DART+ WEST - MCA Stage 1

Coolmine Level Crossing Assessment

	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Do Nothing	Do Minimum	Option 1
					Leave the current level crossings in place.	Closure of the existing crossings with no alternative provided. All traffic would be diverted to alternative routes around the crossing location.	This online option is proposed along the existing Coolmine Road north of the rail line and canal and along Carpenterstown Road to the south. The option extends for 245m to the north and 210m to the south, accommodating a cross section of a 6.5m carriageway with 2m wide footpaths on both sides. There is insufficient room for with this option to accommodate dedicated cycle tracks without increasing the overall road footprint and impact on the adjacent properties further. The high side of railway is currently at a level of 65.3m above MSL at the existing level crossing with the proposed overbridge structure being at a minimum road level of 72.6m above MSL to provide the minimum clearance required for the electrification of the rail line. Embankment heights adjacent to properties north of the railway would be up to 6.6 metres while houses immediately south west of the railway would have embankments in the order of 6.4 metres high adjacent to them. A structure approximately 30m in length and at an elevation of approximately 7.3m would be required to span the railway and canal. The option would involve the construction of walled approaches to the bridge as there is insufficient space available for the construction of embankments. Initial examination suggests that the works would extend approximately 160m along Coolmine Road on each approach to the bridge. construction is likely to require the provision of noise abatement measures approximately 2.0 metres high above to the embankment. This option would also potentially require the demolition of the listed Kirkpatrick Bridge if not fully spanned.
1	**Economy**	1.1	**Construction and Land Cost**	Assessment of cost of construction of option, land costs and temporary works	**Significant comparative advantage over other options** The proposed signaling system will need augmentation to accommodate the level crossing left in place	**Significant comparative advantage over other options** Cost of removing crossing is nominal in comparison to provision of road crossing.	**Some comparative disadvantage over other options** The capital cost of this option is negatively affected by the need to construct the works while maintaining traffic on the Coolmine Road and by the need to provide nested ramps for cyclists and vulnerable road users
		1.2	**Long Term Maintenance costs**	Ongoing annual maintenance costs associated with varied options	**Some comparative disadvantage over other options** The existing crossing is manned resulting in an ongoing annual cost. The level crossing equipment incurs an annual maintenance cost and replacement cost on a 15yr cycle	**Significant comparative advantage over other options** The closure of the level crossing would remove the maintenance requirement for the level crossing.	**Some comparative advantage over other options** An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs.
		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 disadvantage over other options** Reduced capacity as train frequencies increase; increase in journey times for local residents.	**Significant comparative disadvantage over other options** 64% reduction in traffic volumes @ Junction North of Level Crossing; 1% incease in traffic at Junction south of level crossing; 38% increase in traffic volumnes at Diswellstown North Roundabout; 32% increase in traffic at Junction South of Diswellstown Viaduct; 61% increase in traffic at Junction East of Above; 3%increase in traffic at junction south of Castleknock Station; Significant delay anticipated due to junctions being undercapacity	**Significant comparative advantage over other options** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.
		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 disadvantage over other options** GDA Cycle Network Plan cannot be realised with such poor connectivity. Increased delays on bus routes. Reduced access to train station and car park.	**Significant comparative disadvantage over other options** Inconsistent with GDA Cycle Network Plan which shows a primary route on Coolmine Road; Disruption to bus routes; Slight reduction in accessibility of train station; Significant reduction in accessibility of train station car park.	**Some comparative advantage over other options** Improved interchange between modes, subject to satisfactory access to train station platforms. General reduction in journey times. There may be severance to existing connectivity on the approaches to the bridge over the canal and railway as a result of the construction of the required approach ramps. Access to the train station car park will be difficult. Primary cycle route, according to GDA Cycle Network Plan, but no room for cycle facilities on new bridge.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Do Nothing	Do Minimum	Option 1
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.	**Significant comparative advantage over other options** DART Expansion Programme is supported by FCDP through Objective MT30 in the FCDP. Retaining the level crossing supports FCDP Specific Objective 142: "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". The area is a low-density suburban, well established residential area.	**Some comparative disadvantage over other options** Direct impacts the **FCDP Objective 142:** "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. There is **no alternative right of way is provided in this option.** Land use factors: The area is a low-density suburban, well established residential area. Closure of the level crossing will change transportation patterns and restrict access to sustainable modes of travel to and from the station for some users.	**Some comparative disadvantage over other options** Direct impacts the FCDP **Objective 142: "**Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP).
		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** No impact on Geographical Integration	**Comparable to other options** No significant effect on geographical integration.	**Comparable to other options** No significant effect on geographical integration.
		2.4	Other Government Policy Integration	Integration with the other Government policy such as the NPF and RSES.	**Some comparative disadvantage over other options** This option would not support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), RSES & GDA Transport Strategy).	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy). However impacts to Smarter travel policy.	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).
		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, qualative criteria are also used where necessary to differentiate between the options.	**Some comparative advantage over other options** Retains vehicular traffic at the current crossing point. Neutral impact on the noise environment.	**Significant comparative advantage over other options** Removes vehicular traffic which will reduce the overall noise levels in the vicinity. Furthermore, the construction phase is minimal.	**Some comparative advantage over other options** Online option will have no additional impacts to the current situation. 316 dwellings within 100m.
