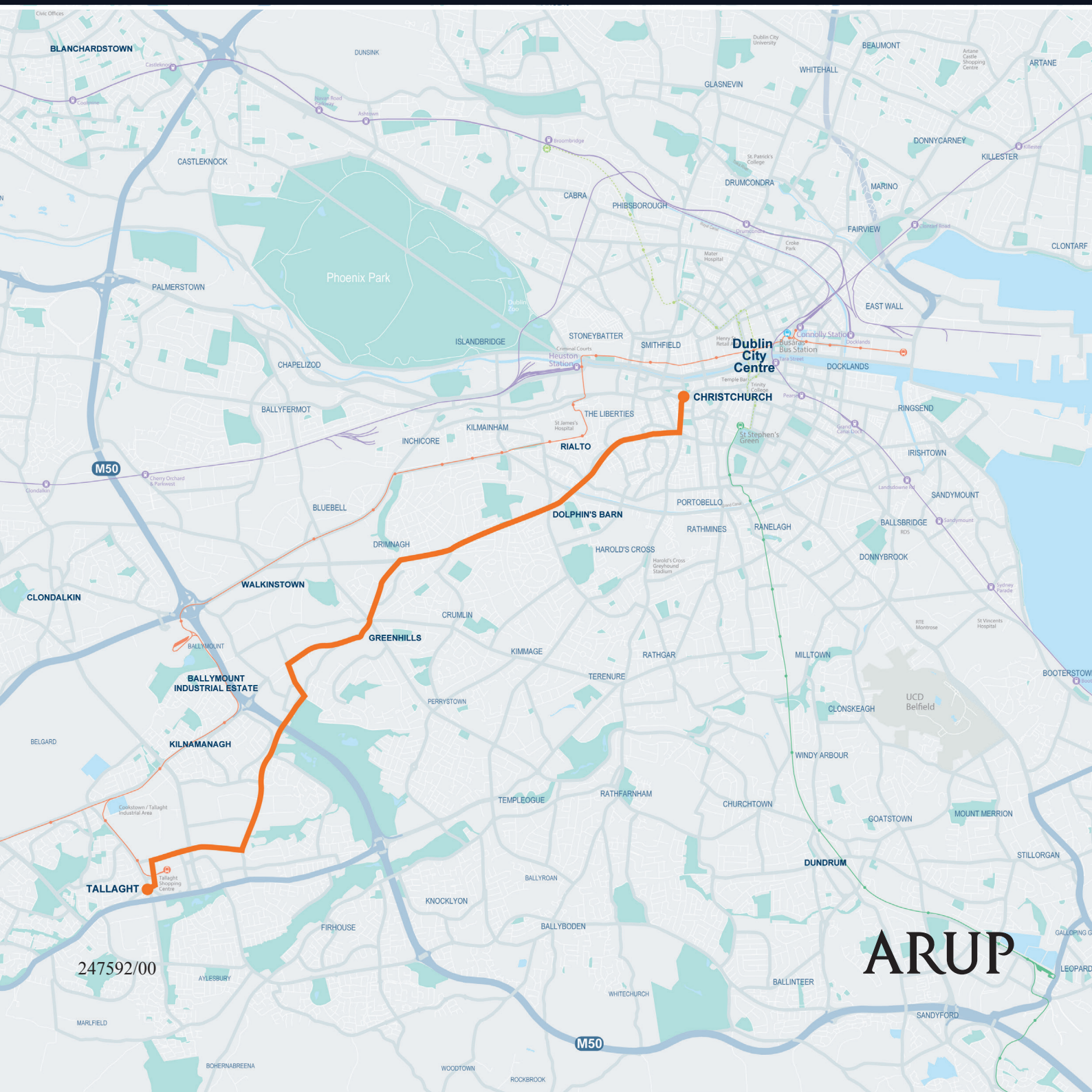
National Transport Authority

ISSUE 1

Greenhills to City Centre Core Bus Corridor Options Study

Volume 2: Feasibility and Options Assessment - Appendices



247592/00

ARUP

Appendix A

Route Options Assessment Summary Tables

A1 Tallaght Route Options Assessment Summary

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €12.9m ***Indicative Scheme Infrastructure Works Cost*** (€4.3m) - Widen Belgard Road between Main Street and Belgard Square North to facilitate bus lanes and raised adjacent cycle lanes in each direction; - Signalise Old Greenhills Road/Main Street junction to allow buses to exit from old Greenhills Road; - New bus gate at Old Greenhills Road/Greenhills Road junction; and - Widen Greenhills Road to provide bus lanes and raised adjacent cycle lanes in each direction. ***Land Acquisition Cost*** (€8.6m) 5,700sqm Private Land 3,490sqm Public Land 5 Properties affected	**Total Capital Cost** €10.9m ***Indicative Scheme Infrastructure Works Cost*** (€3.5m) - Convert one of the entry lanes to ITT to a contraflow bus lane; - Signalise ITT Access/Greenhills Road junction; - Conversion of speed ramps within ITT to bus friendly raised tables; and - Widen Greenhills Road to provide bus lanes and raised adjacent cycle lanes in each direction. ***Land Acquisition Cost*** (€7.4m) 4,900sqm Private Land 2,160sqm Public Land 4 Properties affected	**Total Capital Cost** €8.8m ***Indicative Scheme Infrastructure Works Cost*** (€3.7m) - Widen Belgard Road between Belgard Square North to facilitate bus lanes and raised adjacent cycle in each direction; - Widen Airton Road (removing verge and trees) to facilitate bus lanes and raised adjacent cycle lanes in each direction; and - Widen Greenhills Road to provide bus lanes and raised adjacent cycle lanes in each direction. ***Land Acquisition Cost*** (€5.1m) 3,400sqm Private Land 6,980sqm Public Land 3 Properties affected	**Total Capital Cost** €3.5 ***Indicative Scheme Infrastructure Works Cost*** (€3.5m) - Widen Belgard Road between Belgard Square North to facilitate bus lanes and raised adjacent cycle lanes in each direction; - Widen Mayberry Road to facilitate bus lanes in each direction; and - Widen Greenhills Road to provide bus lanes and raised adjacent cycle lanes in each direction. ***Land Acquisition Cost*** (€0m) 0sqm Private Land 12,274sqm Public Land 0 Properties affected
	Rank				

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
	Transport Reliability and Quality of Service	Journey Time: 5 - 6 mins Length: 2.0 km No. of Junctions: 5 Bus lanes are provided along approximately 70% of this route option. However, the presence of the bus gate at the western end of Main Street restricts the flow of traffic through the village. Lack of bus lanes through this section would affect reliability of services running along it.	Journey Time: 4 - 5 mins Length: 1.6 km No. of Junctions: 3 Bus lanes are provided along approximately 60% of this route option. While no bus lanes are provided through the ITT campus, the flow of traffic through the campus is only permitted outside of peak hours meaning buses would likely not be delayed through this section. Furthermore, through traffic is discouraged outside of peak hours through the use of speed ramps on the campus roads. As a result, this route option is considered to have good journey time reliability.	Journey Time: 4 – 5 mins Length: 1.7 km No. of Junctions: 3 Bus lanes are provided along the full length of this route option resulting in good journey time reliability of bus services.	Journey Time: 4 - 5 mins Length: 2.0 km No. of Junctions: 3 Bus lanes are provided along the full length of this route option resulting in good journey time reliability of bus services.
	Rank				
Integration	Land Use Integration	This route option continues to serve Tallaght Village centre and support local business growth. There is potential to support development along Greenhills Road.	This route option has potential to support development along Greenhills Road. This route option also serves ITT directly.	This route option has potential to support development along Greenhills Road. This route option also serves Broomhill Industrial Estate directly.	This route option has potential to support development along Greenhills Road. And enhance integration with existing uses along Kilnamanagh Road.
	Rank				
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,600 - 10 minute walk catchment of approximately 8,500	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,800 - 10 minute walk catchment of approximately 6,700	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,600 - 10 minute walk catchment of approximately 4,300	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,900 - 10 minute walk catchment of approximately 7,200

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
		- 15 minute walk catchment of approximately 16,200 ***Employment catchments*** 10 minute walk catchment of approximately 13,900	- 15 minute walk catchment of approximately 13,500 ***Employment catchments*** 10 minute walk catchment of approximately 11,800	- 15 minute walk catchment of approximately 10,300 ***Employment catchments*** 10 minute walk catchment of approximately 9,100	- 15 minute walk catchment of approximately 12,000 ***Employment catchments*** 10 minute walk catchment of approximately 9,100
	Rank				
	Transport Network Integration	This route coincides with portions of existing bus routes 27, 54a, 65, 75 and 77a. Potential for interchange with other Dublin Bus Services on N81 corridor. There would be no impact on general traffic.	This route coincides with portions of existing bus route 27. Route does not provide any opportunities for interchange with other public transport services. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 27 and 76a. Route does not provide any opportunities for interchange with other public transport services. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 27 and 76a. Route does not provide any opportunities for interchange with other public transport services. There would be no impact on general traffic.
	Rank				
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as forming parts of primary cycle route S05 and 8B. The section of S05 along Belgard Road and the section of 8B along Greenhills Road can be delivered as part of this scheme. However, the section of route S05 through Tallaght Village could not be delivered. Dedicated cycle facilities are only provided on the Belgard Road and Greenhills Road sections of this route (in combination with bus priority measures) with cyclists	This route option is identified in the GDA Cycle Network Plan as a minor greenway through ITT and forms part of primary cycle route 8B. The section of 8B along Greenhills Road can be delivered as part of this scheme. Dedicated cycle facilities only provided on the Greenhills Road section of this route. Cyclists share with general traffic for approximately half of the route section through the ITT campus. However the campus roads are low speed low volume roads and as	This route option is identified in the GDA Cycle Network Plan as forming part of primary routes S05 and 8B as well as a feeder route along Airton Road. The section of S05 along Belgard Road and the section of 8B along Greenhills Road can be delivered as part of this scheme. Dedicated cycle facilities can be provided along the entire route section.	This route option is identified in the GDA Cycle Network Plan as forming part of primary routes S05 and 8B as well as a feeder route along Airton Road. The section of S05 along Belgard Road and the section of 8B along Greenhills Road can be delivered as part of this scheme. Dedicated cycle facilities can be provided along the entire route section.

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
		sharing with general traffic along Main Street.	such this is considered to be an acceptable provision for cyclists in this area.		
	Rank				
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Retail*** - Village Green retail area - Tallaght Main Street - Abberly Square Retail Area ***Leisure*** - Tallaght Athletics Club - Leisureplex ***Employment*** - Broomhill Industrial Estate - Hibernian Industrial Estate ***Education*** - IT Tallaght - Priory Institute	***Leisure*** - Tallaght Athletics Club ***Employment*** - Broomhill Industrial Estate - Hibernian Industrial Estate ***Education*** - IT Tallaght - Priory Institute	***Retail*** - Belgard Retail Park ***Leisure*** - Tallaght Athletics Club ***Employment*** - Broomhill Industrial Estate - Monarch Industrial Estate - Hibernian Industrial Estate	***Retail*** - Kilnamanagh Shopping Centre - Belgard Retail Park - Aldi (Belgard Road) ***Employment*** - Broomhill Industrial Estate - Broomhill Business Park - Belgard Industrial Estate - Monarch Industrial Estate
	Rank				
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally above average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally above average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally above average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank				
Safety	Road Safety	No. of Junctions: 6 4 turn movements required in the inbound direction (3 left and 1 right), and 4 turn movements required in the outbound direction (1 left and 3 right).	No. of Junctions: 6 3 turn movements required in the inbound direction (2 left and 1 right), and 3 turn movements required in the outbound direction (1 left and 2 right).	No. of Junctions: 4 3 turn movements required in the inbound direction (2 left and 1 right), and 3 turn movements required in the outbound direction (1 left and 2 right).	No. of Junctions: 4 3 turn movements required in the inbound direction (2 left and 1 right), and 3 turn movements required in the outbound direction (1 left and 2 right).

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
	Rank				
Environment	Archaeology and Cultural Heritage	The route passes through the Area of Archaeological Potential surrounding Tallaght Village. There are 12 sites either along or adjacent to the route which are recorded on the Record of Monuments and Places. Nine of these are located within the St. Maelruain's Church of Ireland Complex and burial ground, 2 are along Blessington Road and 1 along the southern end of Greenhills Road in the vicinity of the junction with the Old Greenhills Road. However, as there are no works proposed along this section of the route there are unlikely to be impacts on the identified sites.	No Recorded Monuments were identified along the route or within the vicinity of the route. The route passes through the Area of Archaeological Potential surrounding Tallaght Village. Minor road works will be required at the entrance to ITT and to convert the speed ramps to bus friendly raised tables. Cognisance will need to be given to the potential for archaeology features during these works.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.
	Rank				
	Architectural Heritage	Route passes through the Tallaght Village Conservation Area. There are 3 Protected Structures and 4 sites recorded on the National Inventory of Architectural Heritage, along the route located within the St. Maelruain's Church of Ireland Complex and at The Priory on the southern section of Greenhills Road However, as there are no works proposed along this section of the	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
		route there are unlikely to be impacts on the identified sites.			
	Rank				
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route crossed the Poddle River which appears to be culverted beneath the R819. Loss of verge along Belgard Road. No works are proposed through Tallaght village so there is no impact to trees in the area. Approx. 4-5 metres of land-take would be required along the western verge of Greenhills Road which would result in loss of mature trees opposite Westpark Fitness. Such areas could be used for roosting or foraging by bats. From this location northwards to Mayberry Road there would be loss of hedgerows which may be of ecological interest, amenity grassland and scrub.	The route does not cross any site of International, European or National conservation value. The route crossed the Poddle River which appears to be culverted beneath the R819. Minor road works will be required at the entrance to ITT and to convert the speed ramps to bus friendly raised tables however it is unlikely that there will be an impact to trees or amenity grassland in the area. Approx. 4-5 metres of land-take would be required along the western verge of Greenhills Road which would result in loss of mature trees opposite Westpark Fitness. Such areas could be used for roosting or foraging by bats. From this location northwards to Mayberry Road there would be loss of hedgerows which may be of ecological interest, amenity grassland and scrub.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Loss of verge along Belgard Road There are treelines of value along Airton Road which would be impacted by land-take for road widening. These are considered to be of ecological value. There would be loss of hedgerows along Greenhills Road which may be of ecological interest, amenity grassland and scrub.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are hedgerows and treelines of value along Mayberry Road which would be impacted by land-take for road widening. These are considered to be of ecological value. There would be loss of hedgerows along Greenhills Road which may be of ecological interest, amenity grassland and scrub.
	Rank				
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence	Minimal potential for impacts to soils and geology and no evidence	Minimal potential for impacts to soils and geology and no evidence	Minimal potential for impacts to soils and geology and no evidence

