quality during operational phase. Potential negative impact on groundwater quality during construction phase.</p> | <p>Some comparative advantage over other options</p> <p>Potential negative minor impact on surface and groundwater quality during construction phase. Potential positive impact on surface water quality during operational phase due to removal of traffic-related pollutants.</p> |
| | | 3.7 | Agriculture and Non-Agricultural | Overall impact on land take & property. Number of properties to be impacted/acquired. Likely temporary or permanent severance effects, etc. | <p>Some comparative disadvantage over other options</p> <p>Under Option 2, there will be a direct impact on agricultural lands used for equine stock resulting in landtake and severance.</p> | <p>Some comparative advantage over other options</p> <p>Under Option 4, there will be a direct impact on agricultural lands used for equine stock resulting in landtake and severance. There is a lower impact on agriculture than Option 2</p> | <p>Some comparative advantage over other options</p> <p>Option 5 will involve minor landtake of agricultural lands on one property.</p> |

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| | | 3.8 | Geology and Soils (including Waste) | Soils and Geology and likely impact on geological resources based on preliminary/likely construction details. Soil or topsoil resources to be developed/removed based on cut or fill requirements and potential for soft ground which may also need replaced. Existing information relating to potential to encounter contaminated land. High-level assessment based on the likely structures/ works required and the potential for ground contamination due to historic landfills, pits and quarries. | Comparable to other options | Comparable to other options | Comparable to other options |
| | | 3.9 | Radiation and Stray Current | Overall likely impact on existing sources of electromagnetic radiation. | It is assumed that the routing of the cabling, the location of existing substations, hubs etc. along the line will be changed or impacted by the selection of any of the options over the entire project. Both Options are comparable from an EMI perspective at this stage in the assessment. | It is assumed that the routing of the cabling, the location of existing substations, hubs etc. along the line will be changed or impacted by the selection of any of the options over the entire project. Both Options are comparable from an EMI perspective at this stage in the assessment. | It is assumed that the routing of the cabling, the location of existing substations, hubs etc. along the line will be changed or impacted by the selection of any of the options over the entire project. Both Options are comparable from an EMI perspective at this stage in the assessment. |
| | | 4.1 | Impact on Vulnerable Groups | Impacts on low income groups, non-car owners, mobility impaired, visually impaired and people with a disability. | Some comparative advantage over other options | Some comparative advantage over other options | Some comparative disadvantage over other options |
| | | | | Diverted distance route 587m (2.0x diversion route). | Diverted distance route 948m (3.3x diversion route). | Shortest diversion route 4.8km (16x diversion route). | |

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| 4 | Accessibility & Social inclusion | 4.2 | Stations Accessibility | Quantification of increased service levels to the vulnerable groups. | It is considered that alterations at Barberstown will not significantly affect access to stations in the locality | It is considered that alterations at Barberstown will not significantly affect access to stations in the locality | It is considered that alterations at Barberstown will not significantly affect access to stations in the locality |
| | | 4.3 | Social Inclusion | Service levels impacts including severance of community groups; Severance from community facilities consequent on an option. | Diverted distance route 587m (2.0x diversion route). | Diverted distance route 948m (3.1x diversion route) | Pedestrian, and cyclist and non motorised road users catered for. Community facilities affected by reduced access include Shopping facilities, Ongar Community Centre, Stone Ideas, 2No. Educate Together Schools - northwest of the railway and Shackleton Gardens, Westmanstown Sports and Conference Centre, Dublin Falconry and Luttrellstown Castle Resort - south of the railway. |
| 5 | Safety | 5.1 | Rail Safety | Safety for Rail users – removal of Level crossings is considered a significant safety enhancement | All overbridges have a significant advantage as they are a great crossing alternative. | All overbridges have a significant advantage as they are a great crossing alternative. | All overbridges have a significant advantage as they are a great crossing alternative. |
| | | 5.2 | Vehicular Traffic Safety | Quality of Access for these road users, lengths of diversions, removal of interface with rail and other modes of transport | Providing a segregated crossing would have a significant advantage as vehicular traffic is not crossing the live rail. | Providing a segregated crossing would have a significant advantage as vehicular traffic is not crossing the live rail. | Closing the crossing would have a disadvantage on vehicular traffic as traffic will have to be diverted |
| | | 5.3 | Pedestrian, Cyclist and Vulnerable Road user Safety | Quality of Access for these road users. removal of interfaces | Diverted distance route 587m (2.0x diversion route). | Diverted distance route 948m (3.1x diversion route) | No diversion! for pedestrian and cyclists |

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| 6 | Physical Activity | 6.1 | Connectivity to adjoining cycling facilities | Analysis of the extent that the scheme connects with cycle tracks. | Comparable to other options | Comparable to other options | Comparable to other options |
| | | 6.2 | Permeability and local access opportunity | Journey Time and lengths of diversions for active modes and numbers affected. Analysis of the connectivity between level crossing and green areas/key attractions related to active mode | <p>Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link Road.</p> <p>Diversion for cyclists when level crossing closed 0.30km</p> <p>The principal high amenity greenspaces in the vicinity of the existing train station include the Royal canal, the amenity zoned lands, golf courses and allotments south of the level crossing. This access is maintained by the proposed bridge scheme.</p> | <p>Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link Road.</p> <p>Diversion for cyclists when level crossing closed 0.30km</p> <p>The principal high amenity greenspaces in the vicinity of the existing train station include the Royal canal, the amenity zoned lands, golf courses and allotments south of the level crossing. This access is maintained by the proposed bridge scheme.</p> | <p>Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Coolmine Road.</p> <p>Diversion for cyclists when level crossing closed 0.30km</p> <p>The principal high amenity greenspaces in the vicinity of the existing train station include the Royal canal, the amenity zoned lands, golf courses and allotments south of the level crossing. This access is maintained by the proposed bridge scheme.</p> |

| Criteria | Option 2 | Option 4 | Option 5 |
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| 1 Economy | Some comparative disadvantage over other options | Some comparative disadvantage over other options | Some comparative advantage over other options |
| 2 Integration | Significant comparative advantage over other options | Significant comparative advantage over other options | Significant comparative disadvantage over other options |
| 3 Environment | Some comparative disadvantage over other options | Some comparative advantage over other options | Some comparative advantage over other options |
| 4 Accessibility and social inclusion | Some comparative advantage over other options | Some comparative advantage over other options | Some comparative disadvantage over other options |
| 5 Safety | Some comparative advantage over other options | Some comparative advantage over other options | Some comparative disadvantage over other options |
| 6 Physical Activity | Comparable to other options | Comparable to other options | Comparable to other options |
| Preferred | No | Yes | No |