		3.2	Air Quality and Climate	Estimated number of number of receptors within 50m reviewed as part of appriasal. Options closer to more sensitive locations will have an increased risk of changes in air quality during construction or operational phases. However, qualative criteria are also used where necessary to differentiate between the options.	**Some comparative advantage over other options** Retains vehicular traffic at the current crossing point. Neutral impact on the air quality environment..	**Significant comparative advantage over other options** Removes vehicular traffic and the construction phase is minimal. No traffic distribution data available to assess impact on new receptors therefore assessment only considers current receptors close to the level crossing. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	**Some comparative disadvantage over other options** On line option.. 166 dwellings within 50m potentially impacted during operational phase. 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.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** Minimal impact on existing landscape or visual characteristics - no likely significant landscape or visual impacts. Loss of local landscape connectivity.	**Significant comparative disadvantage over other options** Online overbridge option is likely to have significant impact on visual setting of adjoining residential properties at Kirkpatrick Drive, Sheepmoor Lane, Delwood Grove and Riverwood Hall. Significant visual impact for setting of Kirkpatrick Bridge - a protected structure and hence for Objective CH43 of Fingal Development Plan. Likely significant impact due to removal of roadside tree-lined hedgerows leading to railway / canal. Further information required regarding junction proposal/arrangement for Sheepmoor Lane and Kirkpatrick Drive.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Do Nothing	Do Minimum	Option 1
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.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** No likely impacts.	**Some comparative advantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. Widening of Coolmine Road on north side could result in loss of mature ash trees on the west side of road next to canal. This could be avoided if road is widened at eastern side. Demolition of Kirkpatrick Bridge could cause disturbance to and displacement of fauna as well as impact water quality in the canal. As the new structure over the railway and canal is aligned with the existing crossing there will be minimal habitat loss and less impact on the overall integrity of the pNHA.
		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)	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative disadvantage over other options** Potential direct impact on Kirkpatrick Bridge (RPS 0697) that spans over the Royal Canal. Potential indirect impact to the Royal Canal (RPS No. 0994a).
		3.6	**Water Resources**	Overall potential significant effects on water resource attributes likely to be affected during construction and operation.	**Some comparative advantage over other options** Option will have negligible impact on existing flood regime. Continued potential negative impact on surface water quality during operational phase. Has some comparative advantages over other options.	**Significant comparative advantage over other options** Removes vehicular traffic borne pollutants and minimal construction activities. The Do Minimum Option is advantageous across all sub-criteria and has a significant comparative advantage compared to other options overall.	**Some comparative advantage over other options** Option likely have minimal impact on flood regime. Potential for minor impact on surface water quality during construction. Likely minimal impact on groundwater quality. Has some comparative advantage over other options.
		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.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** This option will reconfigure local access onto Coolmine / Carpernterstown Road. Direct impacts will include impacts to existing boundary and green areas.
		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.	**Significant comparative advantage over other options** No likely impacts.	**Significant comparative advantage over other options** No likely impacts.	**Some comparative advantage over other options** Overbridge options require fill import to the site for construction over existing roadway (Minor negative). Potential for ground contamination is considered low, subject to further investigation. No pits or quarries are present. Comparative advantage is considered as construction is proposed on existing route and unlikely to encounter new areas of soft ground or contamination.
		3.9	**Radiation and Stray Current**	Overall likely impact on existing sources of electromagnetic radiation.	**Some comparative advantage over other options** No changes from an EMI perspective transverse to the railway therefore advantage over other options.	**Some comparative advantage over other options** No changes from an EMI perspective transverse to the railway therefore advantage over other options.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Do Nothing	Do Minimum	Option 1
4	Accessibility & Social inclusion	4.1	Impact on Vulnerable Groups	Impacts on low income groups, non-car owners, mobility impaired, visually impaired and people with a disability.	Significant comparative disadvantage over other options Original Distance roundabout to Rockfield Drive crossroads 450m retained. The long closure times associated with the level crossing will, however, restrict access.	Significant comparative disadvantage over other options This option severs access locally across the railway	Significant comparative advantage over other options Original Distance roundabout to roundabout 450m retained.
		4.2	Stations Accessibility	Quantification of increased service levels to the vulnerable groups.	Significant comparative disadvantage over other options Station Accessibility is addressed for all level crossing options in proximity to a station This option will require that traffic seeking to access the station from the north will divert along the existing road network due to delays at the level crossing Shortest diversion route 3.1km (6.8x diversion route). Original Distance roundabout to Rockfield Drive crossroads 450m retained.	Significant comparative disadvantage over other options Station Accessibility is addressed for all level crossing options in proximity to a station This option requires that all traffic accessing the station from the north must divert along the existing road network Shortest diversion route 3.1km (6.8x diversion route).	Significant comparative advantage over other options Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station
		4.3	Social Inclusion	Service levels impacts including severance of community groups; Severance from community facilities consequent on an option.	Significant comparative disadvantage over other options This option causes severence of the community through curtailment of local access over the railway without replacement with effective alternative access. Community facilities affected by reduced access include Carpenterstown Community College, health facilities in Castleknock, commercial facilities at the Coolmine Industrial Estate and the train station.	Significant comparative disadvantage over other options This option causes severence of the community through curtailment of local access over the railway without replacement with effective alternative access. Community facilities affected by reduced access include Carpenterstown Community College, health facilities in Castleknock and commercial facilities at the Coolmine Industrial Estate	Significant comparative advantage over other options This option does not cause community severence. This option does not affect access to community amenities
5	Safety	5.1	Rail Safety	Safety for Rail users – removal of Level crossings is considered a significant safety enhancement	Significant comparative disadvantage over other options This Option leaves the railway level crossing in place, a characteristic which is considered negative from the perspective of railway safety. This option will require construction activity associated with signalling along the live railway associated with the level crossing	Significant comparative advantage over other options This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. There is no significant construction activity along the railway associated with the level crossing	Significant comparative advantage over other options This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. There is no significant construction activity along the railway associated with the level crossing
		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	Significant comparative disadvantage over other options This option retains the level crossing - a signficant hazard to transport users; This option will result in traffic diversions of up to 2.0km and increased congestion on the local road network.	Significant comparative disadvantage over other options This option closes the level crossing - removes a signficant hazard to transport users; This option will result in traffic diversions of up to 2.0km and increased congestion on the local road network.	Significant comparative advantage over other options This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Do Nothing	Do Minimum	Option 1
		5.3	**Pedestrian, Cyclist and Vulnerable Road user Safety**	Quality of Access for these road users. removal of interfaces	**Significant comparative disadvantage over other options** The curtailed availability of access over the level crossing associated with this option will divert vulnerable road users onto the existing road network. Diverted road users will be required to negotiate up to 6No additional junctions including traffic light junctions and roundabouts, typically turning left travelling southbound, right if travelling northbound. This options does not provide for segregation on the diversion routes for vulnerable road users.	**Significant comparative disadvantage over other options** The removal access over the level crossing associated with this option will divert vulnerable road users onto the existing road network. Diverted road users will be required to negotiate up to 6No additional junctions including traffic light junctions and roundabouts, typically turning left travelling southbound, right if travelling northbound. This options does not provide for segregation on the diversion routes for vulnerable road users.	**Significant comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; Nested ramps are envisaged to constrain gradients to a maximum of 5% for vulnerable road users. The junction strategy for vulnerable road users is unaffected by this option; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.