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
		of historic industries or gravel pits that could give rise to potential contamination.	of historic industries or gravel pits that could give rise to potential contamination.	of historic industries or gravel pits that could give rise to potential contamination.	of historic industries or gravel pits that could give rise to potential contamination.
	Rank				
	Hydrology	This route crosses over the Poddle River which appears to be culverted beneath the R819.	This route crosses over the Poddle River which appears to be culverted beneath the R819.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank				
	Landscape and Visual	Makes use of existing road corridors. Loss of verge and some trees along part of Belgard Road. No works required through historic centre of Tallaght village and no loss of trees. No works proposed within the Tallaght village Architectural Conservation Area. Development plan objective to protect and preserve Trees and Woodlands at location opposite Westpark Fitness. Loss of verge, green space and scrub along Greenhills Road.	Makes use of existing road corridors. Minor works required in ITT Campus and no loss of trees. Development plan objective to protect and preserve Trees and Woodlands at location opposite Westpark Fitness. Loss of verge, green space and scrub along Greenhills Road section of route.	Makes use of existing road corridors with no particular landscape and visual sensitivities. Loss of verge and some trees along part of Belgard Road. Loss of strong tree-lined corridor all along the length of Airton Road. Loss of verge, green space and scrub along Greenhills Road section of route.	Makes use of existing road corridors. Loss of verge and some trees along part of Belgard Road. Loss of strong tree-lined/landscaped corridor all along the length of Mayberry Road. Passes though residential area along Mayberry Road.
	Rank				
	Air Quality	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This	Traffic would be closer to a large number of residential sensitive receptors to the north and south of the length of Mayberry Road due to road widening. This may result in a

Assessment Criterion	Assessment Sub-Criterion	Route Option BG1 (Main Street)	Route Option BG2 (ITT)	Route Option BG3 (Airton Road)	Route Option BG4 (Mayberry Road)
		may result in an increase in pollutant concentrations at these receptors.	may result in an increase in pollutant concentrations at these receptors.	may result in an increase in pollutant concentrations at these receptors.	relative increase in pollutant concentrations at these receptors.
	Rank				
	Noise & Vibration	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This may result in an increase in noise at these receptors.	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This may result in an increase in noise at these receptors.	Traffic would be closer to a small number of residential sensitive receptors in the vicinity of the Greenhills Road/Mayberry Road junction due to road widening. This may result in an increase in noise at these receptors.	Traffic would be closer to a large number of residential sensitive receptors to the north and south of the length of Mayberry Road due to road widening. This may result in a relative increase in noise at these receptors.
	Rank				
	Land Use Character	Route has a relatively small impact on existing land use. Land acquisition is taken from both public and private open space and would not impact on its existing or future use.	Route has a relatively small impact on existing land use. Land acquisition is taken from both public and private open space and would not impact on its existing or future use.	Route has a relatively small impact on existing land use. Land acquisition is taken from both public and private open space. There is some removal of car parking along Airton Road.	Route has a relatively small impact on existing land use. Land acquisition is taken from both public and private open space and would not impact on its existing or future use.
	Rank				

A2 Parkview Route Options Assessment Summary

Assessment Criterion	Assessment Sub-Criterion	Route Option PV1 (Existing Greenhills Road)	Route Option PV2 (Realigned Greenhills Road)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €0.6m ***Indicative Scheme Infrastructure Works Cost*** (€0.6m) - Widen Greenhills Road north of Castletymon Road to facilitate bus lanes and raised adjacent cycle lanes in each direction; - Upgrade Greenhills Road/Castletymon Road junction to facilitate bus lanes on the northern approach to the junction. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 2,040 sqm Public Land 0 Properties affected	**Total Capital Cost** €1.6m ***Indicative Scheme Infrastructure Works Cost*** (€1.6m) - New section of road catering for traffic lanes, bus lanes and raised adjacent cycle lanes in each direction including tie in with existing alignment; - New junction to facilitate relocated Castletymon Road/Greenhills Road junction. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 10,484 sqm Public Land 0 Properties affected
	Rank		
	Transport Reliability and Quality of Service	Journey Time: 1 - 2 mins Length: 0.46 km No. of Junctions: 1 This option would have bus lanes along approximately 60% of this route option.	Journey Time: 1 – 2 mins Length: 0.46 km No. of Junctions: 1 Bus lanes are provided along the full length of this route option thereby ensuring journey time and timetable reliability.
	Rank		
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. There is however potential to facilitate redevelopment of the Cuckoo's Nest site.	This route serves an area which is largely developed, with limited scope for further development. There is however potential to facilitate redevelopment of the Cuckoo's Nest site. Route would deliver new road links which are included as development plan objectives.
	Rank		

Assessment Criterion	Assessment Sub-Criterion	Route Option PV1 (Existing Greenhills Road)	Route Option PV2 (Realigned Greenhills Road)
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,800 - 10 minute walk catchment of approximately 4,000 - 15 minute walk catchment of approximately 7,400 ***Employment catchments*** 10 minute walk catchment of approximately 2,400	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,600 - 10 minute walk catchment of approximately 4,000 - 15 minute walk catchment of approximately 7,400 ***Employment catchments*** 10 minute walk catchment of approximately 2,400
	Rank		
	Transport Network Integration	This route coincides with portions of existing bus routes 27 and 77a. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route does not currently coincide with any bus routes but would result in the routes 27 and 77a being rerouted to this route. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.
	Rank		
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8B. Raised adjacent cycle lanes would be provided for approximately 60% of the route. The remaining 40% would consist of on road advisory cycle lanes as per the existing layout.	This route option would provide an alternative equivalent route for primary cycle route 8B. Raised adjacent cycle lanes would be provided for the length of this route option.
	Rank		
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Leisure*** - Tymon Park - Tallaght Theatre ***Education*** - Coláiste de hÍde	***Leisure*** - Tymon Park - Tallaght Theatre ***Education*** - Coláiste de hÍde
	Rank		
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank		
Safety	Road Safety	No. of Junction: 1 No turn movements required in either direction.	No. of Junction: 1 No turn movements required in either direction.

Assessment Criterion	Assessment Sub-Criterion	Route Option PV1 (Existing Greenhills Road)	Route Option PV2 (Realigned Greenhills Road)
	Rank		
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route. There are a number of RMP sites located within the Elmcastle Walk estate and one RMP site along Treepark Road. The zone of archaeological interest for these sites extends close to, but is not impacted by the proposed route.
	Rank		
	Architectural Heritage	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.
	Rank		
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There will be some loss of verge and trees along the southern extent of the route north of the junction with Mayberry Road which may be of ecological value. There will be loss of existing verge on both sides of the road north of Castletymon Road to provide the additional bus and cycle lanes in both directions.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There will be some loss of verge and trees along the southern extent of the route north of the junction with Mayberry Road which may be of ecological value. Requires realignment of the existing road through the green area between the Parkview and Birchview Avenue residential developments. This open space is managed and there are no trees or hedgerows. It is therefore unlikely to be of ecological value.
	Rank		
	Soils and Geology	In general there is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination. The route will encroach into the Greenhills Esker Geological Heritage Site in Kilnamanagh, Tymon North, which is a ridge comprising sand and gravel.	In general there is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination. The route will encroach into the Greenhills Esker Geological Heritage Site in Kilnamanagh, Tymon North, which is a ridge comprising sand and gravel.
	Rank		
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required

Assessment Criterion	Assessment Sub-Criterion	Route Option PV1 (Existing Greenhills Road)	Route Option PV2 (Realigned Greenhills Road)
	Rank		
	Landscape and Visual	Makes use of existing road corridor with no particular landscape and visual sensitivities. Passes adjacent to residential areas along Greenhills Road. Loss of verge and some trees along the southern portion of the route. Loss of road verge north of Castletymon Road. Proposed widening works would not encroach on Tymon Park.	Requires realignment of the existing road through the green area between the Parkview and Birchview Avenue residential developments. This will have a direct impact on public open space. Passes adjacent to the residential area of Birchview Avenue and Tree Park Road.
	Rank		
	Air Quality	Road widening/road works along the southern section of Parkview estate i.e. south of Castletymon Road have the potential to bring traffic closer to residential receptors in Parkview Estate, Tymonville Crescent and Birchview Avenue. This may result in an increase in pollutant concentrations at these receptors.	Traffic will be brought closer to residential sensitive receptors along Treepark Road, Birchview Avenue, and residences along the western extent of Parkview Estate. This may result in an increase in pollutant concentrations at these receptors. However, residences in Tymonville Crescent, Tymonville Drive and the eastern extent of Parkview Estate will likely experience reduced pollutant concentrations as a result of the diversion of traffic.
	Rank		
	Noise & Vibration	Road widening/road works along the southern section of Parkview estate i.e. south of Castletymon Road have the potential to bring traffic closer to residential receptors in Parkview Estate, Tymonville Crescent and Birchview Avenue. This may result in an increase in noise emissions at these receptors.	Traffic will be brought closer to residential sensitive receptors along Treepark Road, Birchview Avenue, and residences along the western extent of Parkview Estate. This may result in an increase in noise emissions at these receptors. However, residences in Tymonville Crescent, Tymonville Drive and the eastern extent of Parkview Estate will likely experience reduced noise emissions as a result of the diversion of traffic.
	Rank		
	Land Use Character	Route has a relatively small impact on existing land use. Land acquisition is taken from public verge and would not impact on its existing or future use.	Route has a moderate impact on existing land use as it runs through an open green area.
	Rank		

A3 Ballymount to Walkinstown Route Options Assessment

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €6.1m ***Indicative Scheme Infrastructure Works Cost*** (€2.1m) - Road widening and earthworks along Greenhills Road for a length of approximately 550m; - Minor local road widening along Greenhills Road. ***Land Acquisition Cost*** (€4.0m) 2,670 sqm Private Land 2,630 sqm Public Land 6 Properties affected	**Total Capital Cost** €12.9m ***Indicative Scheme Infrastructure Works Cost*** (€4.6m) - New section of road connecting Greenhills Road to Ballymount Avenue; - Widening of Ballymount Avenue to accommodate bus lanes and raised adjacent cycle lanes in each direction; - Upgrade of Ballymount Road/Calmount Road junction to traffic signals; - Upgrade of Calmount Road/Calmount Avenue junction to traffic signals; - Widening of Calmount Road to accommodate bus lanes and raised adjacent cycle lanes in each direction; - Widening of Greenhills Road on approach to Walkinstown Roundabout including retaining structures, embankments or road lowering; and - New section of road connecting Greenhills Road to Calmount Road. ***Land Acquisition Cost*** (€8.3m) 5,550 sqm Private Land 12,000 sqm Public Land 17 Properties affected	**Total Capital Cost** €11.9m ***Indicative Scheme Infrastructure Works Cost*** (€4.0m) - New section of road connecting Greenhills Road to Ballymount Avenue; - New signalised junction at Greenhills Road/Ballymount Avenue junction; - Widening of Ballymount Avenue to accommodate raised adjacent cycle lanes in each direction; - Upgrade of Ballymount Road/Calmount Road junction to traffic signals; - Upgrade of Calmount Road/Calmount Avenue junction to traffic signals; - Widening of Calmount Road to accommodate raised adjacent cycle lanes in each direction; - Widening of Greenhills Road on approach to Walkinstown Roundabout including retaining structures, embankments or road lowering to facilitate bus and raised adjacent cycle lanes; - New section of road connecting Greenhills Road to Calmount Road; - New signalised junction at Greenhills Road/Calmount Road junction. ***Land Acquisition Cost*** (€7.9m) 5,300 sqm Private Land 4,950 sqm Public Land 16 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
	Rank			
	Transport Reliability and Quality of Service	Journey Time: 3 - 4 mins Length: 1.3 km No. of Junctions: 0 Bus lanes are provided along approximately 50% of this route option. Journey time reliability is therefore somewhat compromised.	Journey Time: 3 - 4 mins Length: 1.6 km No. of Junctions: 2 Bus lanes are provided along approximately 100% of this route option providing reasonably good journey time reliability.	Journey Time: 3 - 4 mins Length: 1.3 km No. of Junctions: 2 Bus lanes are provided along approximately 30% of this route option. However, buses would not have to contend with traffic for most of this route as Greenhills Road would be restricted to buses and local access only.
	Rank			
Integration	Land Use Integration	Route has potential to encourage redevelopment of some properties along Greenhills Road.	Route has potential to encourage development of empty plots within Ballymount Industrial estate. Route would deliver new road links which are included as development plan objectives.	Route has potential to encourage development of empty plots within Ballymount Industrial estate and redevelopment of properties along Greenhills Road. Route would deliver new road links which are included as development plan objectives.
	Rank			
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,500 - 10 minute walk catchment of approximately 5,000 - 15 minute walk catchment of approximately 11,600 ***Employment catchments*** 10 minute walk catchment of approximately 4,700	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,200 - 10 minute walk catchment of approximately 4,500 - 15 minute walk catchment of approximately 11,300 ***Employment catchments*** 10 minute walk catchment of approximately 5,300	***Residential Population Catchments*** - 5 minute walk catchment of approximately 1,500 - 10 minute walk catchment of approximately 5,000 - 15 minute walk catchment of approximately 11,600 ***Employment catchments*** 10 minute walk catchment of approximately 4,700
	Rank			
	Transport Network Integration	This route coincides with portions of existing bus routes 27 and 77a. There would be no impact on general traffic.	This route does not currently coincide with any bus routes but would result in the routes 27 and 77a being rerouted to this route.	This route coincides with portions of existing bus routes 27 and 77a. There would be a minor impact on general traffic in terms journey times by rerouting the road through Ballymount Industrial Estate.

