

DART+ WEST - MCA Stage 1							
Barberstown Level Crossing Assessment							
Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Do Nothing	Do Minimum	Option 1	Option 2	
			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.	Road realignment with square roadbridge over canal and railway at the level crossing. Pedestrian / Cycle facilities provided for over the bridges. Level Crossing closed.	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	
1	Economy	1.1	<b>Construction and Land Cost</b> Assessment of cost of construction of option, land costs and temporary works	<b>Significant comparative advantage over other options</b> The level crossing is currently manned. The ongoing cost associated with this control mechanism on the railway is significant.	<b>Significant comparative advantage over other options</b> Cost of removing crossing is low in comparison to provision of road crossing.	<b>Significant comparative disadvantage over other options</b> This option includes the costs of urban roadworks across green fields to cross the railway and canal via raised embankment and two single span bridges. Includes 2No, roundabouts and the acquisition of two houses.	<b>Significant comparative disadvantage over other options</b> 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.
		1.2	<b>Long Term Maintenance costs</b> Ongoing annual maintenance costs associated with varied options	<b>Significant comparative disadvantage over other options</b> 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	<b>Significant comparative advantage over other options</b> The closure of the level crossing would remove the maintenance requirement for the level crossing.	<b>Some comparative disadvantage over other options</b> An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs .	<b>Some comparative disadvantage over other options</b> An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs.
		1.3	<b>Traffic Functionality /economic benefit</b> Benefits to vehicular traffic through reduction in journey time lengths and delays through removal of level crossings. Consideration of potentially longer routes for traffic.	<b>Some comparative disadvantage over other options</b> Reduced capacity as train frequencies increase; increase in journey times for local residents.	<b>Significant comparative disadvantage over other options</b> Displacement of traffic onto alternative routes; increase in journey times for local residents.	<b>Significant comparative advantage over other options</b> Improvement in journey times; potential for induced trips; potential to increase congestion on local road network.	<b>Significant comparative advantage over other options</b> Some improvement in journey time; potential for induced trips; diversion required for local residents.
		2.1	<b>Transport Integration</b> 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.	<b>Some comparative disadvantage over other options</b> Not shown on GDA Cycle Network Plan but there would be a reduction in local accessibility to the Royal Canal Cycle Route with increased closures of the railway.	<b>Significant comparative disadvantage over other options</b> Not shown on GDA Cycle Network Plan but there would be a removal of local accessibility to the Royal Canal Cycle Route.	<b>Some comparative disadvantage over other options</b> General reduction in journey times. Maintaining access to the Royal Canal Cycleway will present challenges. No cycle facilities	<b>Some comparative advantage over other options</b> Some improvement in journey time; Shared pedestrian & cycle facility; Access to Royal Canal Cycle Route retained, albeit via slightly more circuitous route.

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Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Do Nothing	Do Minimum	Option 1	Option 2	
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	Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative disadvantage over other options
				The do-nothing option would not support for DART Expansion but does not impact on any local planning policies objectives hence rated as an significant advantage over other options.	This Option would not support the Barnhill LAP 2019, movement and access strategy nor does it provide access across the rail line to lands zoned for future development, zoned "Residential Area" in FDP as part of the Barnhill LAP (2019).	This option is mainly online and would tie in with the approved Barnhill Ongar Distributor road, supporting the future development of lands zoned "Residential Area" to the north as part of the Barnhill LAP 2019. This Option provides vehicular, pedestrian and cycle access to lands north and south of the railway & Canal.	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. 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.
				Comparable to other options	Comparable to other options	Comparable to other options	Comparable to other options
	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.	No impact on Geographical Integration	No impact on Geographical Integration	No impact on Geographical Integration	No impact on Geographical Integration
				Some comparative disadvantage over other options	Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
	2.4	Other Government Policy Integration	Integration with the other Government policy such as the NPF and RSES.	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).	This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), RSES & GDA Transport Strategy). However would not meet Smarter Travel policy.	This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), RSES & GDA Transport Strategy).	This option would 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 disadvantage over other options				Some comparative advantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options	
	Noise and Vibration	3.1	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.	Retains vehicular traffic which will impact a low number of sensitive receptors in proximity.	Removes vehicular traffic and construction phase is minimal.	The online overbridge will have a neutral noise impact compared to the Do Nothing scenario. 2 dwellings within 100m.	New overbridge will have some construction phase impacts. 1 dwelling within 100m.
				Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options
	Air Quality and Climate	3.2	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.	Retains vehicular traffic which will impact the low number of sensitive receptors in proximity.	Removes vehicular traffic and construction phase is minimal.	The online overbridge will have 2 dwellings within 50m as per the Do Nothing Scenario. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	One dwelling within 50m. Potential for construction phase dust impact is not significant when mitigation measures are put in place.
				Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options