6	**Physical Activity**	6.1	**Connectivity to adjoining cycling facilities**	Analysis of the extent that the scheme connects with cycle tracks.	**Significant comparative disadvantage over other options** No formal cycle tracks currently present on the immediately surrounding road network, but increased closures of the level crossing would reduce access to the proposed Royal Canal Greenway. Access to the train station for pedestrians and cyclists will be significantly inhibited by the level crossing, particularly with the planned level of service on the railway.	**Significant comparative disadvantage over other options** No cycle tracks currently present on the immediately surrounding road network, but removal of level crossing will sever access to the Royal Canal Greenway from the opposite side of the railway. Access to the train station for pedestrians and cyclists will be significantly inhibited by removal of the level crossing.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.
		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	**Significant comparative disadvantage over other options** Cross railway journey = nil as crossing remains in place; Inaccessible when crossing is closed. Diversion for cyclists when level crossing closed 3.3km The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. Increased closures of the level crossing would reduce access to the Royal Canal.	**Significant comparative disadvantage over other options** Cross Railway journey = 3.3km as level crossing is removed. Diversion for cyclists when level crossing closed 3.3km The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. Increased closures of the level crossing would sever access to the Royal Canal from the opposite side of the railway.	**Significant comparative advantage over other options** Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Coolmine Road. Diversion for cyclists when level crossing closed 0.13km The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.

	Criteria		Do Nothing	Do Minimum	Option 1
1	**Economy**		**Some comparative disadvantage over other options**	**Some comparative advantage over other options**	**Some comparative advantage over other options**
2	**Integration**		**Some comparative disadvantage over other options**	**Significant comparative disadvantage over other options**	**Some comparative advantage over other options**
3	**Environment**		**Some comparative advantage over other options**	**Significant comparative advantage over other options**	**Some comparative disadvantage over other options**
4	**Accessibility and social inclusion**		**Significant comparative disadvantage over other options**	**Significant comparative disadvantage over other options**	**Significant comparative advantage over other options**
5	**Safety**		**Significant comparative disadvantage over other options**	**Significant comparative disadvantage over other options**	**Significant comparative advantage over other options**
6	**Physical Activity**		**Some comparative disadvantage over other options**	**Significant comparative disadvantage over other options**	**Significant comparative advantage over other options**
	Progress To Stage 2		**No**	**No**	**Yes**

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Coolmine Level Crossing Assessment

	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
					This online option is proposed along the existing Coolmine Road north of the rail line and canal and along Carpenterstown Road to the south. The option extends for 245m to the north and 210m to the south, accommodating a cross section of a 6.5m carriageway with 2m wide footpaths on both sides. 1.8m footpaths and 2.5m cycle ways are proposed on both sides of the road. Given the limited height clearance available, any bridge over the canal would require an opening span. Such a scheme would involve the construction of walled approaches to the bridge as there is insufficient space available for the construction of cut slopes. The cuttings would extend approximately 160 metres along Coolmine Road on each approach to the bridge. The low side of the railway is at a level of 65.0m above MSL at the existing level crossing, with the proposed tunnel /underpass structure at a level of 57.7m above MSL to provide the minimum clearance required for the electrification of the rail line. A lifting structure at a similar level would be required for the canal. This option would require the demolition of the listed Kirkpatrick Bridge as its existing structure would be in in the way of the new tunnel / underpass structure.	New Overbridge Connecting St. Mochta's Grove to Luttrellpark Road.	New Underbridge with Opening Canal Bridge Connecting St. Mochta's Grove to Luttrellpark Road.
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** The capital cost of this option is negatively affected by: - the need to construct the works while maintaining traffic on the Coolmine Road; - the below ground nature of construction; - the construction of a bridge under the railway; - the incorporation of an opening bridge over the canal.	**Some comparative advantage over other options** The capital cost of this option is negatively affected by the need to construct a pedestrian cycle bridge on Coolmine Road in addition to the offline road bridge	**Significant comparative disadvantage over other options** The capital cost of this option is negatively affected by: - the below ground nature of construction; - the construction of a bridge under the railway; - the incorporation of an opening bridge over the canal; - the need for a pedestrian cycle bridge on Coolmine Road in addition to the offline road bridge.
		1.2	**Long Term Maintenance costs**	Ongoing annual maintenance costs associated with varied options	**Significant comparative disadvantage over other options** An opening overbridge will significantly increase the ongoing and maintenance requirements. In addition this option will incorporate a pumped drainage system which requires ongoing maintenance.	**Some comparative advantage over other options** An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs .	**Significant comparative disadvantage over other options** An opening overbridge would significantly increase the maintenance requirements.