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
			There would be a minor impact on general traffic in terms journey times by rerouting the road through Ballymount Industrial Estate.	
	Rank			
	Cycling integration	This section of this route option between the southern end and Calmount Road is identified in the GDA Cycle Network Plan as being a feeder route. Between Calmount Road and Walkinstown Roundabout it is identified as Secondary Route 8A. However, this route option would proposed rerouting Secondary Route 8A from Ballymount Avenue/Calmount Road to Greenhills Road. Raised adjacent cycle lanes would be provided for approximately 50% of the route. However, the remaining 50% would consist of on road advisory cycle lanes as per the existing layout.	This route option is identified in the GDA Cycle Network Plan as forming part of secondary cycle route 8A. Raised adjacent cycle lanes would be provided along the entire length of the route. Alternatively cyclists could stay in on-road advisory lanes on Greenhills Road which would be lightly trafficked.	This route option is identified in the GDA Cycle Network Plan as being a feeder route. For this option, cyclists would be routed through Ballymount Industrial Estate along the route of secondary cycle route 8A where raised adjacent cycle lanes would be provided for approximately 100% of the route. Alternatively cyclists could stay in on-road advisory lanes on Greenhills Road which would be lightly trafficked.
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Retail*** - Walkinstown Roundabout retail area - Lidl, Greenhills Road ***Employment*** - Fashion City - Calmount Business Park - Greenhills Industrial Estate - Mulcahy Keane Industrial Estate - Ballymount Court Business Centre	***Retail*** - Walkinstown Roundabout retail area ***Employment*** - Fashion City - Western Parkway Business Centre - Calmount Business Park - Greenhills Industrial Estate - Mulcahy Keane Industrial Estate - Ballymount Court Business Centre	***Retail*** - Walkinstown Roundabout retail area - Lidl, Greenhills Road ***Employment*** - Fashion City - Calmount Business Park - Greenhills Industrial Estate - Mulcahy Keane Industrial Estate - Ballymount Court Business Centre
	Rank			
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank			

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
Safety	Road Safety	No. of Junction: 0 No turn movements required in either direction.	No. of Junction: 2 2 turn movements required in each direction (1 left and 1 right).	No. of Junction: 2 2 right turn movements required in inbound direction and 2 left turn movements required in outbound direction.
	Rank			
Environment	Archaeology and Cultural Heritage	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route. There is one RMP site located within the Mulcahy Keane Industrial Estate and the zone of archaeological interest for this extends close to the proposed route (i.e. to the rear of the properties on the eastern site of Greenhills Road) but will not be traversed by the proposed works.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route. There is one RMP site located within the Mulcahy Keane Industrial Estate and the zone of archaeological interest for this extends close to the proposed route (i.e. to the rear of the properties on the eastern site of Greenhills Road) but will not be traversed by the proposed works.
	Rank			
	Architectural Heritage	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.	No protected structures or sites of architectural heritage merit were identified along the route or within the vicinity of the route.
	Rank			
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Road widening will result in some loss of verge and hedgerow along the southern extent of the route which is likely to be of ecological value. There will also be loss of mature trees which are of ecological value and could be used for roosting or foraging by bats.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There will be some loss to green space and trees/hedgerows to facilitate the three new sections of road that are required. These connections will be through currently unused green spaces which are likely to have some local ecological value and could have potential for roosting or foraging by bats.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. This route will also require the three new sections of road as per BW2. These green spaces are likely to have some local ecological value and could have potential for roosting or foraging by bats. Some road widening will be required along Ballymount Avenue and Calmount Road resulting in the loss of some verge space and

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
			There will be extensive road widening resulting in loss of trees and verge along Ballymount Avenue, Calmount Road, Calmount Avenue and Greenhills Road	some trees. Extensive Road widening required on Greenhills Road east of Calmount Road resulting in loss of verge and some trees/hedgerows.
	Rank			
	Soils and Geology	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank			
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required
	Rank			
	Landscape and Visual	Makes use of existing road corridor with no particular landscape and visual sensitivities. Passes adjacent to residential areas along eastern extent of Greenhills road. Road widening will result in loss of verge and some trees/hedgerows along the southern portion of the route.	Makes use of some existing road corridor with no particular landscape and visual sensitivities. Requires three new links via currently unused green space. There will be loss of trees and hedgerows within these spaces however given their location within an industrial estate environment these areas have no particular landscape value or use. Road widening will be required resulting in the loss of trees and verge along Ballymount Avenue, Calmount Road and Greenhills Road.	Makes use of existing road corridor with no particular landscape and visual sensitivities. There will be no road widening as per BW1, therefore no loss of trees and hedgerows. Requires three new links via currently unused green space. There will be loss of trees and hedgerows within these spaces however given their location within an industrial estate environment these areas have no particular landscape value or use. Road widening will be required along Ballymount Avenue, Calmount Road and Greenhills Road resulting in the loss of some verge space and some trees.
	Rank			
	Air Quality	Road widening/road works along the southern section of the route will bring traffic closer to residential receptors in Keadeen Avenue and the private residence on the western extent of Greenhills Road	Traffic will be redirected away from the sensitive receptors in Keadeen Avenue which will result in a decrease in pollutant concentrations at these receptors.	General traffic would be redirected away from the sensitive receptors in Keadeen Avenue while buses would continue along Greenhills

Assessment Criterion	Assessment Sub-Criterion	Route Option BW1 (Greenhills Road)	Route Option BW2 (Calmount Road – all traffic)	Route Option BW3 (Greenhills Road Buses Only)
		approx. 100m south of Kilakee Drive. This may result in an increase in pollutant concentrations at these receptors.		Road. There may be some decrease in pollutant concentrations at these receptors.
	Rank			
	Noise & Vibration	Road widening/road works along the southern section of the route will bring traffic closer to residential receptors in Keadeen Avenue and the private residence on the western extent of Greenhills Road approx. 100m south of Kilakee Drive. This may result in an increase in increased noise emissions at these receptors.	All traffic (with the exception of local traffic) will be redirected away from the sensitive receptors in Keadeen Avenue which will result in a decrease in noise emissions at these receptors.	General traffic would be redirected away from the sensitive receptors in Keadeen Avenue while buses would continue along Greenhills Road. There may be some decrease in noise emissions at these receptors.
	Rank			
	Land Use Character	Route has a small impact on existing land use. Land acquisition is taken from public and private open space verge and would not impact on its existing or future use.	Route has a small impact on existing land use. Land acquisition is taken from public and private open space verge and would not impact on its existing or future use.	Route has a small impact on existing land use. Land acquisition is taken from public and private open space verge and would not impact on its existing or future use.
	Rank			

A4 Walkinstown Roundabout Options Assessment (Option 1-3)

Assessment Criterion	Assessment Sub-Criterion	Option 1 (Modified Roundabout Dual Lane)	Option 2 (Modified Roundabout Dual Lane, Ballymount Road Local Access Only)	Option 3 (Modified Roundabout Single Lane Approaches Except Walkinstown Road and Greenhills Road, Dual Lane Gyratory)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €0.5m ***Indicative Scheme Infrastructure* Works Cost** (€0.5m) - Increase size of roundabout island; - Kerb build-outs on all approaches to tighten entry and exit radii and reduce circulating carriageway to two lanes; and - Construct kerb between bus lane and traffic lane on approach to roundabout. ***Land Acquisition Cost*** (€0.0m) 0 sqm Private Land 0 Properties affected	**Total Capital Cost** €0.8m ***Indicative Scheme Infrastructure* Works Cost** (€0.8m) - Increase size of roundabout island; - Close Ballymount Road Lower to through traffic; and - Kerb build-outs on all approaches to tighten entry and exit radii and reduce circulating carriageway to two lanes. ***Land Acquisition Cost*** (€0.0m) 0 sqm Private Land 0 Properties affected	**Total Capital Cost** €0.5m ***Indicative Scheme Infrastructure* Works Cost** (€0.5m) - Increase size of roundabout island; - Kerb build-outs on all approaches to tighten entry and exit radii and reduce circulating carriageway to two lanes; and - Construct kerb between bus lane and traffic lane on approach to roundabout. ***Land Acquisition Cost*** (€0.0m) 0 sqm Private Land 0 Properties affected
	Rank			
	Transport Reliability and Quality of Service	Bus lane provided to approximately 35m in advance of the stopline breaking to allow left turners share with buses. Buses could pass through the roundabout from the same lane.	Bus lane provided to approximately 35m in advance of the stopline breaking to allow left turners share with buses. Buses could pass through the roundabout from the same lane. The removal of some traffic from the roundabout (by closing Ballymount Road Lower to through traffic) would likely result in minor improvement to bus journey times through the junction.	Bus lane provided to approximately 35m in advance of the stopline breaking to allow left turners share with buses. Buses could pass through the roundabout from the same lane. Provides slightly better priority through the roundabout than other roundabout options as more capacity provided on the gyratory.
	Rank			
Integration	Transport Network Integration	This option removes a lane from each approach to the junction and from the roundabout gyratory thereby reducing capacity for vehicles.	This option removes a lane from each approach to the junction and from the roundabout gyratory thereby reducing capacity for vehicles. The closure of the Ballymount Road would reduce the volume of traffic at the roundabout but may	This option removes 2 traffic lanes from each approach to the junction thereby reducing capacity for vehicles. The reduction in capacity may result in queuing on all approaches and may impact on the progression of buses of full bus

Assessment Criterion	Assessment Sub-Criterion	Option 1 (Modified Roundabout Dual Lane)	Option 2 (Modified Roundabout Dual Lane, Ballymount Road Local Access Only)	Option 3 (Modified Roundabout Single Lane Approaches Except Walkinstown Road and Greenhills Road, Dual Lane Gyratory)
			create issues elsewhere due to rerouted traffic (approximately 1,400 – 1,500 movements currently on Ballymount Road in each peak hour).	priority is not achievable on Greenhills Road and Walkinstown Road approaches.
	Rank			
	Cycling integration	Raised pedestrian crossings would be provided across each approach to the junction with shared spaces created between each thereby providing a safe path for cyclists around the roundabout. However, more confident cyclists would likely prefer to move through the roundabout on-road where there would be no dedicated cycle lanes.	Raised pedestrian crossings would be provided across each approach to the junction with shared spaces created between each thereby providing a safe path for cyclists around the roundabout. However, more confident cyclists would likely prefer to move through the roundabout on-road where there would be no dedicated cycle lanes.	Raised pedestrian crossings would be provided across each approach to the junction with shared spaces created between each thereby providing a safe path for cyclists around the roundabout. However, more confident cyclists would likely prefer to move through the roundabout on-road where there would be no dedicated cycle lanes.
	Rank			
Safety	Road Safety	Condensing the roundabout to a dual lane roundabout would reduce the potential for conflict between vehicles. Furthermore the provision of raised crossing on each approach provides safe routes for cyclists and pedestrians.	Condensing the roundabout to a dual lane roundabout would reduce the potential for conflict between vehicles. Furthermore the provision of raised crossing on each approach provides safe routes for cyclists and pedestrians.	Condensing the roundabout to a dual lane roundabout would reduce the potential for conflict between vehicles. Furthermore the provision of raised crossing on each approach provides safe routes for cyclists and pedestrians.
	Rank			
Environment	Landscape and Visual	The reduction of the roundabout size creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.	The reduction of the roundabout size creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.	The reduction of the roundabout size creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.
	Rank			
	Land Use Character	No land-take or changes to existing land use is required for this option.	No land-take or changes to existing land use is required for this option. The reduction of the roundabout size creates more public space around the roundabout.	No land-take or changes to existing land use is required for this option.
	Rank			

A5 Walkinstown Roundabout Options Assessment (Option 4-6)

Assessment Criterion	Assessment Sub-Criterion	Option 4 (4-arm Signalised Junction, Ballymount Road Local Access Only, Cromwellsfort Road LILO)	Option 5 (Double Signalised Junction North-South with Ballymount Road Local Access Only)	Option 6 (Double Signalised Junction East-West with Ballymount Road Local Access Only)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €2.4m ***Indicative Scheme Infrastructure* Works Cost** (€1.5m) - Realign Cromwellsfort Road to meet St. Peters Road; - Realign Ballymount Road Lower to meet Walkinstown Road; - Close Ballymount Road Lower to through traffic; and - Upgrade junction to traffic signals. ***Land Acquisition Cost*** (€0.9m) 600 sqm Private Land 2 Properties affected	**Total Capital Cost** €2.4m ***Indicative Scheme Infrastructure* Works Cost** (€1.0m) - Realign Ballymount Road Lower to meet Walkinstown Road; - Realign St. Peters Road to meet Greenhills Road; - Close Ballymount Road Lower to through traffic; and - Create two signalised junctions. ***Land Acquisition Cost*** (€1.4m) 900 sqm Private Land 3 Properties affected	**Total Capital Cost** €3.0m ***Indicative Scheme Infrastructure* Works Cost** (€1.0m) - Realign Ballymount Road Lower to meet Walkinstown Road; - Realign St. Peters Road to meet Cromwellsfort Road; - Close Ballymount Road Lower to through traffic; and - Create two signalised junctions. ***Land Acquisition Cost*** (€2.0m) 1,300 sqm Private Land 3 Properties affected
	Rank			
	Transport Reliability and Quality of Service	Bus lanes would be provided to the stop line thereby providing potential for good journey time reliability through the junction. Bus lanes would break for a short section in advance of the stop line to facilitate access to the left turn lane.	Bus lanes would be provided to the stop line thereby providing potential for good journey time reliability through the junction. Bus lanes would break for a short section in advance of the stop line to facilitate access to the left turn lane.	Bus lanes would be provided to the stop line thereby providing potential for good journey time reliability through the junction. Bus lanes would break for a short section in advance of the stop line to facilitate access to the left turn lane.
	Rank			
Integration	Transport Network Integration	This option would likely have a negative impact on traffic at the junction. The diversion of traffic from Cromwellsfort Road to St. Peters Road and restriction to left in left out from Cromwellsfort Road would likely result in a large volume of traffic diverting to St.Peters Road. Delays to vehicles on this approach would therefore be likely.	This option would likely have a negative impact on traffic at the junction. It is possible to provide approximately 45m separation between the two junctions allowing 7-8 vehicles to store between the junctions thereby improving the junction performance.	This option would likely have a negative impact on traffic at the junction. It is not possible to provide much separation between the two junction (approximately 20m) meaning the junction would in effect operate as a single signalised junction. This would reduce the efficiency and capacity at the junction.

Assessment Criterion	Assessment Sub-Criterion	Option 4 (4-arm Signalised Junction, Ballymount Road Local Access Only, Cromwellsfort Road LILO)	Option 5 (Double Signalised Junction North-South with Ballymount Road Local Access Only)	Option 6 (Double Signalised Junction East-West with Ballymount Road Local Access Only)
		The closure of the Ballymount Road would reduce the volume of traffic at the roundabout but may create issues elsewhere due to rerouted traffic (approximately 1,400 – 1,500 movements currently on Ballymount Road in each peak period).	The closure of the Ballymount Road would reduce the volume of traffic at the roundabout but may create issues elsewhere due to rerouted traffic (approximately 1,400 – 1,500 movements currently on Ballymount Road in each peak period).	The closure of the Ballymount Road would reduce the volume of traffic at the roundabout but may create issues elsewhere due to rerouted traffic (approximately 1,400 – 1,500 movements currently on Ballymount Road in each peak period).
	Cycling integration	Signalisation would allow cyclists to safely pass through the junction on-road. While cycle lanes would not be provided on the Greenhills Road or Walkinstown Road approaches, cycle lanes could be demarcated through the junction to improve cyclist safety.	Signalisation would allow cyclists to safely pass through the junction on-road. While cycle lanes would not be provided on the Greenhills Road or Walkinstown Road approaches, cycle lanes could be demarcated through the junction to improve cyclist safety.	Signalisation would allow cyclists to safely pass through the junction on-road. While cycle lanes would not be provided on the Greenhills Road or Walkinstown Road approaches, cycle lanes could be demarcated through the junction to improve cyclist safety.
	Rank			
Safety	Road Safety	Generally, signalisation of the junction would improve safety for all road users by controlling all movements at the junction.	Generally, signalisation of the junction would improve safety for all road users by controlling all movements at the junction.	Generally, signalisation of the junction would improve safety for all road users by controlling all movements at the junction.
	Rank			
Environment	Landscape and Visual	Although this option would require some land-take to facilitate the desired geometry and alignment, generally, this option creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.	Although this option would require some land-take to facilitate the desired geometry and alignment, generally, this option creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.	Although this option would require some land-take to facilitate the desired geometry and alignment, generally, this option creates more public space around the roundabout thereby improving the landscape and visual appearance of the junction.
	Rank			
	Land Use Character	Some land-take is required to facilitate this junction arrangement including the Cherrytree Pub car park on the opposite side of St. Peters Road to the pub. Some car parking is also required to be removed on the corner between Ballymount Road Lower and Walkinstown Avenue to facilitate the Ballymount Road Lower realignment.	Some land-take is required to facilitate this junction arrangement including car parking directly in front of the Cherrytree Pub and local shops. Some car parking is also required to be removed on the corner between Ballymount Road Lower and Walkinstown Avenue to facilitate the Ballymount Road Lower realignment.	Some land-take is required to facilitate this junction arrangement including the Cherrytree Pub car park on the opposite side of St. Peters Road to the pub. Some car parking is also required to be removed on the corner between Ballymount Road Lower and Walkinstown Avenue to facilitate the Ballymount Road Lower realignment.