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3	Environment	3.3 <b>Landscape and Visual (including light)</b>	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	Significant comparative advantage over other options	Significant comparative disadvantage over other options	Significant comparative disadvantage over other options
				No impact on existing landscape or visual characteristics.	Loss of local connectivity. Minimal impact on existing landscape or visual characteristics - no likely significant landscape or visual impacts.	Very significant landscape and visual impact on Royal Canal corridor and Pakenham Bridge. Very significant landscape and visual impact for 3 residential properties to either side of existing road leading to crossing and for canal side cottage at bridge.	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 comparative advantage over other options	Significant comparative advantage over other options	Significant comparative disadvantage over other options	Some comparative disadvantage over other options
				No direct impacts	No direct impacts	Hydrologically connected to South Dublin Bay and River Tolka Estuary SPA. No risk of LSE. Demolition of existing bridge could lead to significant impacts on the Royal Canal pNHA. Habitat loss will be minor given that the option is online.	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.
3	Environment	3.4 <b>Biodiversity (flora and fauna)</b>	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	Significant comparative advantage over other options	Significant comparative disadvantage over other options	Some comparative disadvantage over other options
				No likely impacts.	Minimal changes likely - no likely significant impacts.	Direct impact on Pakenham bridge (RPS 0711). Potential indirect impacts to the Royal Canal (RPS No. 944a).	Potential indirect impacts on the Royal Canal (RPS No. 944a) and Peckenham bridge (RPS 711) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.
				Some comparative advantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	Significant comparative disadvantage over other options
				Potential negative impact on surface water quality during operational phase.	Removes vehicular traffic born pollutants and minimal construction phase. The Do Minimum Option has significant comparative advantages over other options.	Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.
3	Environment	3.5 <b>Cultural, Archaeological and Architectural Heritage</b>	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	Significant comparative advantage over other options	Significant comparative disadvantage over other options	Some comparative disadvantage over other options
				No likely impacts.	Minimal changes likely - no likely significant impacts.	Direct impact on Pakenham bridge (RPS 0711). Potential indirect impacts to the Royal Canal (RPS No. 944a).	Potential indirect impacts on the Royal Canal (RPS No. 944a) and Peckenham bridge (RPS 711) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.
				Some comparative advantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	Significant comparative disadvantage over other options
				Potential negative impact on surface water quality during operational phase.	Removes vehicular traffic born pollutants and minimal construction phase. The Do Minimum Option has significant comparative advantages over other options.	Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.
3	Environment	3.6 <b>Water Resources</b>	Overall potential significant effects on water resource attributes likely to be affected during construction and operation.	Some comparative advantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	Significant comparative disadvantage over other options
				No likely impacts.	Minimal changes likely - no likely significant impacts.	Direct impact on Pakenham bridge (RPS 0711). Potential indirect impacts to the Royal Canal (RPS No. 944a).	Potential indirect impacts on the Royal Canal (RPS No. 944a) and Peckenham bridge (RPS 711) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.
				Some comparative advantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	Significant comparative disadvantage over other options
				Potential negative impact on surface water quality during operational phase.	Removes vehicular traffic born pollutants and minimal construction phase. The Do Minimum Option has significant comparative advantages over other options.	Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.