		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** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.	**Significant comparative advantage over other options** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.	**Significant comparative advantage over other options** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
2	Integration	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** Improved interchange between modes, subject to satisfactory access to train station platforms. General reduction in journey times. There may be severance to existing connectivity on the approaches to the bridge over the canal and railway as a result of the construction of the required approach ramps. Access to the train station car park will be difficult. Primary cycle route, according to GDA Cycle Network Plan.	**Significant comparative advantage over other options** Rerouted access to train station car park. General improvement in connectivity and journey times. No severance to existing connectivity as a result of the construction of the required approach ramps. Coolmine Road is primary cycle route in GDA Cycle Network Plan - re-routing of traffic to new crossing point a benefit to cycling.	**Significant comparative advantage over other options** Rerouted access to train station car park. General improvement in connectivity and journey times. No severance to existing connectivity as a result of the construction of the required approach ramps. Coolmine Road is primary cycle route in GDA Cycle Network Plan - re-routing of traffic to new crossing point a benefit to cycling. Cycle track provided on underbridge
		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.	**Some comparative disadvantage over other options** Direct impacts the FCDP **Objective 142:** "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure provided therefore it meets the 'indicative/cycle/ walking' network at this location (FDP).	**Significant comparative disadvantage over other options** Direct impacts the FCDP **Objective 142: "**Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP).	**Significant comparative disadvantage over other options** Direct impacts the FCDP **Objective 142:** "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP).
		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** No significant effect on geographical integration.	**Comparable to other options** No significant effect on geographical integration.	**Comparable to other options** No significant effect on geographical integration.
		2.4	Other Government Policy Integration	Integration with the other Government policy such as the NPF and RSES.	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).
		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, qualative criteria are also used where necessary to differentiate between the options.	**Some comparative advantage over other options** Online underbridge will involve significant construction stage works. Operational phase would potentially see some reduction in noise levels from traffic due to the proposed reduction in road level, likely to be balanced by changes in traffic levels. 316 dwellings within 100m.	**Significant comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 434 dwellings within 100m.	**Significant comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 458 dwellings within 100m.
		3.2	Air Quality and Climate	Estimated number of number of receptors within 50m reviewed as part of appriasal. Options closer to more sensitive locations will have an increased risk of changes in air quality during construction or operational phases. However, qualative criteria are also used where necessary to differentiate between the options.	**Some comparative disadvantage over other options** On line option. 144 dwellings within 50m potentially impacted during operational phase. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	**Significant comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 216 dwellings within 50m. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	**Some comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 205 dwellings within 50m. Potentially less embodied carbon than option 3 due to underbridge rather than over bridge in construction phase. Potential for construction phase dust impact is not significant when mitigation measures are put in place.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
3	Environment	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.	**Significant comparative disadvantage over other options** This option is likely to have significant impact on visual setting of adjoining residential properties at Kirkpatrick Drive, Sheepmoor Lane, Delwood Grove and Riverwood Hall. Significant impact in removal of Kirkpatrick Bridge - a protected structure and hence for Objective CH43 of Fingal Development Plan. Likely significant impact due to removal of roadside tree-lined hedgerows leading to railway / canal. Further information required regarding junction proposal/arrangement for Sheepmoor Lane and Kirkpatrick Drive.	**Significant comparative disadvantage over other options** Overbridge option will have very significant landscape and visual impact on open space zoned lands between St. Mochta's/Rockfield, Stationcourt Way/Kirkpatrick and through Riverwood. Very significant visual impact for residential properties at St. Mochta's, Rockfield, Stationcourt Way/Hall, Kirkpatrick and Riverwood. Demolition of residential property at Sheepmoor Lane. Tree and vegetation loss and significant visual impact in crossing the Royal Canal and hence for Objective CH43 of Fingal Development Plan. Online pedestrian cycle overbridge option will have very significant landscape and visual impact on adjacent housing estates and apartment blocks. Tree and vegetation loss and significant visual impact in crossing the Royal Canal and hence for Objective CH43 of Fingal Development Plan.	**Significant comparative disadvantage over other options** Underbridge option with embankments. The initial assessment indicates that the approach cuttings would extend for at least 160m on each approach to both bridges. This option will have very significant landscape and significan t visual impact on open space zoned lands between St. Mochta's/Rockfield, Stationcourt Way/Kirkpatrick and through Riverwood. Significant visual impact for residential properties at St. Mochta's, Rockfield, Stationcourt Way/Hall, Kirkpatrick and Riverwood. Demolition of residential property at Sheepmoor Lane. Tree and vegetation loss and significant visual impact in crossing the Royal Canal and hence for Objective CH43 of Fingal Development Plan. Two structures approximately 50m in total length would be required to go under the railway and span the canal. Online pedestrian cycle overbridge option will have very significant landscape and visual impact on adjacent housing estates and apartment blocks. Tree and vegetation loss and significant visual impact in crossing the Royal Canal and hence for Objective CH43 of Fingal Development Plan.
		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.	**Significant comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. Widening of Coolmine Road on north side could result in loss of mature ash trees on the west side of road next to canal. This could be avoided if road is widened at eastern side. Underbridge optiion and canal bridge could poser water quality issues. Demolition of Kirkpatrick Bridge could disturb and displace fauna. As the new structure over the railway and canal is aligned with the existing crossing there will be minimal habitat loss and less impact on the overall integrity of the pNHA.	**Some comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. New structure over the canal will fragment the ecological corridor. The construction of the pedestrian and cyclist bridge could result in tree loss north and south of the canal. Loss of woodland, scrub, amenity grassland, scattered trees and parkland is anticipated. Demolition of property on the north side of the canal on Sheepmore Lane could disturb and displace fuana	**Some comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. New structure over the canal will fragment the ecological corridor. The construction of the pedestrian and cyclist bridge could result in tree loss north and south of the canal. Loss of woodland, scrub, amenity grassland, scattered trees and parkland is anticipated.