Assessment Criterion	Assessment Sub-Criterion	Option 4 (4-arm Signalised Junction, Ballymount Road Local Access Only, Cromwellsfort Road LILO)	Option 5 (Double Signalised Junction North-South with Ballymount Road Local Access Only)	Option 6 (Double Signalised Junction East-West with Ballymount Road Local Access Only)
		Some of the space gained by the junction modification could be reallocated as parking for these local business.	Some of the space gained by the junction modification could be reallocated as parking for these local business.	Some of the space gained by the junction modification could be reallocated as parking for these local business.
	Rank			

A6 Walkinstown to Crumlin Route Options Assessment (WC1a to WC1d)

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €12.0m ***Indicative Scheme Infrastructure* Works Cost** (€4.3m) - Road widening on Walkinstown Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Boundary works to impacted properties on Walkinstown Road and Drimnagh Road - Modify Walkinstown Road/Kilnamanagh Road junction to facilitate widened carriageway - Modify Walkinstown Road/Drimnagh Road junction to facilitate widened carriageway - Provision of raised adjacent cycle lanes and improved pedestrian facilities along route ***Land Acquisition Cost*** (€7.7m) 5,100 sqm Private Land	**Total Capital Cost** €5.6m ***Indicative Scheme Infrastructure* Works Cost** (€3.3m) - Road widening on Walkinstown Road and associated works (drainage, services etc.) to facilitate shared bus/cycle lanes in each direction - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Boundary works to impacted properties on Walkinstown Road and Drimnagh Road - Modify Walkinstown Road/Kilnamanagh Road junction to facilitate widened carriageway - Modify Walkinstown Road/Drimnagh Road junction to facilitate widened carriageway - Provision of improved pedestrian facilities along route ***Land Acquisition Cost*** (€2.3m) 1,500 sqm Private Land 3,400 sqm Public Land 88 Properties affected	**Total Capital Cost** €2.4m ***Indicative Scheme Infrastructure Works Cost*** (€2.1m) - Minor kerb realignment and road widening along Walkinstown Road to facilitate partial bus lanes in each direction - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Minor modifications to signalised junctions along route - Boundary works to impacted properties on Drimnagh Road ***Land Acquisition Cost*** (€0.3m) 200 sqm Private Land 1,600 sqm Public Land 31 Properties affected	**Total Capital Cost** €3.5m ***Indicative Scheme Infrastructure Works Cost*** (€2.5m) - Minor kerb realignment and road widening along Walkinstown Road to facilitate partial bus lanes in each direction - Road widening on Walkinstown Road in the vicinity of Kilnamanagh Road - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Boundary works to impacted properties on Drimnagh Road - Minor modifications to signalised junctions along route ***Land Acquisition Cost*** (€1.0m) 700 sqm Private Land 2,100 sqm Public Land 42 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		6,200 sqm Public Land 159 Properties affected			
	Rank				
	Transport Reliability and Quality of Service	Journey Time: 3 - 4 mins Length: 1.6km No. of Junctions: 3 Bus lanes are provided along 100% of this route option.	Journey Time: 3 - 4 mins Length: 1.6 km No. of Junctions: 3 Bus lanes are provided along 100% of this route option.	Journey Time: 4 - 5 mins Length: 1.6 km No. of Junctions: 3 Bus lanes are provided along approximately 70% of this route option. Bus lanes provided on approach to Walkinstown Roundabout and Drimnagh Road junction. Use of traffic signals at Walkinstown Road/Kilnamanagh Road junction to allow relocation of queues would help improve journey time reliability on sections where no bus lanes are feasible.	Journey Time: 4 - 5 mins Length: 1.6 km No. of Junctions: 3 Bus lanes are provided along approximately 75% of this route option. Provision of bus lanes on approach to junctions along the route would offer some journey time reliability. Use of traffic signals at Walkinstown Road/Kilnamanagh Road junction to allow relocation of queues would help improve journey time reliability on sections where no bus lanes are feasible.
	Rank				
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development
	Rank				
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 - 10 minute walk catchment of approximately 7,400 - 15 minute walk catchment of approximately 15,500 ***Employment catchments***	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 - 10 minute walk catchment of approximately 7,400 - 15 minute walk catchment of approximately 15,500 ***Employment catchments***	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 - 10 minute walk catchment of approximately 7,400 - 15 minute walk catchment of approximately 15,500 ***Employment catchments***	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 - 10 minute walk catchment of approximately 7,400 - 15 minute walk catchment of approximately 15,500 ***Employment catchments***

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		10 minute walk catchment of approximately 4,400	10 minute walk catchment of approximately 4,400	10 minute walk catchment of approximately 4,400	10 minute walk catchment of approximately 4,400
	Rank				
	Transport Network Integration	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be a minor impact on general traffic as a result of the banning of left turn from Walkinstown Road and the Kilnamanagh Road junction.
	Rank				
	Cycling integration	This section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.	This section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. For this option cyclists would be accommodated in the bus lane along Walkinstown Road. On Drimnagh Road, cyclists will be accommodated in dedicated raised adjacent cycle lanes.	This section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. For this option cyclists would be accommodated in the bus lane along Walkinstown Road. On Drimnagh Road, cyclists will be accommodated in dedicated raised adjacent cycle lanes.	This section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. For this option cyclists would be accommodated in the bus lane along Walkinstown Road. On Drimnagh Road, cyclists will be accommodated in dedicated raised adjacent cycle lanes.
	Rank				
	Key Trip Attractors (Education/Health	***Retail*** - Walkinstown Roundabout retail area	***Retail*** - Walkinstown Roundabout retail area	***Retail*** - Walkinstown Roundabout retail area	***Retail*** - Walkinstown Roundabout retail area

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
Accessibility and Social Inclusion	/Commercial/Employment)	- Walkinstown Road retail area - Errigal Road retail area ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School	- Walkinstown Road retail area - Errigal Road retail area ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School	- Walkinstown Road retail area - Errigal Road retail area ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School	- Walkinstown Road retail area - Errigal Road retail area ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School
	Rank				
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank				
Safety	Road Safety	No. of Junctions 3 1 turn movement in each direction (right turn inbound, left turn outbound)	No. of Junctions 3 1 turn movement in each direction (right turn inbound, left turn outbound)	No. of Junctions 3 1 turn movement in each direction (right turn inbound, left turn outbound)	No. of Junctions 3 1 turn movement in each direction (right turn inbound, left turn outbound)
	Rank				
Environment	Archaeology and Cultural Heritage	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the immediate vicinity of the proposed new route.
	Rank				
	Architectural Heritage	There are no protected structures along the route or within the vicinity of the route. There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152	There are no protected structures along the route or within the vicinity of the route. There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152	There are no protected structures along the route or within the vicinity of the route. There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152	There are no protected structures along the route or within the vicinity of the route. There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. The road widening associated with this option on the western extent of Walkinstown Road will directly impact on this feature which will need to be removed and reinstated in a new location.	Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. The road widening associated with this option on the western extent of Walkinstown Road will directly impact on this feature which will need to be removed and reinstated in a new location.	Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. While there is no extensive road widening associated with this option there may be local adjustments to footpaths which have the potential to impact on this feature.	Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. While there is no extensive road widening associated with this option there may be local adjustments to footpaths which have the potential to impact on this feature.
	Rank				
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Road widening will result in the loss of areas of the front gardens along the western extent of Walkinstown Road. It is considered that the gardens, although being managed habitats have a potential local habitat value and therefore the loss of garden area could give rise to an ecological impact. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Road widening will result in the loss of areas of the front gardens along the western extent of Walkinstown Road. It is considered that the gardens, although being managed habitats have a potential local habitat value and therefore the loss of garden area could give rise to an ecological impact. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There will be no extensive road widening with this option along Walkinstown Road and front gardens will not be impacted. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There will be no extensive road widening with this option along Walkinstown Road and front gardens will not be impacted. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.	adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.	etc.). The potential ecological impact is therefore considered to be minor.	impact is therefore considered to be minor.
	Rank				
	Soils and Geology	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank				
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank				
	Landscape and Visual	Makes use of existing road corridor with no particular landscape and visual sensitivities. Passes through residential areas along Walkinstown Road and Drimnagh Road.	Makes use of existing road corridor with no particular landscape and visual sensitivities. Passes through residential areas along Walkinstown Road and Drimnagh Road.	Makes use of existing road corridor with no particular landscape and visual sensitivities. There will be no extensive road widening with this option along	Makes use of existing road corridor with no particular landscape and visual sensitivities. There will be some road widening with this option along Walkinstown Road in the vicinity of

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		Road widening will result in loss of the large portions of the front gardens along the western extent of Walkinstown Road with loss of some established planting in places. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Road widening will result in partial loss of front gardens along the western extent of Walkinstown Road. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Walkinstown Road and front gardens will not be impacted. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Kilnamanagh Road resulting in partial loss of front gardens in this area. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.
	Rank				
	Air Quality	Road widening/road works will bring traffic up to 7m closer to residential receptors on each side of Walkinstown Road. This will result in an increase in pollutant concentrations at these receptors.	Road widening/road works will bring traffic up to 3m closer to residential receptors along the eastern extent of Walkinstown Road. This will likely result in an increase in pollutant concentrations at these receptors.	Road widening/road works will be confined to the existing infrastructure with some local adjustments to footpaths etc. Traffic may be brought marginally closer to residential receptors along Walkinstown Road. However, it is unlikely to cause increases in pollutant concentrations at these receptors.	Road widening/road works on Walkinstown Road in the vicinity of Kilnamanagh Road will bring traffic up to 3m closer to residential receptors along the eastern extent of Walkinstown Road. This will likely result in an increase in pollutant concentrations at these receptors.
	Rank				
	Noise & Vibration	Road widening/road works will bring traffic up to 7m closer to residential receptors on each side of Walkinstown Road. This will result in an increase in noise emissions at these receptors.	Road widening/road works will bring traffic up to 3m closer to residential receptors along the eastern extent of Walkinstown Road. This will result in an increase in noise emissions at these receptors.	Road widening/road works will be confined to the existing infrastructure with some local adjustments to footpaths etc. Traffic may be brought marginally closer to residential receptors along Walkinstown Road. However, it is unlikely to cause increases in noise emissions at these receptors.	Road widening/road works on Walkinstown Road in the vicinity of Kilnamanagh Road will bring traffic up to 3m closer to residential receptors along the eastern extent of Walkinstown Road. This will result in an increase in noise emissions at these receptors.
	Rank				
	Land Use Character	Route has a negative impact on existing land use. Loss of large part of front gardens for 128 property	Route has a moderate impact on existing land use. Loss of substantial part of front gardens for	Route has a small impact on existing land use.	Route has a small impact on existing land use.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC1a (Walkinstown Road/Drimnagh Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC1b (Walkinstown Road/Drimnagh Road – Bus Lanes in Each Direction)	Route Option WC1c (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction)	Route Option WC1d (Walkinstown Road/Drimnagh Road – Partial Bus Lanes in Each Direction Alternative)
		owners along Walkinstown Road and 31 property owners along Drimnagh Road. Loss of 20 parking spaces in Supervalu. Loss of 16 on-street car parking spaces along Drimnagh Road.	57 property owners along Walkinstown Road and 31 property owners along Drimnagh Road. Loss of 16 on-street car parking spaces along Drimnagh Road. Loss of 20 parking spaces in Supervalu.	Land acquisition along Walkinstown Road is taken from public footpath and would not impact on its existing or future use. Along Drimnagh Road, 31 properties would be impacted. Loss of 16 on-street car parking spaces along Drimnagh Road.	Land acquisition along Walkinstown Road is primarily taken from public footpath and would not impact on its existing or future use. Some land take is required in the vicinity of the Kilnamanagh Road junction impacting on 11 properties. Along Drimnagh Road, 31 properties would be impacted. Loss of 16 on-street car parking spaces along Drimnagh Road. Loss of 20 parking spaces in Supervalu.
	Rank				

A7 Walkinstown to Crumlin Route Options Assessment (WC2a to WC2c)

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €7.2m ***Indicative Scheme Infrastructure* Works Cost** (€4.1m) - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Boundary works to impacted properties - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Modify Bunting Road/Kildare Road/Drimnagh Road junction to facilitate widened carriageway - Provision of raised adjacent cycle lanes along route ***Land Acquisition Cost*** (€3.1m) 2,000 sqm Private Land 9,100 sqm Public Land 82 Properties affected	**Total Capital Cost** €7.7m ***Indicative Scheme Infrastructure* Works Cost** (€6.6m) - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Modify Bunting Road/Kildare Road/Drimnagh Road junction to facilitate widened carriageway - Road widening on Walkinstown Road to facilitate raised adjacent cycle lanes in each direction - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Boundary works to impacted properties on Walkinstown Road and Drimnagh Road - Modify Walkinstown Road/Kilnamanagh Road junction to facilitate widened carriageway - Modify Walkinstown Road/Drimnagh Road junction to facilitate widened carriageway ***Land Acquisition Cost*** (€1.1m) 720 sqm Private Land	**Total Capital Cost** €2.2m ***Indicative Scheme Infrastructure Works Cost*** (€2.2m) - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate raised adjacent cycle lanes in each direction ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 2,000 sqm Public Land 0 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
			10,400 sqm Public Land 103 Properties affected	
	Rank			
	Transport Reliability and Quality of Service	Journey Time: 3 - 4 mins Length: 1.4 km No. of Junctions: 3 Bus lanes are provided along 100% of this route option.	Journey Time: 3 - 4 mins Length: 1.4 km No. of Junctions: 3 Bus lanes are provided along 100% of this route option.	Journey Time: 4 - 5 mins Length: 1.4 km No. of Junctions: 3 No bus lanes are provided along this route option. As traffic is restricted along Bunting Road, low traffic volumes are observed. However, there is still potential for inbound buses to be delayed at the Drimnagh Road/Bunting Road junction.
	Rank			
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.
	Rank			
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,300 - 10 minute walk catchment of approximately 7,700 - 15 minute walk catchment of approximately 18,300 ***Employment catchments*** 10 minute walk catchment of approximately 2,900	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,300 - 10 minute walk catchment of approximately 7,700 - 15 minute walk catchment of approximately 18,300 ***Employment catchments*** 10 minute walk catchment of approximately 2,900	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,300 - 10 minute walk catchment of approximately 7,700 - 15 minute walk catchment of approximately 18,300 ***Employment catchments*** 10 minute walk catchment of approximately 2,900
	Rank			
	Transport Network Integration	This route does not coincide with any existing bus routes. There is no potential for interchange with orbital bus routes or other public transport modes.	This route does not coincide with any existing bus routes. There is no potential for interchange with orbital bus routes or other public transport modes.	This route does not coincide with any existing bus routes. There is no potential for interchange with orbital bus routes or other public transport modes.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
		There would be no impact on general traffic.	There would be no impact on general traffic.	There would be no impact on general traffic.
	Rank			
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as secondary route 8A. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.	This route option is identified in the GDA Cycle Network Plan as secondary route 8A. For this option cyclists would be rerouted to Walkinstown Road and Drimnagh Road.	This route option is identified in the GDA Cycle Network Plan as secondary route 8A. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Retail*** - Walkinstown Roundabout retail area ***Leisure*** - Bunting Road Sports Ground	***Retail*** - Walkinstown Roundabout retail area ***Leisure*** - Bunting Road Sports Ground	***Retail*** - Walkinstown Roundabout retail area ***Leisure*** - Bunting Road Sports Ground
	Rank			
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank			
Safety	Road Safety	No. of Junctions: 3 2 turn movements in each direction (1 left turn and 1 right turn)	No. of Junctions: 3 2 turn movements in each direction (1 left turn and 1 right turn)	No. of Junctions: 3 2 turn movements in each direction (1 left turn and 1 right turn)
	Rank			
Environment	Archaeology and Cultural Heritage	There are 4 sites recorded on the Record of Monuments and Places located along the proposed route. These sites are all associated with the old church and graveyard located in the	There are no features of archaeological or cultural heritage significance along the Walkinstown Road and Drimnagh Road section of the route. There are 4 sites recorded on the Record of Monuments and Places located along the	There are 4 sites recorded on the Record of Monuments and Places located along the proposed route. These sites are all associated with the old church and graveyard located in the