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4	Accessibility & Social Inclusion	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	Significant comparative advantage over other options	Significant comparative disadvantage over other options	Some comparative disadvantage over other options
				No likely impacts.	Minimal changes likely - no likely significant impacts.	Properties on either side of the road to the south-east of the railway would severely restrict the construction of an online route at this location without partial or complete property acquisitions.	Under Options 2, there will be a direct impact on agricultural lands used for equine stock resulting in landtake and severance.	
		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	Significant comparative advantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
				No direct impacts.	No direct impacts.	Lower fill import requirements compared to other options.	Lower fill import requirements compared to other options.	
		3.9	Radiation and Stray Current	Overall likely impact on existing sources of electromagnetic radiation.	Some comparative advantage over other options	Some comparative advantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options
				No change from an EMI perspective therefore advantage over other options.	No change from an EMI perspective therefore advantage 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.	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.	
4.1	Impact on Vulnerable Groups	Impacts on low income groups, non-car owners, mobility impaired, visually impaired and people with a disability.	Some comparative disadvantage over other options	Some comparative disadvantage over other options	Significant comparative advantage over other options	Some comparative advantage over other options		
		With the level crossing becoming effectively closed on implementation of the proposed working timetable and with no provision for supplementary infrastructure for vulnerable groups, the majority of users will be diverted onto the adjacent road network.	With removal of the level crossing and with no provision for supplementary infrastructure for vulnerable groups, the majority of users will be diverted onto the adjacent road network.	Original Distance from R121 junction to Barberstown North Road junction 300m retained.	Diverted distance route 587m (2.0x diversion route).			
4.2	Stations Accessibility	Quantification of increased service levels to the vulnerable groups.	Comparable to other options	Comparable to other options	Comparable to other options	Comparable to other options		
		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	It is considered that alterations at Barberstown will not significantly affect access to stations in the locality			

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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	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Some comparative advantage over other options	
			Cross Railway journey = nil as crossing remains in place; Inaccessible when crossing is closed.	Cross Railway journey = nil as crossing remains in place; Inaccessible when crossing is closed.	This option does not cause community severance.	Diverted distance route 587m (2.0x diversion route).	
			<p>Diversion for cars, pedestrians and cyclists when level crossing closed 5.0km.</p> <p>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.</p>	<p>Premanent diversion for cars, pedestrians and cyclists 1.1km</p> <p>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.</p>	<p>This option does not affect access to community amenities</p> <p>Original Distance from R121 junction to Barberstown North Road junction 300m retained.</p>		
5.1	Rail Safety	Safety for Rail users – removal of Level crossings is considered a significant safety enhancement	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options	Significant comparative advantage 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 removes the railway level crossing, a characteristic which is considered positive from the perspective of railway safety.	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.	
			This option will require construction activity associated with signalling along the live railway associated with the level crossing	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	Some comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options	
			This option retains the level crossing - a significant hazard to transport users;	Closing the crossing with no alternative would result in diversion of road traffic onto longer routes but would avoid congestion at the level crossing.	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.	
			This option will result in traffic diversions of up to 5.5km and increased congestion on the local road network.				
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	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Some comparative advantage 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.	This option closes the level crossing - removes a significant hazard to transport users;	Original Distance from R121 junction to Barberstown North Road junction 300m retained.	Diverted distance route 587m (2.0x diversion route).	
			<p>Diverted road users will be required to negotiate up to 4No additional junctions including traffic light junctions and roundabouts, typically turning left travelling southbound, right if travelling northbound.</p> <p>This options does not provide for segregation over the full length of the diversion routes for vulnerable road users.</p>	This option will result in traffic diversions of up to 5.5km and increased congestion on the local road network.			

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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.	Significant comparative disadvantage over other options	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options
				No cycle tracks currently present on the immediately surrounding road network, but increased closures of the level crossing would reduce access to the Royal Canal Greenway. See also Transport Integration above.	No cycle tracks on the immediately surrounding road network, but the closure of the level crossing would reduce access to the Royal Canal Greenway. See also Transport Integration above.	This option supports good linkage to proposed cycle facilities	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 disadvantage over other options	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options	
			Cross Railway journey = nil as crossing remains in place; Inaccessible when crossing is closed. Diversion for cars, pedestrians and cyclists when level crossing closed 5.0km The principal affected amenities in the vicinity of the level crossing include the Royal canal, and the amenity zoned lands south east of the level crossing. Removal of the level crossing will require detour for access to each of them.	Cross Railway journey = nil as crossing remains in place; Inaccessible when crossing is closed. Premanent diversion for cars, pedestrians and cyclists 5.0km The principal affected amenities in the vicinity of the level crossing include the Royal canal, and the amenity zoned lands south east of the level crossing. Removal of the level crossing will require detour for access to each of them.	Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link 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.	Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link 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	Do Nothing	Do Minimum	Option 1	Option 2
1	Economy	Some comparative disadvantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options
2	Integration	Some comparative disadvantage over other options	Significant comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
3	Environment	Some comparative advantage over other options	Significant comparative advantage over other options	Significant comparative disadvantage 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	Some comparative advantage over other options
5	Safety	Significant comparative disadvantage over other options	Some comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options
6	Physical Activity	Significant comparative disadvantage over other options	Significant comparative disadvantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options
	Progress To Stage 2	No	No	No	Yes