		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)	**Significant comparative disadvantage over other options** Direct impact on RPS 697 Kirkpatrick bridge. Direct impact to the Royal Canal (RPS No. 994a).	**Some comparative advantage over other options** Indirect impact to the Royal Canal (RPS No. 994a).	**Some comparative disadvantage over other options** Direct and indirect impact to the Royal Canal (RPS No. 994a). Indirect impact on RPS 697 Kirkpatrick bridge.

	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
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		3.6	**Water Resources**	Overall potential significant effects on water resource attributes likely to be affected during construction and operation.	**Significant comparative disadvantage over other options** The in-stream works required constitute a flood hazard and is significantly disadvantageous compared to the other options. The construction works within the Royal Canal is likely to have a significant negative impact on Surface water quality during construction. The railway underpass and opening canal bridge excavations also pose a significant risk to Groundwater quality. Potential for localised lowering of the groundwater table and potential groundwater contamination during construction. There is no indication of any wells or springs within the vicinity of the site. The impact would likely be negligible during the operational phase. This Option is disadvantageous across all water sub-criteria and has a significant comparative disadvantage.	**Some comparative advantage over other options** Option likely to have minimal impact on flood regime. Potential for minor impact on surface water quality during construction. Likely minimal impact on groundwater quality. Has some comparative advantage over other options.	**Some comparative disadvantage over other options** Option likely have minimal impact on flood regime. Potential for minor impact on surface water quality during construction. Underpass excavations pose potential risk to Groundwater quality. Has some comparative disadvantage over other options.
		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.	**Significant comparative advantage over other options** This option will reconfigure local access onto Coolmine / Carpernterstown Road. Direct impacts will include impacts to existing boundary and green areas.	**Some comparative disadvantage over other options** This option will reconfigure local access for Riverwood Court and St. Mochta's Green/ Stationcourt Way. The non-agricultural impact will involve the acquisition of one residential property under Option 3	**Some comparative disadvantage over other options** This option will reconfigure local access for Riverwood Court and St. Mochta's Green/ Stationcourt Way. The non-agricultural impact will involve the acquisition of one residential property on Sheepmore Lane under Option 4
		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.	**Some comparative disadvantage over other options** Underbridge option requires material export so some materials may arise along existing route. There is also an associated impact of interfering in the canal and existing railway, which would require specific materials be imported plus removal of rail ballast or materials containing potential contamination. Involves other geotechnical risks to design and construction for retaining structures. No pits or quarries are present. (Minor negative)	**Some comparative disadvantage over other options** Overbridge options require fill import to the site for construction in open ground (Minor negative). Potential for ground contamination is considered low, subject to further investigation. No pits or quarries are present.	**Some comparative disadvantage over other options** Comparatively lower fill import requirements due to the lower alignment with cut materials arising from area of open ground (Minor negative). There is also an associated impact of interfering in the canal and existing railway, which would require specific materials be imported plus removal of rail ballast or materials containing potential contamination. Involves other geotechnical risks to design and construction for retaining structures. No pits or quarries are present.
		3.9	**Radiation and Stray Current**	Overall likely impact on existing sources of electromagnetic radiation.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
4	Accessibility & Social inclusion	4.1	Impact on Vulnerable Groups	Impacts on low income groups, non-car owners, mobility impaired, visually impaired and people with a disability.	**Significant comparative advantage over other options** Original Distance roundabout to roundabout 500m retained.	**Significant comparative advantage over other options** This option is of benefit to low income groups, enhancing access to public transport. By the addition of a new pedestrian / cycle bridge Diverted distance route 1.5km (3.3x diversion route)	**Significant comparative advantage over other options** This option is of benefit to low income groups, enhancing access to public transport. By the addition of a new pedestrian / cycle bridge Diverted distance route 1.5km (3.3x diversion route)
		4.2	Stations Accessibility	Quantification of increased service levels to the vulnerable groups.	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station
		4.3	Social Inclusion	Service levels impacts including severance of community groups; Severance from community facilities consequent on an option.	**Significant comparative advantage over other options** This option does not cause community severence. This option does not affect access to community amenities	**Significant comparative advantage over other options** This option does not cause community severence. This option does not curtail access to community amenities Diverted distance route 1.5km (3.3x diversion route)	**Significant comparative advantage over other options** This option does not cause community severence. This option does not curtail access to community amenities Diverted distance route 1.5km (3.3x diversion route)
5	Safety	5.1	Rail Safety	Safety for Rail users – removal of Level crossings is considered a significant safety enhancement	**Some comparative advantage over other options** This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. The bridge under the railway will require limited discrete elements of construction activity on the live railway	**Significant comparative advantage over other options** Closing the crossing will remove the interface between rail and other traffic.	**Some comparative advantage over other options** This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. The bridge under the railway will require limited discrete elements of construction activity on the live railway
		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	**Significant comparative advantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Significant comparative advantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Significant comparative advantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 2	Option 3	Option 4
		5.3	**Pedestrian, Cyclist and Vulnerable Road user Safety**	Quality of Access for these road users. removal of interfaces	**Some comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; Nested ramps are envisaged to constrain gradients to a maximum of 5% for vulnerable road users. The incorporation of an opening bridge presents an obstacle for vulnerable road users, not associated with some other options; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Significant comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; A pedestrian cycle bridge is envisaged with gradients constrained to a maximum of 5% for vulnerable road users. The junction strategy for vulnerable road users is unaffected by this option; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Some comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; A pedestrian cycle bridge is envisaged with gradients constrained to a maximum of 5% for vulnerable road users. The incorporation of an opening bridge presents an obstacle for vulnerable road users, not associated with some other options; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.