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
		south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. The extensive road widening proposed for this option along this route (approx. 5m on either side) would have a direct impact on these features.	proposed route. These sites are all associated with the old church and graveyard located in the south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. The extensive road widening proposed for this option along this route (approx. 3m on either side) would have a direct impact on these features.	south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. The road widening proposed for this option along this route (approx. 1.5m) would not have a direct impact on these features. Cognisance would need to be given to archaeological features in the scheme design as the route passes.
	Rank			
	Architectural Heritage	There are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St. Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. The extensive road widening associated with this option (approx. 5m on either side) would have a direct impact on these features.	Along Walkinstown Road, there is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152 Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. The road widening associated with this option on the western extent of Walkinstown Road will directly impact on this feature which will need to be removed and reinstated in a new location. There are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St, Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. The extensive road widening associated with this option (approx. 3m on either side) would have a direct impact on these features.	There are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St, Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. The road widening proposed for this option along this route (approx. 1.5m) would not have a direct impact on these features. Cognisance would need to be given to heritage features in the scheme design as this route passes through a conservation area.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
	Rank			
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Road widening (approx. 5m each side) will result in land-take from adjacent properties and the park which runs alongside the road. This would result in the loss of the existing tree lined corridor (approx.90 trees) many of which are mature trees. These trees are considered to be of ecological value. Impacts to the sports ground and the green area on the eastern side of the route immediately south of the junction with St. Agnes Road will comprise loss of green space and the hedgerow which borders the route. This is considered to be of local ecological value.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Road widening on Bunting Road (approx. 3m each side) will result in the loss of the existing tree lined corridor (approx.90 trees) many of which are mature trees. These trees are considered to be of ecological value. This route option is unlikely to impact the sports ground however land-take would be required from the green area on the eastern side of the route immediately south of the junction with St. Agnes Road. This would result in a loss of the hedgerow at this location which is considered to be of ecological value. Along Walkinstown Road, road widening will result in partial loss of front gardens along the western extent of Walkinstown Road. It is considered that the gardens could be of local ecological value. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Widening on St. Mary's Road will be confined to the road reserve and may result in loss of some minor trees. These are not considered to be of ecological value. Further south widening works within the reserve on Bunting Road will result in loss of existing tree lined corridor (approx. 40 trees) many of which are mature trees. These trees are considered to be of ecological value.
	Rank			

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
	Soils and Geology	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank			
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank			
	Landscape and Visual	Makes use of existing road corridor. Passes through a residential area with impacts to front gardens. Existing tree lined corridor would be removed. There would also be impacts to open space/sports ground on the eastern side of the road. Passes through and directly impacts RMP sites, a zone of archaeological potential, curtilage of protected structures and a conservation area.	Makes use of existing road corridor. Passes through a residential area with no impacts to gardens. Existing tree lined corridor would be removed. There would also be impacts to open space on the eastern side of the road immediately south of the junction with St. Agnes Road. Passes through and directly impacts RMP sites, a zone of archaeological potential, curtilage of protected structures and a conservation area. Passes through residential areas along Walkinstown Road and Drimnagh Road. Road widening will result in partial loss of front gardens along the western extent of Walkinstown Road. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Makes use of existing road corridor. Passes through a residential area with no impacts to gardens. Widening on the western extent of St. Mary's Road will be confined to the road reserve and may result in loss of some minor trees. Further south widening works within the road reserve on Bunting Road will result in loss of existing tree lined corridor (approx.90 trees) many of which are mature trees. There will be no impact to the sports ground. Passes through a zone of archaeological potential and a conservation area so cognisance will need to be given to these heritage features.
	Rank			
	Air Quality	Road widening/road works will bring traffic up to 5m closer to residential receptors along Bunting Road and St. Mary's Road. This will	Road widening/road works will bring traffic up to 3m closer to residential receptors along Bunting Road and St. Mary's Road and up to 1m closer to residential receptors along Walkinstown Road.	Road widening/road works will bring traffic up to 2m closer to residential receptors along Bunting Road and St. Mary's etc. This will

Assessment Criterion	Assessment Sub-Criterion	Route Option WC2a (Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC2b (Bunting Road – Bus Lanes in Each Direction, Cycle Lanes on Walkinstown Road and Drimnagh Road)	Route Option WC2c (Bunting Road – No Bus Lanes, Cycle Lanes in each direction)
		result in an increase in pollutant concentrations at these receptors.	This will likely result in an increase in pollutant concentrations at these receptors.	likely result in an increase in pollutant concentrations at these receptors.
	Rank			
	Noise & Vibration	Road widening/road works will bring traffic up to 5m closer to residential receptors along Bunting Road and St. Mary's Road. This will result in an increase in noise emissions at these receptors.	Road widening/road works will bring traffic up to 3m closer to residential receptors along Bunting Road and St. Mary's Road and up to 1m closer to residential receptors along Walkinstown Road. This will likely result in an increase in noise emissions at these receptors.	Road widening/road works will bring traffic up to 2m closer to residential receptors along Bunting Road and St. Mary's. This will likely result in an increase in noise emissions at these receptors.
	Rank			
	Land Use Character	Route has a substantial impact on existing land use. Loss of large part of front gardens for 82 property owners along Bunting Road. Informal on-footpath and on-street parking spaces would be removed (approximately 180 spaces), footpath width would be reduced, and trees (approximately 90 no.) would be removed resulting in a change to the Bunting Road character and potentially impacting on its use.	Loss of part of front gardens for 57 property owners along Walkinstown Road and 31 property owners along Drimnagh Road. Loss of 16 on-street car parking spaces along Drimnagh Road. Loss of 20 parking spaces in Supervalu. Loss of large part of front gardens for 15 property owners along Bunting Road. Informal on-footpath and on-street parking spaces would be removed (approximately 180 spaces), footpath width would be reduced, and trees (approximately 90 no.) would be removed resulting in a change to the Bunting Road character and potentially impacting on its use.	40 trees would be removed resulting in a change to the character of Bunting Road and potentially impacting on its use.
	Rank			

A8 Walkinstown to Crumlin Route Options Assessment (WC3a to WC3c)

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €6.4m ***Indicative Scheme Infrastructure* Works Cost** (€4.6m) - Minor kerb realignment and road widening along Walkinstown Road - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate outbound bus lane and raised adjacent cycle lanes in each direction - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Boundary works to impacted properties on Bunting Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Modify Bunting Road/Kildare Road/Drimnagh Road junction to facilitate widened carriageway - Provision of raised adjacent cycle lanes along route ***Land Acquisition Cost*** (€1.8m) 1,200 sqm Private Land 5,600 sqm Public Land 45 Properties affected	**Total Capital Cost** €9.4m ***Indicative Scheme Infrastructure* Works Cost** (€6.5m) - Road widening on Walkinstown Road to facilitate in bound bus lane and raised adjacent cycle lanes in each direction - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road - Boundary works to impacted properties on Walkinstown Road and Drimnagh Road - Modify Walkinstown Road/Kilnamanagh Road junction to facilitate widened carriageway - Modify Walkinstown Road/Drimnagh Road junction to facilitate widened carriageway - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate outbound bus lane - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Modify Bunting Road/Kildare Road/Drimnagh Road junction to facilitate widened carriageway - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road	**Total Capital Cost** €4.5m ***Indicative Scheme Infrastructure Works Cost*** (€4.2m) - Minor kerb realignment and road widening along Walkinstown Road - Minor upgrades to signalised junctions along route - Road widening on Bunting Road and associated works (drainage, services etc.) to facilitate raised adjacent cycle lanes in each direction - Upgrade Cromwell's Fort Road/Bunting Road junction to traffic signals to facilitate right turn from Bunting Road to Cromwell's Fort Road - Conversion of ramps along Bunting Road to bus-friendly flat top ramps - Widening to accommodate raised adjacent cycle lanes along Drimnagh Road ***Land Acquisition Cost*** (€0.3m) 200 sqm Private Land 3,700 sqm Public Land 31 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
			Land Acquisition Cost (€2.9m) 1,900 sqm Private Land 6,600 sqm Public Land 88 Properties affected	
	Rank			
	Transport Reliability and Quality of Service	Journey Time: 3 – 4 mins Length: 1.6 km IB, 1.4km OB No. of Junctions: 3 IB, 2 OB Bus lanes are provided along 100% of this route option.	Journey Time: 3 – 4 mins Length: 1.6 km IB, 1.4km OB No. of Junctions: 3 IB, 2 OB Bus lanes are provided along 100% of this route option.	Journey Time: 4 – 5 mins Length: 1.6 km IB, 1.4km OB No. of Junctions: 3 IB, 2 OB Bus lanes are provided along approximately 50% of this route option. Inbound buses have bus lanes for the length of the route and as such offers good journey time reliability. No bus lanes are provided along Bunting Road for outbound buses. However, there is currently little traffic observed on Bunting Road, particularly for outbound traffic due to the restriction at the Bunting Road/Cromwell's Fort Road junction.
	Rank			
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.	This route serves an area which is largely developed, with limited scope for further development.
	Rank			
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 inbound, 2,300 outbound and 550 within catchment of both directions. - 10 minute walk catchment of approximately 7,400 inbound, 7,700 outbound and 4,800 within catchment of both directions.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 inbound, 2,300 outbound and 550 within catchment of both directions. - 10 minute walk catchment of approximately 7,400 inbound, 7,700 outbound and 4,800 within catchment of both directions.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 2,000 inbound, 2,300 outbound and 550 within catchment of both directions. - 10 minute walk catchment of approximately 7,400 inbound, 7,700 outbound and 4,800 within catchment of both directions.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
		- 15 minute walk catchment of approximately 15,500 inbound, 18,300 outbound and 14,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 4,400 inbound, 3,000 outbound and 2,400 within catchment of both directions.	- 15 minute walk catchment of approximately 15,500 inbound, 18,300 outbound and 14,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 4,400 inbound, 3,000 outbound and 2,400 within catchment of both directions.	- 15 minute walk catchment of approximately 15,500 inbound, 18,300 outbound and 14,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 4,400 inbound, 3,000 outbound and 2,400 within catchment of both directions.
	Rank			
	Transport Network Integration	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 18, 27, 56a, 77a 123 and 151. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.
	Rank			
	Cycling integration	This inbound section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. The outbound portion of this route option is identified in the GDA Cycle Network Plan as secondary route 8A. Dedicated raised adjacent cycle lanes would be provided in each direction along Bunting Road as part of this option. In addition dedicated raised adjacent cycle lanes would be provided in each direction along Drimnagh Road	This inbound section of this route option along Walkinstown Road is not classified as a cycle route in the GDA Cycle Network Plan. The section along Drimnagh Road is identified as forming part of secondary route 8C. The outbound portion of this route option is identified in the GDA Cycle Network Plan as secondary route 8A. Dedicated cycle facilities would be provided in each direction on Walkinstown Road and Drimnagh Road as part of this route option.	This route option is identified in the GDA Cycle Network Plan as secondary route 8A. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health	***Retail*** - Walkinstown Roundabout retail area - Walkinstown Road retail area - Errigal Road retail area	***Retail*** - Walkinstown Roundabout retail area - Walkinstown Road retail area - Errigal Road retail area	***Retail*** - Walkinstown Roundabout retail area - Walkinstown Road retail area - Errigal Road retail area

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
	/Commercial/Employment)	***Leisure*** - Bunting Road Sports Ground ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School	***Leisure*** - Bunting Road Sports Ground ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School	***Leisure*** - Bunting Road Sports Ground ***Employment*** - Balfe Road Industrial Estate ***Education*** - Assumption Secondary School
	Rank			
	Deprived Geographic Areas	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.	Route option does not directly serve any RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from 'marginally below average' to 'disadvantaged'.
	Rank			
Safety	Road Safety	No. of Junctions: 3 1 turn movement in inbound direction (right turn) and 2 turn movements in outbound direction (left and right turn)	No. of Junctions: 3 1 turn movement in inbound direction (right turn) and 2 turn movements in outbound direction (left and right turn)	No. of Junctions: 3 1 turn movement in inbound direction (right turn) and 2 turn movements in outbound direction (left and right turn)
	Rank			
Environment	Archaeology and Cultural Heritage	There are no features of archaeological or cultural heritage significance along the Walkinstown Road and Drimnagh Road section of the route. There are 4 sites recorded on the Record of Monuments and Places located to the north of St. Mary's Road. These sites are all associated with the old church and graveyard located in the south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. Road widening for this outbound section of the route would be confined to the western side of	There are no features of archaeological or cultural heritage significance along the Walkinstown Road and Drimnagh Road section of the route. There are 4 sites recorded on the Record of Monuments and Places located to the north of St. Mary's Road. These sites are all associated with the old church and graveyard located in the south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. Road works for this outbound section of the route would be confined to the existing road reserve with some adjustments to footpaths. Cognisance	There are no features of archaeological or cultural heritage significance along the Walkinstown Road and Drimnagh Road section of the route. There are 4 sites recorded on the Record of Monuments and Places located to the north of St. Mary's Road. These sites are all associated with the old church and graveyard located in the south east corner of the junction between St. Mary's Road and St. Agnes Road. There is also an Area of Archaeological Potential surrounding these sites which extends across St. Mary's Road and St. Agnes Road. The road widening proposed for this option along this route (approx. 1.5m on one side)