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Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Option 3	Option 4	Option 5	Option 6	
			Road realignment with square roadbridges over canal and railway circa 180m northeast 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	Lower the Railway to Accommodate the road network at grade	
1	Economy	1.1	<b>Construction and Land Cost</b> Assessment of cost of construction of option, land costs and temporary works	<b>Significant comparative disadvantage over other options</b> This option includes the costs of urban roadworks across green fields to cross the railway and canal via raised embankment and two single span bridges. Includes 2No, roundabouts.	<b>Some comparative disadvantage over other options</b> 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.	<b>Some comparative advantage over other options</b> 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	<b>Significant comparative disadvantage over other options</b> The cost and disruption of a scheme of this nature would be unsustainable and unjustifiable in comparison to other options available. It is proposed to discard this option without further consideration.
		1.2	<b>Long Term Maintenance costs</b> Ongoing annual maintenance costs associated with varied options	<b>Some comparative disadvantage over other options</b> An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs .	<b>Some comparative disadvantage over other options</b> An overbridge would reduce maintenance requirements over a level crossing. Bridge option would determine overall maintenance costs.	<b>Some comparative advantage over other options</b> 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.	<b>Significant comparative disadvantage over other options</b> In dropping the railway adjacent to the canal a new drainage system will be needed which is likely to be sealed and pumped. In addition the earth retaining structure required over the full length of the proposed cut will require maintenance
		1.3	<b>Traffic Functionality /economic benefit</b> Benefits to vehicular traffic through reduction in journey time lengths and delays through removal of level crossings. Consideration of potentially longer routes for traffic.	<b>Significant comparative advantage over other options</b> Some improvement in journey time; potential for induced trips; diversion required for local residents.	<b>Significant comparative advantage over other options</b> Some improvement in journey time; potential for induced trips; diversion required for local residents.	<b>Significant comparative disadvantage over other options</b> 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%,	<b>Some comparative advantage over other options</b> Improvement in journey time; potential for induced trips; no diversion required for local residents. Construction phase impacts to rail network would be significant.
		2.1	<b>Transport Integration</b> 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.	<b>Some comparative advantage over other options</b> Some improvement in journey time; No cycle facilities on new bridge; Access to Royal Canal Cycle Route retained, albeit via slightly more circuitous route.	<b>Some comparative advantage over other options</b> Some improvement in journey time; Shared pedestrian & cycle facility; Access to Royal Canal Cycle Route retained, albeit via slightly more circuitous route.	<b>Some comparative disadvantage over other options</b> Reduction in local permeability.	<b>Some comparative disadvantage over other options</b> General reduction in journey times. Maintaining access to the Royal Canal Cycleway will present challenges. No cycle facilities