6	**Physical Activity**	6.1	**Connectivity to adjoining cycling facilities**	Analysis of the extent that the scheme connects with cycle tracks.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.
		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	**Significant comparative advantage over other options** Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Coolmine Road. Diversion for cyclists when level crossing closed 0.13km The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.	**Significant comparative advantage over other options** Cross Railway journey = 1.2km. The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.	**Significant comparative advantage over other options** Cross Railway journey = 1.2km. The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.

	Criteria		Option 2	Option 3	Option 4
1	**Economy**		**Significant comparative disadvantage over other options**	**Significant comparative advantage over other options**	**Significant comparative disadvantage over other options**
2	**Integration**		**Some comparative advantage over other options**	**Some comparative advantage over other options**	**Some comparative advantage over other options**
3	**Environment**		**Significant comparative disadvantage over other options**	**Significant comparative disadvantage over other options**	**Significant comparative disadvantage over other options**
4	**Accessibility and social inclusion**		**Significant comparative advantage over other options**	**Significant comparative advantage over other options**	**Significant comparative advantage over other options**
5	**Safety**		**Some comparative advantage over other options**	**Significant comparative advantage over other options**	**Some comparative advantage over other options**
6	**Physical Activity**		**Significant comparative advantage over other options**	**Significant comparative advantage over other options**	**Significant comparative advantage over other options**
	Progress To Stage 2		**No**	**Yes**	**No**

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
					New Underbridge Connecting St. Mochta's Grove to Luttrellpark Road with Diversion of Canal Over Proposed Road.	Overbridge to East of Coolmine Road.	Close the level crossing and provide a Pedestrian / Cycle Bridge only at the level crossing
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** The capital cost of this option is negatively affected by: - the below ground nature of construction; - the construction of a bridge under the railway; - the incorporation of a boat lift over the canal; - the need for a pedestrian cycle bridge on Coolmine Road in addition to the offline road bridge.	**Some comparative disadvantage over other options** The capital cost of this option is negatively affected by : - the need to construct the works while maintaining traffic on the Coolmine Road; - the incorporation of significant curvature in the plan alignment which results in wider road construction; - the construction of a wide bridge over the station and the canal; - the construction of an elevated structure over the train station carpark; - the likely acquisition of 6No. house private dwellings.	**Some comparative advantage over other options** The provsions here include low key works to close the level crossing and the construction of a new pedestrian / cycle bridge
		1.2	**Long Term Maintenance costs**	Ongoing annual maintenance costs associated with varied options	**Significant comparative disadvantage over other options** Higher amounts of maintenance and inspections are anticipated with the introduction of an underbridge and reconfiguration of canal with ongoing operational costs for canal.	**Some comparative advantage over other options** An overbridge likely to be Steel bridge to reduce deck thickness to allow for approach gradients .	**Significant comparative advantage over other options** Maintenance costs low - 15k ex VAT per year
		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** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.	**Significant comparative advantage over other options** Improvement in journey times relative to the Do Minimum; potential for induced trips; potential to increase congestion on surrounding road network as a result of induced traffic.	**Significant comparative disadvantage over other options** 64% reduction in traffic volumes @ Junction North of Level Crossing; 1% incease in traffic at Junction south of level crossing; 38% increase in traffic volumnes at Diswellstown North Roundabout; 32% increase in traffic at Junction South of Diswellstown Viaduct; 61% increase in traffic at Junction East of Above; 3%increase in traffic at junction south of Castleknock Station; Significant delay anticipated due to junctions being

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
2	Integration	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.	**Significant comparative advantage over other options** Rerouted access to train station car park. General improvement in connectivity and journey times. No severance to existing connectivity as a result of the construction of the required approach ramps. Coolmine Road is primary cycle route in GDA Cycle Network Plan - re-routing of traffic to new crossing point a benefit to cycling. Cycle track provided on underbridge	**Some comparative disadvantage over other options** Improved interchange between modes, subject to satisfactory access to train station platforms. General reduction in journey times. There may be severance to existing connectivity on the approaches to the bridge over the canal and railway as a result of the construction of the required approach ramps. Access to the train station car park will be difficult and it is likely that the capacity of the existing car park will be significantly reduced. Coolmine Road is primary cycle route in GDA Cycle Network Plan - Cycle track provided on overbridge	**Some comparative disadvantage over other options** General improvement in connectivity and journey times for pedestrians & cyclists; Disimprovements to interchange caused by reduced access to the train station car park from the north.
		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.	**Significant comparative disadvantage over other options** Direct impacts the FCDP **Objective 142:** "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP).	**Significant comparative disadvantage over other options** Direct impacts the FCDP Objective 142: "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP). Option 6 travels through the existing Coolmine Train Station carpark that has a **"Specific Objective 143** Car parking provision associated with the train station shall be two storeys or less". This option may impact the future capacity to achieve this objective while also reducing the current capacity of the carpark that would be required for the likely increase of train passengers therefore affecting planning and transport integration. Land use factors: The area is a low-density suburban, well established residential area. there are no LAPs, Masterplans for the area.	**Some comparative disadvantage over other options** Direct impacts the FCDP Objective 142: "Preserve the existing pedestrian and vehicular right of way at the Coolmine Level Crossing". A major negative in terms of the local policy context. Alternative pedestrian and cycle infrastructure providedd therefore it meets the 'indicative/cycle/ walking' network at this location (FDP). This option is a discrete when compared to other options and impacts less zoned lands than other options apart from the Royal Canal pNHA and residential amenities in the vicinity of the opton.