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
		St. Mary's Road. Cognisance would need to be given to archaeological features in the scheme design as the route passes.	would need to be given to archaeological features in the scheme design as the route passes.	would not have a direct impact on these features. Cognisance would need to be given to archaeological features in the scheme design as the route passes.
	Rank			
	Architectural Heritage	There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152 Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. As only minor road widening is required along Walkinstown Road for this option it is considered that impacts to this feature can be avoided. Along St. Marys Road there are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St, Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. Road widening for this outbound section of the route would be confined to the western side of St. Mary's Road. Cognisance would need to be given to heritage features in the scheme design as the route passes.	There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152 Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. The road widening associated with this option on the western extent of Walkinstown Road will directly impact on this feature which will need to be removed and reinstated in a new location. Along St. Marys Road there are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St, Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. Road widening for this outbound section of the route would be confined to the existing road reserve with some adjustments to footpaths. Cognisance would need to be given to heritage features in the scheme design as the route passes.	There is one site of architectural heritage merit, namely a milepost in the footpath in front of No. 152 Walkinstown Road (southern extent of route). This feature has been rated as being of Regional importance. As only minor road widening is required along Walkinstown Road for this option it is considered that impacts to this feature can be avoided. Along St. Marys Road there are a number of Protected Structures in the vicinity of the junction between St. Mary's Road and St. Agnes Road. Three of these sites are located close to the proposed route namely the old Church, St, Mary's Church and Melville House. The route also passes through the St. Mary's Road/St. Agnes Road Conservation Area and Architectural Conservation Area. The road widening proposed for this option along this route (approx. 1.5m on one side) would not have a direct impact on these features. Cognisance would need to be given to heritage features in the scheme design as this route passes through a conservation area.
	Rank			
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. Widening on St. Mary's Road will be confined to the road reserve and may result in loss of some	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
		Minor road widening will take place along Walkinstown Road and will have no ecological impact. Widening on the western extent of St. Mary's Road will result in loss of some minor trees. These are not considered to be of ecological value. Further south widening works on Bunting Road will result in loss of existing tree lined corridor (approx.90 trees) many of which are mature trees. These trees are considered to be of ecological value. Impacts to the sports ground will potentially comprise loss of green space and the hedgerow which borders the route. This is considered to be of local ecological value. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.	minor trees. These are not considered to be of ecological value. Further south widening works within the road reserve on Bunting Road will result in loss of existing tree lined corridor (approx. 40 trees) many of which are mature trees. These trees are considered to be of ecological value. Along Walkinstown Road, road widening will result in partial loss of front gardens along the western extent of Walkinstown Road. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.	Widening on St. Mary's Road will be confined to the road reserve and may result in loss of some minor trees. These are not considered to be of ecological value. Further south widening works within the reserve on Bunting Road will result in loss of existing tree lined corridor (approx. 90 trees) many of which are mature trees. These trees are considered to be of ecological value. Minor road widening will take place along Walkinstown Road and will have no ecological impact. Road widening will also be required along Drimnagh Road to facilitate the introduction of raised adjacent cycle lanes. This will result in land-take from properties along the southern sides of the road with loss of front gardens and 14 trees within the existing footpath. It is considered that the gardens could be of local ecological value. However, even with a scheme in place there would still be areas of these gardens remaining and there are other similar managed habitats in the vicinity (e.g. parks, gardens etc.). The potential ecological impact is therefore considered to be minor.
	Rank			
	Soils and Geology	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	There is minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
	Rank			
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank			
	Landscape and Visual	Makes use of existing road corridor. Passes through residential areas along Walkinstown Road, Drimnagh Road, St. Mary's Road and Bunting Road. Minor road widening will take place along Walkinstown Road with no landscape impacts. Widening on the western extent of St. Mary's Road will result in loss of some minor trees. Further south minor widening works on Bunting Road will result in loss of existing tree lined corridor (approx.90 trees) many of which are mature trees. There will also be impacts to the sports ground and open space on the east side of the road. Passes through and directly impacts RMP sites, a zone of archaeological potential, curtilage of protected structures and a conservation area. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Makes use of existing road corridor. Passes through residential areas along Walkinstown Road, Drimnagh Road, St. Mary's Road and Bunting Road. Widening on the western extent of St. Mary's Road will be confined to the road reserve and may result in loss of some minor trees. Further south widening works within the road reserve on Bunting Road will result in loss of existing tree lined corridor (approx.90 trees) many of which are mature trees. There will be no impact to the sports ground. Passes through and directly impacts RMP sites, a zone of archaeological potential, curtilage of protected structures and a conservation area. Road widening will result in partial loss of front gardens along the western extent of Walkinstown Road. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.	Makes use of existing road corridor. Passes through residential areas along Walkinstown Road, Drimnagh Road, St. Mary's Road and Bunting Road. Minor road widening will take place along Walkinstown Road with no landscape impacts. Widening on the western extent of St. Mary's Road will be confined to the road reserve and may result in loss of some minor trees. Further south widening works within the road reserve on Bunting Road will result in loss of existing tree lined corridor (approx.90 trees) many of which are mature trees. There will be no impact to the sports ground. Passes through and directly impacts RMP sites, a zone of archaeological potential, curtilage of protected structures and a conservation area. Road widening along Drimnagh Road will result in loss of front gardens and a number of trees within the existing footpath.
	Rank			
	Air Quality	Road widening works will bring traffic marginally closer to residential receptors along Walkinstown Road in places. However, it is not considered that this will result in an increase in pollutant concentrations at these receptors.	Minor road widening works will bring traffic up to 2m closer to residential receptors along Walkinstown Road and Bunting Road. This will likely result in an increase in pollutant concentrations at these receptors.	Road widening/road works will bring traffic up to 2m closer to residential receptors along Bunting Road and St. Mary's etc. This will likely result in an increase in pollutant concentrations at these receptors.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
		Road widening/road works will bring traffic up to 4m closer to residential receptors along Bunting Road and St. Mary's etc. This will likely result in an increase in pollutant concentrations at these receptors.		
	Rank			
	Noise & Vibration	Road widening works will bring traffic marginally closer to residential receptors along Walkinstown Road in places. However, it is not considered that this will result in an increase in pollutant concentrations at these receptors. Road widening/road works will bring traffic up to 4m closer to residential receptors along Bunting Road and St. Mary's. etc. This will likely result in an increase in noise emissions at these receptors.	Minor road widening works will bring traffic up to 2m closer to residential receptors along Walkinstown Road and Bunting Road. This will likely result in an increase in pollutant concentrations at these receptors.	Road widening/road works will bring traffic up to 2m closer to residential receptors along Bunting Road and St. Mary's. This will likely result in an increase in noise emissions at these receptors.
	Rank			
	Land Use Character	Inbound, land acquisition is minimal but is taken from public footpath and would not impact on its existing or future use. Outbound, there would be a loss of large part of front gardens for 14 property owners along Bunting Road. On-footpath and on-street parking spaces would be removed (approximately 180 spaces), footpath width would be reduced, and trees (approximately 90 no.) would be removed resulting in a change to the Bunting Road character and potentially impacting on its use. Along Drimnagh Road, 31 properties would be impacted. Loss of 16 on-street car parking spaces along Drimnagh Road.	Loss of part of front gardens for 57 property owners along Walkinstown Road and 31 property owners along Drimnagh Road. Loss of 16 on-street car parking spaces along Drimnagh Road. Loss of 20 parking spaces in Supervalu. Outbound, 40 trees would be removed resulting in a change to the Bunting Road character and potentially impacting on its use.	Inbound, land acquisition is minimal but is taken from public footpath and would not impact on its existing or future use. There is no requirement for land acquisition in the outbound direction. Along Drimnagh Road, 31 properties would be impacted. Loss of 16 on-street car parking spaces along Drimnagh Road. Informal on-footpath and on-street parking spaces would be removed (approximately 180 spaces), footpath width would be reduced, and trees (approximately 90 no.) would be removed resulting in a change to the Bunting Road character and potentially impacting on its use.

Assessment Criterion	Assessment Sub-Criterion	Route Option WC3a (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3b (Walkinstown Road/Bunting Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option WC3c (Walkinstown Road/Bunting Road – Bus Lane Inbound, No Bus Lane Outbound, Cycle Lanes in Each Direction)
	Rank			

A9 Crumlin to Grand Canal Route Options Assessment (CG1a to CG1d)

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €14.0m ***Indicative Scheme Infrastructure* Works Cost** (€6.6m) - Road widening on Crumlin Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Boundary works to impacted properties - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway - Modify Cooley Road/Crumlin Road junction to facilitate widened carriageway - Provision of raised adjacent cycle lanes and improved pedestrian facilities along route ***Land Acquisition Cost*** (€7.4m) 4,900 sqm Private Land 550 sqm Public Land 167 Properties affected	**Total Capital Cost** €8.3m ***Indicative Scheme Infrastructure* Works Cost** (€5.6m) - Road widening on Crumlin Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Boundary works to impacted properties - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway; - Modify Cooley Road/Crumlin Road junction to facilitate widened carriageway - Provision of improved pedestrian facilities along route - Provide raised adjacent cycle facilities along Kildare Road ***Land Acquisition Cost*** (€2.7m) 1,790 sqm Private Land 2,800 sqm Public Land 102 Properties affected	**Total Capital Cost** €3.8m ***Indicative Scheme Infrastructure Works Cost*** (€3.3m) - Minor local widening / kerb realignment works at some locations along Crumlin Road to facilitate an additional lane - Upgrade Crumlin Road/Bangor Drive junction to traffic signals - Minor upgrades to Sundrive Road/Crumlin Road junction - Minor upgrades to Kildare Road/Crumlin Road junction - Minor upgrades to Cooley Road/Crumlin Road junction - Provide raised adjacent cycle facilities along Kildare Road ***Land Acquisition Cost*** (€0.5m) 330 sqm Private Land 1,300 sqm Public Land 27 Properties affected	**Total Capital Cost** €6.9m ***Indicative Scheme Infrastructure Works Cost*** (€5.3m) - Road widening along Crumlin Road between Crumlin Shopping Centre and Windmill Road - Road widening along Crumlin Road between Lissadel Road and Cooley Road - Minor local widening / kerb realignment works between Lissadel Road and Windmill Road - Minor upgrades to Sundrive Road/Crumlin Road junction - Upgrade Crumlin Road/Windmill Road junction to traffic signals - Minor upgrades to Kildare Road/Crumlin Road junction - Minor upgrades to Cooley Road/Crumlin Road junction - Provide raised adjacent cycle facilities along Kildare Road ***Land Acquisition Cost*** (€1.7m) 1,120 sqm Private Land 1,300 sqm Public Land

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
					60 Properties affected
	Rank				
	Transport Reliability and Quality of Service	Journey Time: 3 - 4 mins Length: 1.4 km No. of Junctions: 3 Bus lanes are provided along approximately 100% of this route option.	Journey Time: 3 - 4 mins Length: 1.4 km No. of Junctions: 3 Bus lanes are provided along approximately 100% of this route option.	Journey Time: 4 - 5 mins Length: 1.4 km No. of Junctions: 4 Bus lanes are provided along approximately 50% of this route option. A single bus lane along the road would be provided, which would provide priority along approximately half of the route in each direction. Traffic signal priority measures could be utilised to minimise delays to buses along the sections of the route without bus lanes and maintain journey time and timetable reliability.	Journey Time: 4 - 5 mins Length: 1.4 km No. of Junctions: 3 Bus lanes are provided along approximately 85% of this route option.
	Rank				
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.
	Rank				
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 - 10 minute walk catchment of approximately 11,400 - 15 minute walk catchment of approximately 27,700	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 - 10 minute walk catchment of approximately 11,400	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 - 10 minute walk catchment of approximately 11,400	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 - 10 minute walk catchment of approximately 11,400

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
		Employment catchments 10 minute walk catchment of approximately 6,300	- 15 minute walk catchment of approximately 27,700 ***Employment catchments*** 10 minute walk catchment of approximately 6,300	- 15 minute walk catchment of approximately 27,700 ***Employment catchments*** 10 minute walk catchment of approximately 6,300	- 15 minute walk catchment of approximately 27,700 ***Employment catchments*** 10 minute walk catchment of approximately 6,300
	Rank				
	Transport Network Integration	This route coincides with portions of existing bus routes 27, 54a, 65, 75 and 77a. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 27, 54a, 65, 75 and 77a. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 27, 54a, 65, 75 and 77a. There is no potential for interchange with orbital bus routes or other public transport modes. There would be a minor impact on general traffic as a result of this option due to the proposed use of queue relocation which may result in additional delays to traffic. Furthermore, a number of turn bans are proposed to minimise the amount of traffic entering the area being managed by queue relocation signals.	This route coincides with portions of existing bus routes 27, 54a, 65, 75 and 77a. There is no potential for interchange with orbital bus routes or other public transport modes. There would be a minor impact on general traffic as a result of this option due to the proposed use of queue relocation which may result in additional delays to traffic. Furthermore, a number of turn bans are proposed to minimise the amount of traffic entering the area being managed by queue relocation signals.
	Rank				
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle route 8A. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle route 8A. For this route option, no dedicated cycle facilities would be provided along Crumlin Road. Primary route 8 would be rerouted to Kildare Road and Sundrive Road and delivered as part of this scheme. Raised adjacent cycle facilities	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle route 8A. For this route option, no dedicated cycle facilities would be provided along Crumlin Road. Primary route 8 would be rerouted to Kildare Road and Sundrive Road and delivered as part of this	This route option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle route 8A. For this route option, no dedicated cycle facilities would be provided along Crumlin Road. Primary route 8 would be rerouted to Kildare Road and Sundrive Road and delivered as part of this scheme. Raised adjacent cycle facilities

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
			would be provided along Kildare Road and Sundrive Road.	scheme. Raised adjacent cycle facilities would be provided along Kildare Road and Sundrive Road.	would be provided along Kildare Road and Sundrive Road.
	Rank				
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin - St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin - St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin - St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin - St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education
	Rank				
	Deprived Geographic Areas	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.
	Rank				
Safety	Road Safety	No. of Junction: 3 No turn movements required in either direction.	No. of Junction: 3 No turn movements required in either direction.	No. of Junction: 4 No turn movements required in either direction.	No. of Junction: 3 No turn movements required in either direction.
	Rank				

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.
	Rank				
	Architectural Heritage	There are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Éanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. The proposed route would require land-take from most of the recorded buildings along Crumlin Road (approx. 3m) and as such would have a negative impact on these buildings.	There are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Éanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. The proposed route would require land-take from the recorded buildings along the southern side of Crumlin Road (approx. 1m) and as such would have a negative impact on these buildings.	There are no Protected Structures along the route. There are 40 sites listed on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Éanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. However, as no widening is required for this option it is not considered that there will be an impact to these heritage features.	There are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Éanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. Road widening to the north of Crumlin Road between Lissadel Road and Cooley Road has the potential to negatively impact on the grounds of Ardscoil Éanna. Land-take to the south of Crumlin Road between the Shopping Centre and Clonard Road has the potential to negatively impact on the grounds of Crumlin Health Centre.
	Rank				

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along the route.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along the route.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along Crumlin Road. There are intermittent trees along Kildare Road and Sundrive Road that are unlikely to be of ecological value given their distances from each other.	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along Crumlin Road. There are intermittent trees along Kildare Road and Sundrive Road that are unlikely to be of ecological value given their distances from each other.
	Rank				
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank				
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank				
	Landscape and Visual	Makes use of existing road corridors. Increase from 2 to 4 lanes plus cycle lanes. There would be some loss of amenity space at the Guinness sports facility. The proposed route would require land-take from some of sensitive	Makes use of existing road corridors. Increase from 2 to 4 lanes. There would be some loss of amenity space at the Guinness sports facility. The proposed route would require land-take from some of the sensitive buildings (approx. 1m)	Makes use of existing road corridors. Loss of approximately 50 trees to accommodate raised adjacent cycle lanes on Kildare Road and Sundrive Road. There would be no loss of amenity space at the Guinness sports facility.	Makes use of existing road corridors. Loss of approximately 50 trees to accommodate raised adjacent cycle lanes on Kildare Road and Sundrive Road. There would be some loss of amenity space at the Guinness sports facility.