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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.	Significant comparative disadvantage over other options	Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
					This option crosses through the middle of a new housing estate so would be significantly worse than the other options from a land use planning and integration perspective. At local level, Option 3 travels through sensitive land use zonings including 'High Amenity', 'Open Space' associated with the Royal Canal, over the GDA cycle Network. It continues northwards into Hansfield SDZ 2006 (as amended) There is map-based Specific Objective of "Protect & Preserve Trees, Woodlands and Hedgerows", Continuing northwards it travels through zoned "Residential Area" part of the Hansfield SDZ (2006). The construction of mixed-used development has commenced at Hansfield. Construction of a road network through the SDZ lands at this location would be inconsistent with the policies and objectives of the SDZ as well as impact on existing properties/residential amenity. There is a significant disadvantage with a major negative impacts associated with this option.	Option 4 is located within a section of land zoned for "High Amenity" by the Fingal DP. This option travel 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, however as this option only supports sustainable modes of travel, it is considered that the impact will be smaller when compared with Option 2 and 4 which support vehicular traffic. Subject to further transport studies, this option could have the potential to support sustainable transport planning integration.	Vertical railway lowering would not significantly impact land use planning policy.
		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	Comparable to other options
					No impact on Geographical Integration	No impact on Geographical Integration	No impact 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.	Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options	Some comparative advantage over other options
					This option has significant direct and indirect impacts to a number of local level policy documents which would also impact regional land use and transport planning integration across a number of areas.	This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), RSES & GDA Transport Strategy).	This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), RSES & GDA Transport Strategy).	This option would support the delivery of the higher level national and regional planning policies regarding the DART Expansion programme (NPF- (NS04), 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, 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	Some comparative disadvantage over other options
					New overbridge will have some construction phase impacts, 1 dwelling within 100m.	New overbridge will have some construction phase impacts. 8 dwellings within 100m.	Removes vehicular traffic which will reduce the noise levels in the locality. 2 dwellings within 100m	There is the potential for greater construction phase impacts due to the extent of the track lowering works. However, operationally there will be a neutral impact compared to the Do Nothing scenario
		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	Some comparative disadvantage over other options
					No dwellings within 50m but 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.	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. Potential for construction phase dust impact is not significant when mitigation measures are put in place.	There is the potential for greater construction phase impacts due to the extent of the track lowering works. However, operationally there will be a neutral impact compared to the Do Nothing scenario

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	Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Option 3	Option 4	Option 5	Option 6	
3	Environment	3.3	<b>Landscape and Visual (including light)</b>	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	Significant comparative disadvantage over other options	Significant comparative disadvantage over other options	Significant comparative disadvantage over other options
					Very significant landscape and visual impact on Royal Canal corridor and across lands south of railway to Luttrellstown Castle estate. Tree Preservation Objectives north of Luttrellstown Road and within Luttrellstown Estate. Very significant visual impact for residential property on site of former Barberstown House. Potential visual impact for Beech Park House / Shackleton Gardens east of the road option.	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.	Vertical railway lowering would impact on setting of Pakenham bridge (RPS 0711) and Direct impact on the Royal Canal (RPS No. 944a).
					Some comparative disadvantage over other options	Some comparative disadvantage over other options	Some comparative disadvantage over other options	Significant comparative disadvantage over other options
					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.	Hydrologically connected to South Dublin Bay and River Tolka Estuary SPA. No risk of LSE. Potential impacts to Royal Canal pNHA. Significantly greater loss of treeline, hedgerow and agricultural grassland habitats.	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.	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, artificial lighting, Channelisation or realignment and lowering of the canal could have significant impacts to water quality and aquatic fauna which may have to be rescued prior to works.
		3.4	<b>Biodiversity (flora and fauna)</b>	Potential compliance/conflict with biodiversity objectives; Indirect impacts on protected species, designated sites; Overall effect on nature conservation resource.	Some comparative disadvantage over other options	Some comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options
					Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Potential indirect impacts on Royal Canal (RPS 944a). Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impact on Pakenham bridge (RPS 0711) and Direct impact on the Royal Canal (RPS No. 944a).
					Some comparative disadvantage over other options	Significant comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options
					Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.	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.	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 6 is likely to have a significant negative impact on Surface water quality. Excavations required for lowering of the railway vertical alignment also pose potential risk to Groundwater quality. Option is disadvantageous across all sub-
		3.5	<b>Cultural, Archaeological and Architectural Heritage</b>	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	Some comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options
					Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Potential indirect impacts on Royal Canal (RPS 944a). Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impact on Pakenham bridge (RPS 0711) and Direct impact on the Royal Canal (RPS No. 944a).
					Some comparative disadvantage over other options	Significant comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options
					Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.	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.	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 6 is likely to have a significant negative impact on Surface water quality. Excavations required for lowering of the railway vertical alignment also pose potential risk to Groundwater quality. Option is disadvantageous across all sub-
3.6	<b>Water Resources</b>	Overall potential significant effects on water resource attributes likely to be affected during construction and operation.	Some comparative disadvantage over other options	Significant comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options		
			Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impacts on the Royal Canal (RPS No. 944a) and Luttrellstown ACA. Potential to encounter archaeological deposits that may survive in undeveloped areas.	Potential indirect impacts on Royal Canal (RPS 944a). Potential to encounter archaeological deposits that may survive in undeveloped areas.	Indirect impact on Pakenham bridge (RPS 0711) and Direct impact on the Royal Canal (RPS No. 944a).		
			Some comparative disadvantage over other options	Significant comparative disadvantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options		
			Potential negative impact on surface water quality during operational phase. Potential negative impact on surface and groundwater quality during construction phase.	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.	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.	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 6 is likely to have a significant negative impact on Surface water quality. Excavations required for lowering of the railway vertical alignment also pose potential risk to Groundwater quality. Option is disadvantageous across all sub-		