		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** No significant effect on geographical integration.	**Comparable to other options** No significant effect on geographical integration.	**Comparable to other options** No significant effect on geographical integration.
		2.4	Other Government Policy Integration	Integration with the other Government policy such as the NPF and RSES.	**Some comparative advantage over other options** This option supports the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).	**Some comparative disadvantage over other options** In principle, this option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy). Further design detail required relating to the potential negative impacts to the train station carpark and associated planning and landuse integration factors.	**Some comparative advantage over other options** This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF, RSES, GDA Transport Strategy).It would impact on vehicular connectivity which is considered under transport integration.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
		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, qualative criteria are also used where necessary to differentiate between the options.	**Significant comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 454 dwellings within 100m.	**Some comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 159 dwellings within 100m.	**Significant comparative advantage over other options** Removes vehicular traffic from the crossing and will therefore reduce noise impacts on the local environment. 113 dwellings within 100m.
		3.2	**Air Quality and Climate**	Estimated number of number of receptors within 50m reviewed as part of appriasal. Options closer to more sensitive locations will have an increased risk of changes in air quality during construction or operational phases. However, qualative criteria are also used where necessary to differentiate between the options.	**Some comparative disadvantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 206 dwellings within 50m. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	**Some comparative advantage over other options** Moves traffic to new location and will impact different properties to the current crossing. 49 dwellings within 50m. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	**Significant comparative advantage over other options** Removes vehicular traffic and the construction phase is minimal. No traffic distribution data available to assess impact on new receptors therefore assessment only considers current receptors close to the level crossing. 20 dwellings within 50m. 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.	**Significant comparative disadvantage over other options** Underbridge option will have very significant visual impact on residential properties at Delwood, Cherry Drive and Rosehaven. The option would be in a cutting on the approach to the proposed bridge under the railway over 160m on either side. Very significant landscape and visual impact on corridor of Royal Canal, setting of Kirkpatrick Bridge and hence for Objective CH43 of Fingal Development Plan. Demolition of residential properties at Delwood Grove.	**Significant comparative disadvantage over other options** Overbridge option will have very significant visual impact on residential properties at Delwood, Cherry Drive and Rosehaven. Very significant landscape and visual impact on corridor of Royal Canal, setting of Kirkpatrick Bridge and hence for Objective CH43 of Fingal Development Plan. Demolition of residential properties at Delwood Grove.	**Some comparative disadvantage over other options** Some loss of trees and vegetation. Visual impact for nearest properties at Delwood Grove, Sheepmoor Lane and Cherry Drive and along Royal Canal.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
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.	**Significant comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise and artifical lighting during construction. Diversion of the canal could have significant impacts to water quality and aquatic fauna which may have to be rescued prior to works. Loss of woodland, scrub, amenity grassland, scattered trees and parkland is anticipated.	**Some comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. Large new structure over the canal which will fragment the ecological corridor. Loss of woodland and scrub habitat is anticipated.	**Some comparative disadvantage over other options** This option is hydrologically connected to European sites downstream in the Tolka Estuary and Dublin Bay. There is no risk of Likely Significant Effects to this or any other European site. There is potential for impacts to Royal Canal pNHA arising from noise, artifical lighting and impacts to water quality during construction. The construction of the pedestrian and cyclist bridge will result in tree loss north of the canal and potentially south of the railway at Coolmine Station. New structure over the canal will fragment the ecological corridor.
		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)	**Some comparative disadvantage over other options** Direct impact to the Royal Canal (RPS No. 994a).	**Some comparative advantage over other options** Potential indirect impact to the Royal Canal (RPS No. 994a).	**Some comparative advantage over other options** Potential indirect impact to the Royal Canal (RPS No. 994a).
		3.6	**Water Resources**	Overall potential significant effects on water resource attributes likely to be affected during construction and operation.	**Significant comparative disadvantage over other options** The in-stream works required constitute a flood hazard and is significantly disadvantageous compared to the other options. The construction works within the Royal Canal proposed as part of Option 5 is likely to have a significant negative impact on Surface water quality. Underpass excavations also pose potential risk to Groundwater quality. Option is disadvantageous across all water sub-criteria and has a significant comparative disadvantage.	**Some comparative advantage over other options** Option likely have minimal impact on flood regime. Potential for minor impact on surface water quality during construction. Likely minimal impact on groundwater quality. Has some comparative advantage over other options.	**Some comparative advantage over other options** Option likely have minimal impact on flood regime. Potential for minor impact on surface water quality during construction though removal of vehicular traffic likely to have a positive impact on water quality of Royal Canal overall. Likely minimal impact on groundwater quality. Has some comparative advantage over other options.

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
		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.	**Some comparative disadvantage over other options** This option will reconfigure local access for Riverwood Court and St. Mochta's Green/ Stationcourt Way. The non-agricultural impact will involve the acquisition of one residential property on Sheepmore Lane under Option 4	**Significant comparative disadvantage over other options** This option will involve the acquisition of four residential properties on the north side of the rail line. There will be a significant impact on the Coolmine Station car park.	**Some comparative advantage over other options** This option will impact on Coolmine Station car park resulting in a reduction in car spaces.
		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.	**Some comparative advantage over other options** Underbridge option means that some materials may arise, which could possibly be suitable for reuse elsewhere on the project. This is balanced by an associated impact of interfering in the canal and existing railway, which would require specific materials be exported and imported. Involves other geotechnical risks to design and construction. (Minor negative)	**Some comparative disadvantage over other options** Some existing made ground cover on-site (requires walkover survey / investigation). This overbridge option requires increased fill import to the site, more than other options and yet fill would be onto ground that has been built on already (Minor negative). Potential for ground contamination is considered low, subject to further investigation. No pits or quarries are present.	**Significant comparative advantage over other options** Cycle/pedestrian overbridge option requires less fill import to the site. Also provides for construction over existing roadway (Minor negative). Potential for ground contamination is considered low, subject to further investigation. No pits or quarries are present. Comparative advantage is considered as construction is proposed on existing route and unlikely to encounter new areas of soft ground or contamination.