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
		buildings (approx. 3m) and as such would have a negative impact on these buildings.	and as such would potentially have a small negative impact on these buildings.		
	Rank				
	Air Quality	Traffic would be closer to a number of residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	All proposed works would remain within the existing road corridor therefore it is not considered that air quality would change.	Traffic would be closer to some residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.
	Rank				
	Noise & Vibration	Traffic would be closer to a number of residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in noise and vibrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in noise and vibrations at these receptors.	All proposed works would remain within the existing road corridor therefore it is not considered that noise levels would change.	Traffic would be closer to some residential sensitive receptors along Crumlin Road due to road widening. This may result in an increase in noise and vibrations at these receptors.
	Rank				
	Land Use Character	Route has a negative impact on existing land use. Loss of large part of front gardens for 167 property owners along Crumlin Road including loss of driveways/car parking.	Route has a substantial impact on existing land use. Loss of large part of front gardens for 75 property owners along Crumlin Road. In addition there is a loss of large part of front gardens for 27 property owners along Clogher Road to facilitate raised adjacent cycle lanes. Informal on-footpath and on-street parking spaces would be removed (approximately 150 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road	Route has a substantial impact on existing land use. Loss of large part of front gardens for 27 property owners along Clogher Road to facilitate raised adjacent cycle lanes. Informal on-footpath and on-street parking spaces would be removed (approximately 150 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road character and potentially impacting on its use.	Route has a substantial impact on existing land use. Loss of large part of front gardens for 33 property owners along Crumlin Road to facilitate bus lanes and for 27 property owners along Clogher Road to facilitate raised adjacent cycle lanes. Informal on-footpath and on-street parking spaces would be removed (approximately 150 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road

Assessment Criterion	Assessment Sub-Criterion	Route Option CG1a (Crumlin Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG1b (Crumlin Road – Bus Lanes in Each Direction)	Route Option CG1c (Crumlin Road – Partial Bus Lanes in Each Direction)	Route Option CG1d (Crumlin Road – Partial Bus Lanes in Each Direction Alternative)
			character and potentially impacting on its use.		character and potentially impacting on its use.
	Rank				

A10 Crumlin to Grand Canal Route Options Assessment (CG2a to CG2c)

Assessment Criterion	Assessment Sub-Criterion	Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €13.4m ***Indicative Scheme Infrastructure* Works Cost** (€5.6m) - Road widening on Kildare Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Road widening on Sundrive Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Road widening on Clogher Road and associated works (drainage, services etc.) to facilitate bus lanes and raised adjacent cycle lanes in each direction - Boundary works to impacted properties - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa - Provision of raised adjacent cycle lanes and improved pedestrian facilities along route ***Land Acquisition Cost*** (€7.8m) 5,200 sqm Private Land 10,500 sqm Public Land	**Total Capital Cost** €4.3m ***Indicative Scheme Infrastructure* Works Cost** (€3.4m) - Road widening on Kildare Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Road widening on Sundrive Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Road widening on Clogher Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Boundary works to impacted properties on Clogher Road - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa - Provision of improved pedestrian facilities along route ***Land Acquisition Cost*** (€0.9m) 600 sqm Private Land 4,800 sqm Public Land 51 Properties affected	**Total Capital Cost** €1.9m ***Indicative Scheme Infrastructure Works Cost*** (€1.9m) - Local widening along Sundrive Road for approximately 200m on approach to Crumlin Road - Upgrade to Sundrive Road/Crumlin Road junction to facilitate bus priority on Sundrive Road - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa - Advisory on road cycle lanes on Kildare Road and Sundrive Road ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 250 sqm Public Land 0 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)
		382 Properties affected		
	Rank			
	Transport Reliability and Quality of Service	Journey Time: 5 – 6 mins Length: 1.9 km No. of Junctions: 5 Bus lanes are provided along approximately 100% of this route option.	Journey Time: 5 – 6 mins Length: 1.9 km No. of Junctions: 5 Bus lanes are provided along approximately 100% of this route option.	Journey Time: 6 – 7 mins Length: 1.9 km No. of Junctions: 5 Bus lanes are provided along approximately 10% of this route option. A single bus lane would be provided along approximately half of Sundrive Road, which would provide priority along a portion of the route in the inbound direction. Lack of bus lanes through this section would have an impact on the reliability of services running along it.
	Rank			
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.
	Rank			
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 4,700 - 10 minute walk catchment of approximately 13,000 - 15 minute walk catchment of approximately 28,700 ***Employment catchments*** 10 minute walk catchment of approximately 4,400	***Residential Population Catchments*** - 5 minute walk catchment of approximately 4,700 - 10 minute walk catchment of approximately 13,000 - 15 minute walk catchment of approximately 28,700 ***Employment catchments*** 10 minute walk catchment of approximately 4,400	***Residential Population Catchments*** - 5 minute walk catchment of approximately 4,700 - 10 minute walk catchment of approximately 13,000 - 15 minute walk catchment of approximately 28,700 ***Employment catchments*** 10 minute walk catchment of approximately 4,400
	Rank			

Assessment Criterion	**Assessment Sub-Criterion**	**Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)**	**Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)**	**Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)**
	Transport Network Integration	This route coincides with portions of existing bus routes 17 and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 17 and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 17 and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.
	Rank			
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as forming part of secondary cycle routes 8C and S02. This route option proposes dedicated raised adjacent cycle lanes along the length of the route.	This route option is identified in the GDA Cycle Network Plan as forming part of secondary cycle routes 8C and S02. For this option cyclists would be accommodated in the bus lane.	This route option is identified in the GDA Cycle Network Plan as forming part of secondary cycle routes 8C and S02. On road advisory cycle facilities would be provided along Kildare Road and Sundrive Road.
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Hospital*** - Crumlin Hospital ***Retail*** - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin ***Education*** - Loreto College - St. Kevin's College - Pearse College	***Hospital*** - Crumlin Hospital ***Retail*** - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin ***Education*** - Loreto College - St. Kevin's College - Pearse College	***Hospital*** - Crumlin Hospital ***Retail*** - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin ***Education*** - Loreto College - St. Kevin's College - Pearse College
	Rank			
	Deprived Geographic Areas	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.
	Rank			
Safety	Road Safety	No. of Junction: 5	No. of Junction: 5	No. of Junction: 5

Assessment Criterion	Assessment Sub-Criterion	Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)
		3 turn movements required in each direction (1 left and 2 rights inbound, 2 lefts and 1 right outbound)	3 turn movements required in each direction (1 left and 2 rights inbound, 2 lefts and 1 right outbound)	3 turn movements required in each direction (1 left and 2 rights inbound, 2 lefts and 1 right outbound)
	Rank			
Environment	Archaeology and Cultural Heritage	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the vicinity of the Kildare Road portion of the route. There is one site of archaeological interest to the rear of the properties on the eastern side of Sundrive Road. The zone of archaeological interest for this site extends into Sundrive Road. Given the extensive land-take cognisance will need to be given to heritage features during the design stage.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the vicinity of the Kildare Road portion of the route. There is one site of archaeological interest to the rear of the properties on the eastern side of Sundrive Road. The zone of archaeological interest for this site extends into Sundrive Road. Given the land-take cognisance will need to be given to heritage features during the design stage.	There are no Recorded Monuments or sites of archaeological and cultural heritage merit identified along or within the vicinity of the Kildare Road portion of the route. There is one site of archaeological interest to the rear of the properties on the eastern side of Sundrive Road. The zone of archaeological interest for this site extends into Sundrive Road. There will be some kerb works along the north eastern side of Sundrive Road to widen the carriageway. However, this will not impact on the zone of archaeological potential.
	Rank			
	Architectural Heritage	No protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. Given the extensive land-take cognisance will need to be given to heritage features during the design stage.	No protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. Given the land-take cognisance will need to be given to heritage features during the design stage.	No protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. There will be some kerb works along the north eastern side of Sundrive Road to widen the carriageway adjacent to Loreto school. However, this will not impact on the NIAH site.
	Rank			
	Flora & Fauna	The route does not cross any site of International, European or National conservation value.	The route does not cross any site of International, European or National conservation value.	The route does not cross any site of International, European or National conservation value.

Assessment Criterion	Assessment Sub-Criterion	Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)
		The route does not traverse any streams or rivers. There are intermittent trees along the route that are unlikely to be of ecological value given their distances from each other.	The route does not traverse any streams or rivers. There are intermittent trees along the route that are unlikely to be of ecological value given their distances from each other.	The route does not traverse any streams or rivers. There are intermittent trees along the route that are unlikely to be of ecological value given their distances from each other.
	Rank			
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank			
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank			
	Landscape and Visual	Makes use of existing road corridors. Increase from 2 to 4 lanes plus cycle lanes. Loss of approximately 50 trees to accommodate widened carriageway and raised adjacent cycle lanes on Kildare Road and Sundrive Road.	Makes use of existing road corridors. Increase from 2 to 4 lanes plus cycle lanes. Loss of approximately 50 trees to accommodate widened carriageway on Kildare Road and Sundrive Road.	Makes use of existing road corridors. No loss of trees and no change to streetscape. There may be small alterations to footpaths in some instances.
	Rank			
	Air Quality	Traffic would be closer to a number of residential sensitive receptors along Kildare Road and Sundrive Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along Kildare Road and Sundrive Road due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Only minor widening works are required and therefore it is not considered that air quality would change.
	Rank			
	Noise & Vibration	Traffic would be closer to a number of residential sensitive receptors Kildare Road and Sundrive Road due to road widening. This may	Traffic would be closer to a number of residential sensitive receptors along Kildare Road and Sundrive Road due to road	Only minor widening works are required and therefore it is not considered that noise levels would change.

Assessment Criterion	Assessment Sub-Criterion	Route Option CG2a (Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG2b (Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG2c (Kildare Road/Sundrive Road –Partial Bus Lane Inbound, No Bus Lane Outbound)
		result in an increase in noise and vibrations at these receptors.	widening. This may result in an increase in noise and vibrations at these receptors.	
	Rank			
	Land Use Character	Route has a negative impact on existing land use. Loss of large part of front gardens for 382 property owners along Kildare Road, Clogher Road and Sundrive Road including loss of driveways/car parking. Informal on-footpath and on-street parking spaces would be removed (approximately 200 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road character and potentially impacting on its use. Loss of part of front gardens for many property owners along route.	Route has a negative impact on existing land use. Loss of large part of front gardens for 51 property owners along Clogher Road. There is some loss of driveways/car parking along Clogher Road. Informal on-footpath parking would be removed (approximately 200 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road character and potentially impacting on its use. Loss of part of front gardens for many property owners along route.	Route has a small impact on existing land use. Informal on-street parking would be removed (approximately 50 spaces)
	Rank			

A11 Crumlin to Grand Canal Route Options Assessment (CG3a to CG3c)

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	**Total Capital Cost** €10.8m ***Indicative Scheme Infrastructure* Works Cost** (€6.8m) - Road widening on Kildare Road and associated works (drainage, services etc.) to facilitate bus lanes in outbound direction - Road widening on Sundrive Road and associated works (drainage, services etc.) to facilitate bus lanes in outbound direction - Road widening on Clogher Road and associated works (drainage, services etc.) to facilitate bus lanes in each direction - Road widening on Crumlin Road and associated works (drainage, services etc.) to facilitate bus lanes in inbound direction - Boundary works to impacted properties on Clogher Road and Crumlin Road - Provision of raised adjacent cycle lanes in each direction along Crumlin Road - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway - Modify Cooley Road/Crumlin Road junction to facilitate widened carriageway - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa	**Total Capital Cost** €5.0m ***Indicative Scheme Infrastructure* Works Cost** (€4.5m) - Road widening on Sundrive Road and associated works (drainage, services etc.) to facilitate bus lanes in outbound direction - Road widening on Clogher Road and associated works (drainage, services etc.) to facilitate bus lanes in outbound direction - Minor road widening on Crumlin Road to facilitate bus lanes in inbound direction - Boundary works to impacted properties on Clogher Road - Modify Crumlin Road/Kildare Road junction to facilitate widened carriageway - Modify Sundrive Road/Crumlin Road junction to facilitate widened carriageway - Modify Cooley Road/Crumlin Road junction to facilitate widened carriageway - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa - Provision of improved pedestrian facilities ***Land Acquisition Cost*** (€0.5m) 330 sqm Private Land	**Total Capital Cost** €3.0m ***Indicative Scheme Infrastructure Works Cost*** (€3.0m) - Minor local widening / kerb realignment works at some locations along Crumlin Road to facilitate an additional lane; - Upgrade Crumlin Road/Bangor Drive junction to traffic signals; - Modify Kildare Road/Clogher Road junction to assign priority to Kildare Road East/Clogher Road movement and vice versa - Provide on-road cycle facilities along Kildare Road. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 250 sqm Public Land 0 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
		- Provision of improved pedestrian and cycle facilities along route ***Land Acquisition Cost*** (€4.0m) 2,700 sqm Private Land 4,400 sqm Public Land 194 Properties affected	570 sqm Public Land 27 Properties affected	
	Rank			
	Transport Reliability and Quality of Service	Journey Time: 4 – 5 mins Length: 1.4 km IB, 1.9km OB No. of Junctions: 3 IB, 3 OB Bus lanes are provided along approximately 100% of this route option	Journey Time: 4– 5 mins Length: 1.4 km IB, 1.9km OB No. of Junctions: 3 IB, 3 OB Bus lanes are provided along approximately 100% of this route option	Journey Time: 6 – 7 mins Length: 1.4 km IB, 1.9km OB No. of Junctions: 3 IB, 3 OB Bus lanes are provided along approximately 50% of this route option. Lack of bus lanes along the outbound section of the route would have an impact on the reliability of services running along it.
	Rank			
Integration	Land Use Integration	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.	This route serves an area which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides good integration with land use.
	Rank			
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 inbound, 4,700 outbound and 850 within catchment of both directions. - 10 minute walk catchment of approximately 11,400 inbound, 13,000 outbound and 8,700 within catchment of both directions. - 15 minute walk catchment of approximately 27,700 inbound, 28,700 outbound and 24,000 within catchment of both directions.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 inbound, 4,700 outbound and 850 within catchment of both directions. - 10 minute walk catchment of approximately 11,400 inbound, 13,000 outbound and 8,700 within catchment of both directions.	***Residential Population Catchments*** - 5 minute walk catchment of approximately 3,000 inbound, 4,700 outbound and 850 within catchment of both directions. - 10 minute walk catchment of approximately 11,400 inbound, 13,000 outbound and 8,700 within catchment of both directions.