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Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Option 3	Option 4	Option 5	Option 6	
4 Accessibility & Social inclusion	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 disadvantage over other options	Some comparative disadvantage over other options	Significant comparative advantage over other options	Some comparative disadvantage over other options	
			Option 3 will have a direct impact on three agricultural properties including a significant impact on an equine farm holding due to landtake and land severance.	Under Option 4, there will be a direct impact on agricultural lands used for equine stock resulting in landtake and severance.	Option 5 will involve minor landtake of agricultural lands on one property and is therefore rated as Significant Advantage over other options.	Impact mainly within Irish Rail property boundary and maintenance depot during construction stage. Agricultural farmland impacts due to need to acquire a strip of farmland further details required for full assessment.	
			Some comparative disadvantage over other options	Some comparative advantage over other options	Some comparative advantage over other options	Significant comparative disadvantage over other options	
	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.	Long route with overbridge require fill import to the site (Minor negative).	Lower fill import requirements compared to other options.	Lower fill import requirements compared to other options.	Although overbridge and approach roads construction requires less fill import to the site, the arisings from the railway lowering are much more likely to include ground contamination (considered medium to high risk, subject to further investigation). Comparative disadvantage is due to likelihood of ground contamination and more extensive length of works interfacing with the canal.	
			Some comparative disadvantage over 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. All Do-Something 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. All Do-Something 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. All Do-Something 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. All Do-Something 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.	Diverted distance route 789m (2.6x diversion route).	Diverted distance route 948m (3.1x diversion route).	Shortest diversion route 4.8km (16x diversion route).	This option is of benefit to low income groups, enhancing access to public transport.		
		Comparable to other options	Comparable to other options	Comparable to other options	Comparable to other options		
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	It is considered that alterations at Barberstown will not significantly affect access to stations in the locality		

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Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Option 3	Option 4	Option 5	Option 6		
5	Safety	4.3	Social Inclusion	Service levels impacts including severance of community groups; Severance from community facilities consequent on an option.	Diverted distance route 789m (2.6x diversion route)	Diverted distance route 948m (3.1x diversion route)	Pedestrian, and cyclist and non motorised road users catered for.	Significant comparative advantage over other options
								This option does not cause community severance. This option does not curtail access to community amenities
		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.	Closing the crossing with no alternative would result in diversion of road traffic onto longer routes but would avoid congestion at the level crossing.	Significant comparative advantage over other options
		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	Significant comparative advantage over other options
		5.3	Pedestrian, Cyclist and Vulnerable Road user Safety	Quality of Access for these road users. removal of interfaces	Diverted distance route 789m (2.6x diversion route)	Diverted distance route 948m (3.1x diversion route)	No diversion for pedestrian and cyclists	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; 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.

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Parameter	Criteria	Sub-Criteria (Quantitative/Qualitative)	Option 3	Option 4	Option 5	Option 6		
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	Significant comparative advantage over other options	Significant comparative advantage over other options	
					This option supports good linkage to proposed cycle facilities	This option supports good linkage to proposed cycle facilities	This option supports good linkage to proposed cycle facilities	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	Significant comparative advantage over other options	Significant comparative advantage over other options	Significant comparative advantage over other options
					Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link 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.	Cross Railway journey = nil as the proposed option is along the plan alignment of the existing Barberstown Link 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.	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.	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 is nil.  The principal affected amenities in the vicinity of the level crossing include the Royal canal, and the amenity zoned lands south east of the level crossing.

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