		3.9	**Radiation and Stray Current**	Overall likely impact on existing sources of electromagnetic radiation.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.	**Some comparative disadvantage over other options** 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. All Do-Something options are comparable from an EMI perspective at this stage in the assessment.
4	**Accessibility & Social inclusion**	4.1	**Impact on Vulnerable Groups**	Impacts on low income groups, non-car owners, mobility impaired, visually impaired and people with a disability.	**Significant comparative advantage over other options** This option is of benefit to low income groups, enhancing access to public transport. By the addition of a new pedestrian / cycle bridge Diverted distance route 1.5km (3.3x diversion route)	**Significant comparative advantage over other options** This option will require construction activity over the station and incorporates steepened gradients on the approaches to the railway. Diverted distance route 821m (1.2x diversion route) The addition of nested ramps addresses the issue of approach gradient for this option	**Some comparative advantage over other options** This option is of benefit to low income groups, enhancing access to public transport. Conjestion consequent on traffic diversions wil restrict access for disabled users
		4.2	**Stations Accessibility**	Quantification of increased service levels to the vulnerable groups.	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station	**Significant comparative advantage over other options** Station Accessibility is addressed for all level crossing options in proximity to a station This option does not significantly affect access to the station

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	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
		4.3	**Social Inclusion**	Service levels impacts including severance of community groups; Severance from community facilities consequent on an option.	**Significant comparative advantage over other options** This option does not cause community severence. This option does not curtail access to community amenities Diverted distance route 1.5km (3.3x diversion route)	**Significant comparative advantage over other options** This option does not cause community severence. This option does not curtail access to community amenities Diverted distance route 821m (1.2x diversion route).	**Some comparative disadvantage over other options** This option does not cause community severence, pedestrian and cycle access maintained, adjacent road network upgraded. This option diverts vehicular road traffic onto the existing road network negatively affecting access to local amenities. Diverted distance route 2.0km.
5	**Safety**	5.1	**Rail Safety**	Safety for Rail users – removal of Level crossings is considered a significant safety enhancement	**Some comparative advantage over other options** This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. The bridge under the railway will require limited discrete elements of construction activity on the live railway	**Significant comparative advantage over other options** This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. There is no significant construction activity along the railway associated with the level crossing	**Significant comparative advantage over other options** This option removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety. There is no significant construction activity along the railway associated with the level crossing
		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	**Significant comparative advantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Significant comparative advantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will not significantly divert traffic. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Significant comparative disadvantage over other options** This option closes the level crossing - removes a signficant hazard to transport users; This option will result in traffic diversions of up to 2.0km and increased congestion on the local road network. This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.
		5.3	**Pedestrian, Cyclist and Vulnerable Road user Safety**	Quality of Access for these road users. removal of interfaces	**Some comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; A pedestrian cycle bridge is envisaged with gradients constrained to a maximum of 5% for vulnerable road users. The incorporation of an boat lift presents an obstacle for vulnerable road users, not associated with some other options; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Some comparative advantage over other options** This option closes the level crossing. It provides a new link along approximately the same line as the original; Nested ramps are envisaged to constrain gradients to a maximum of 5% for vulnerable road users. The junction strategy for vulnerable road users is unaffected by this option; This option incorporates good segregation for pedestrians, cyclists and cars from railway traffic.	**Some comparative disadvantage over other options** This option removes the level crossing. It replaces pedestrian and cycle access with a pedestrian cycle bridge. Other vulnerable road users are diverted onto the existing road network. Diverted road users will be required to negotiate up to 6No additional junctions including traffic light junctions and roundabouts, typically turning left travelling southbound, right if travelling northbound. This options does not provide for segregation on the diversion routes for vulnerable road users.

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Coolmine Level Crossing Assessment

	Parameter		Criteria	Sub-Criteria (Quantitative/ Qualitative)	Option 5	Option 6	Option 7
6	Physical Activity	6.1	Connectivity to adjoining cycling facilities	Analysis of the extent that the scheme connects with cycle tracks.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.	**Significant comparative advantage over other options** This option supports good linkage between existing and proposed cycle facilities The quality of access to the train station for pedestrians and cyclists is good in respect of this option.	**Significant comparative advantage over other options** This option supports good linkage to proposed cycle facilities
		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	**Significant comparative advantage over other options** Cross Railway journey = 1.2km. The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.	**Significant comparative advantage over other options** Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Coolmine Road. Diversion for cyclists when level crossing closed 0.13km The principal high amenity greenspace in the vicinity of the existing train station is the Royal canal. This access is maintained by the proposed bridge scheme.	**Significant comparative advantage over other options** Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Coolmine Road. Diversion for cyclists when level crossing closed 0.30km 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.

	Criteria		Option 5	Option 6	Option 7
1	Economy		Significant comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
2	Integration		Some comparative advantage over other options	Significant comparative disadvantage over other options	Some comparative disadvantage over other options
3	Environment		Significant comparative disadvantage over other options	Some comparative disadvantage over other options	Some comparative advantage over other options
4	Accessibility and social inclusion		Significant comparative advantage over other options	Significant comparative advantage over other options	Some comparative advantage over other options
5	Safety		Some comparative advantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options
6	Physical Activity		Significant comparative advantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options
	Progress To Stage 2		No	Yes	No