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
		Employment catchments 10 minute walk catchment of approximately 6,300 inbound, 4,400 outbound and 4,000 within catchment of both directions.	- 15 minute walk catchment of approximately 27,700 inbound, 28,700 outbound and 24,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 6,300 inbound, 4,400 outbound and 4,000 within catchment of both directions.	- 15 minute walk catchment of approximately 27,700 inbound, 28,700 outbound and 24,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 6,300 inbound, 4,400 outbound and 4,000 within catchment of both directions.
	Rank			
	Transport Network Integration	This route coincides with portions of existing bus routes 17, 27, 54a, 65, 75, 77a and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 17, 27, 54a, 65, 75, 77a and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.	This route coincides with portions of existing bus routes 17, 27, 54a, 65, 75, 77a and 150. There is no potential for interchange with orbital bus routes or other public transport modes. There would be no impact on general traffic.
	Rank			
	Cycling integration	This option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle routes 8A, 8C and S02. This route option proposes dedicated raised adjacent cycle lanes along Crumlin Road. No dedicated facilities would be provided on Kildare Road/Sundrive Road.	This option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle routes 8A, 8C and S02. For this option cyclists would be accommodated in the bus lanes on Crumlin Road inbound and Kildare Road outbound.	This option is identified in the GDA Cycle Network Plan as forming part of primary cycle route 8, and secondary cycle routes 8A, 8C and S02. This options assumes advisory cycle lanes are provided along Kildare Road/Sundrive Road.
	Rank			
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin	***Hospital*** - Crumlin Hospital ***Retail*** - Old County Road - Crumlin Road - Sundrive Road ***Leisure*** - Crumlin Bowling Club - The Star, Crumlin

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
		- St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education - St. Kevin's College - Pearse College	- St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education - St. Kevin's College - Pearse College	- St. James' Gate FC ***Education*** - Ardscoil Éanna - Loreto College - Crumlin College of Further Education - St. Kevin's College - Pearse College
	Rank			
	Deprived Geographic Areas	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.	The route serves a number of areas in the Dublin South West Inner City RAPID area. In terms of the HP Deprivation Index, the route serves areas ranging from disadvantaged to marginally above average.
	Rank			
Safety	Road Safety	No. of Junction: 5 0 turn movements in the inbound direction. 3 turn movements required in the outbound direction (2 lefts and 1 right)	No. of Junction: 5 0 turn movements in the inbound direction. 3 turn movements required in the outbound direction (2 lefts and 1 right)	No. of Junction: 5 0 turn movements in the inbound direction. 3 turn movements required in the outbound direction (2 lefts and 1 right)
	Rank			
Environment	Archaeology and Cultural Heritage	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	No Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route.	Inbound, no Recorded Monuments or sites of archaeological and cultural heritage merit were identified along the route or within the vicinity of the route. Outbound, there is one site of archaeological interest to the rear of the properties on the eastern side of Sundrive Road. The zone of archaeological interest for this site extends into Sundrive Road. However, no widening works are proposed at this location so there will be no impact on this zone.
	Rank			

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
	Architectural Heritage	Inbound, there are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Eanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. The indicative inbound scheme would require land from some of the recorded buildings and as such would have a negative impact on these buildings. Outbound no protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. However, there will be no widening at this location and therefore no impact on the identified site.	Inbound, there are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Eanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. However, as there is no land-take for this option the indicative inbound scheme does not impact on the identified sites. Outbound no protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. However, there will be no widening at this location and therefore no impact on the identified site.	Inbound, there are no Protected Structures along the route. There are 40 sites recorded on the National Inventory of Architectural Heritage. In total 34 of these are located on the northern side of Crumlin Road and include a number of residences associated with the Iveagh Gardens estate, Ardscoil Eanna and Sundrive Garda Station. The remaining 6 sites are located along the southern side of Crumlin Road and include the Epilepsy Ireland building, AIB building, Crumlin Health Centre (3 No.) and Loreto School. However, as there is no land-take for this options the indicative inbound scheme does not impact on the identified sites. Outbound no protected structures or sites of architectural heritage merit were identified along or within the vicinity of the Kildare Road portion of the route. Loreto School, located at the junction of Sundrive Road and Crumlin Road is recorded on the National Inventory of Architectural Heritage. However, the indicative outbound scheme does not impact on the identified sites.
	Rank			
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along the Crumlin Road section of the route. However, there are intermittent trees along Sundrive Road and	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along the Crumlin Road section of the route. However, there are intermittent trees along Sundrive Road and	The route does not cross any site of International, European or National conservation value. The route does not traverse any streams or rivers. There are no trees along the Crumlin Road section of the route. However, there are intermittent trees along Sundrive Road and

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
		Kildare Road, however they are unlikely to be of ecological value.	Kildare Road, however they are unlikely to be of ecological value.	Kildare Road, however they are unlikely to be of ecological value.
	Rank			
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank			
	Hydrology	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.	This route does not cross or run adjacent to any rivers or streams so diversion works or construction of bridges or culverts is not required.
	Rank			
	Landscape and Visual	Makes use of existing road corridors. Loss of approximately 50 trees along Kildare Road and Sundrive Road and some change to streetscape. Increase from 2 to 3 lanes on Sundrive Road and 2 to 3 lanes plus cycle lanes on Crumlin Road. There would be no loss of amenity space at Iveagh Grounds.	Makes use of existing road corridors. Loss of approximately 50 trees along Kildare Road and Sundrive Road and some change to streetscape. Increase from 2 to 3 lanes on Sundrive Road and Crumlin Road. There would be no loss of amenity space at Iveagh Grounds.	Makes use of existing road corridors. No loss of trees and no change to streetscape. There may be small alterations to footpaths in some instances. There would be no loss of amenity space at Iveagh Grounds.
	Rank			
	Air Quality	Road widening is required on Kildare Road and Crumlin Road and traffic would be closer to a number of residential sensitive receptors. This may result in an increase in pollutant concentrations at these receptors.	Only minor widening works are required along Crumlin Road and therefore it is not considered that noise levels would change. More substantial widening required on Kildare Road and traffic would be closer to a number of residential sensitive receptors. This may result in an increase in pollutant concentrations at these receptors.	Only minor widening works are required and therefore it is not considered that air quality would change.
	Rank			

Assessment Criterion	Assessment Sub-Criterion	Route Option CG3a (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes and Cycle Lanes in Each Direction)	Route Option CG3b (Crumlin Road and Kildare Road/Sundrive Road – Bus Lanes in Each Direction)	Route Option CG3c (Crumlin Road and Kildare Road/Sundrive Road – Bus Lane Inbound, No Bus Lane Outbound)
	Noise & Vibration	Road widening is required on Kildare Road and Crumlin Road and traffic would be closer to a number of residential sensitive receptors. This may result in an increase in noise and vibrations at these receptors.	Only minor widening works are required along Crumlin Road and therefore it is not considered that noise levels would change. More substantial widening required on Kildare Road and traffic would be closer to a number of residential sensitive receptors. This may result in an increase in noise and vibrations at these receptors.	Only minor widening works are required and therefore it is not considered that noise levels would change.
	Rank			
	Land Use Character	Inbound route has a negative impact on existing land use. Loss of large part of front gardens for many property owners along Crumlin Road Outbound route has a negative impact on existing land use. Loss of large part of front gardens for many property owners along Clogher Road. There is some loss of driveways/car parking along Clogher Road. Informal on-footpath and on-street parking would be removed (approximately 50 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road character and potentially impacting on its use. Loss of part of front gardens for property owners along route.	Inbound route has a minimal impact on existing land use. Outbound route has a negative impact on existing land use. Loss of large part of front gardens for 27 property owners along Clogher Road. There is some loss of driveways/car parking along Clogher Road. Informal on-footpath parking would be removed (approximately 50 spaces), footpath width would be reduced, and trees (approximately 50 no.) would be removed resulting in a change to the Kildare Road character and potentially impacting on its use. Loss of part of front gardens for property owners along route.	Route has negligible impact on existing land use.
	Rank			

A12 Grand Canal to City Centre Route Options Assessment

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
Economy (Cost Assessment and Transport Economic Indicators)	Capital Cost	***Total Capital Cost*** €0.9m ***Indicative Scheme Infrastructure Works Cost*** (€0.9m) - Remove central median and widen road to the east to provide bus lanes and raised adjacent cycle lanes in each direction; - Minor works to Christchurch Place to reassign existing outbound traffic lane to buses and provide inbound raised adjacent cycle lane; - Works to Nicholas Street/Christchurch Place junction to facilitate inbound bus lane and raised adjacent cycle lane. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 330 sqm Public Land 0 Properties affected	***Total Capital Cost*** €0.7m ***Indicative Scheme Infrastructure Works Cost*** (€0.7m) - Widen Nicholas Street north of Bride Road to facilitate additional lane; - Minor works to reassign outbound traffic lane to bus lane; - Minor works to Nicholas Street/Christchurch Place junction to facilitate bus lanes. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 170 sqm Public Land 0 Properties affected	***Total Capital Cost*** €1.6m ***Indicative Scheme Infrastructure Works Cost*** (€1.6m) - Widen Nicholas Street north of Bride Road to facilitate additional lane; - Minor works to Nicholas Street/Christchurch Place junction to facilitate bus lanes. - Widen Patrick Street south of Bride Road to provide additional lane; - Provide raised adjacent cycle lane along Bride Street/Werburgh Street; - Upgrade Bride Road/Werburgh Street junction to traffic signals; - Upgrade Werburgh Street/Christchurch Place junction to traffic signals. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 750 sqm Public Land 0 Properties affected	**Total Capital Cost** €1.0m ***Indicative Scheme Infrastructure Works Cost*** (€1.0m) - Minor works to reassign inbound traffic lane to bus lane (linemarking etc.) north of Bride Road; - Works to Nicholas Street/Christchurch Place junction to facilitate inbound bus lane to the stop line. - Widen Patrick Street to the east to provide outbound raised adjacent cycle lane along length; - Minor works to remove cycle lanes and facilitate outbound bus lane on Bride Street; - Minor works to convert traffic lane on Kevin Street Upper to bus lane and associate minor changes to Patrick Street/Kevin Street Upper junction. ***Land Acquisition Cost*** (€0m) 0 sqm Private Land 0 sqm Public Land 0 Properties affected

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
	Rank				
	Transport Reliability and Quality of Service	Journey Time: 2 - 3 mins Length: 0.6 km No. of Junctions: 3 Bus lanes are provided along 90% of this route option, resulting in good journey time reliability of bus services. Bus lanes are already provided in the inbound direction, and it would be possible to convert one of the two traffic lanes in the outbound direction to a bus lane.	Journey Time: 2 - 3 mins Length: 0.6 km No. of Junctions: 3 Bus lanes are provided along 90% of this route option, resulting in good journey time reliability of bus services. Bus lanes are already provided in the inbound direction, and it would be possible to convert one of the two traffic lanes in the outbound direction to a bus lane.	Journey Time: 2 - 3 mins Length: 0.6 km No. of Junctions: 3 Bus lanes are provided along 90% of this route option, resulting in good journey time reliability of bus services. Bus lanes are already provided in the inbound direction, and it would be possible to convert one of the two traffic lanes in the outbound direction to a bus lane.	Journey Time: 3 - 4 mins Length: 0.6km NB, 0.9 km SB No. of Junctions: 3 Bus lanes are provided along approximately 90% of this route option. Bus lanes are already provided in the inbound direction, and it would be possible provide an additional lane on Werburgh Street/Bride Street for buses. On Kevin Street upper it would be possible to convert one of the two traffic lanes in the outbound direction to a bus lane.
	Rank				
Integration	Land Use Integration	This route serves an area of the city centre which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area of the city centre which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area of the city centre which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.	This route serves an area of the city centre which is largely developed, with limited scope for further development. As the surrounding area is high density, the route provides very good integration with land use.
	Rank				
	Residential Population and Employment Catchments	***Residential Population Catchments*** - 5 minute walk catchment of approximately 5,400 - 10 minute walk catchment of approximately 16,500 - 15 minute walk catchment of approximately 32,000 ***Employment catchments*** 10 minute walk catchment of approximately 19,900	***Residential Population Catchments*** - 5 minute walk catchment of approximately 5,400 - 10 minute walk catchment of approximately 16,500 - 15 minute walk catchment of approximately 32,000 ***Employment catchments***	***Residential Population Catchments*** - 5 minute walk catchment of approximately 5,400 - 10 minute walk catchment of approximately 16,500 - 15 minute walk catchment of approximately 32,000 ***Employment catchments***	***Residential Population Catchments*** - 5 minute walk catchment of approximately 5,400 inbound, 6,400 outbound and 4,100 within catchment of both directions. - 10 minute walk catchment of approximately 16,500 inbound, 16,900 outbound and 14,500

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
			10 minute walk catchment of approximately 19,900	10 minute walk catchment of approximately 19,900	within catchment of both directions. - 15 minute walk catchment of approximately 32,001 inbound, 33,000 outbound and 29,000 within catchment of both directions. ***Employment catchments*** 10 minute walk catchment of approximately 19,900 inbound, 31,200 outbound and 16,900 within catchment of both directions.
	Rank				
	Transport Network Integration	This route coincides with portions of existing bus routes 13, 27, 40, 49, 54a, 56a, 77a, 77x, 123, 150, 151, and 747. Potential for interchange with other Dublin Bus Services on the George's Street and Liffey Quay corridors. Future potential for interchange with the Luas line to Lucan and the DART Underground line at Christchurch. There would be a moderate impact on general traffic due to the conversion of a traffic lane to a bus lane on Patrick Street outbound (i.e. reduction in capacity).	This route coincides with portions of existing bus routes 13, 27, 40, 49, 54a, 56a, 77a, 77x, 123, 150, 151, and 747. Potential for interchange with other Dublin Bus Services on the George's Street and Liffey Quay corridors. Future potential for interchange with the Luas line to Lucan and the DART Underground line at Christchurch. There would be a moderate impact on general traffic due to the conversion of a traffic lane to a bus lane on Patrick Street outbound (i.e. reduction in capacity).	This route coincides with portions of existing bus routes 13, 27, 40, 49, 54a, 56a, 77a, 77x, 123, 150, 151, and 747. Potential for interchange with other Dublin Bus Services on the George's Street and Liffey Quay corridors. Future potential for interchange with the Luas line to Lucan and the DART Underground line at Christchurch. There would be a moderate impact on general traffic due to the removal of a traffic lane on Kevin Street Upper inbound to provide dedicated raised adjacent cycle lanes (i.e. reduction in capacity).	This route coincides with portions of existing bus routes 13, 27, 40, 49, 54a, 56a, 77a, 77x, 123, 150, 151, and 747. Potential for interchange with other Dublin Bus Services on the George's Street and Liffey Quay corridors. Future potential for interchange with the Luas line to Lucan and the DART Underground line at Christchurch. There would be a moderate impact on general traffic due to the conversion of a traffic lane to a bus lane on Kevin Street Upper outbound (i.e. reduction in capacity).
	Rank				
	Cycling integration	This route option is identified in the GDA Cycle Network Plan as	This route option is identified in the GDA Cycle Network Plan as forming parts of primary cycle	This route option is identified in the GDA Cycle Network Plan as forming parts of primary cycle	This route option is identified in the GDA Cycle Network Plan as forming parts of primary cycle

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
		forming parts of primary cycle route 7 and secondary cycle route 9B. Dedicated raised adjacent cycle lanes are provided in each direction along Patrick Street/Nicholas Street. Dedicated facilities would also be provided in each direction along Christchurch Place.	route 7 and secondary cycle route 9B. It is proposed that north of Bride Road cyclists would share with the bus lane. South of Bride Road, a dedicated raised adjacent cycle lane would be provided. Inbound, cyclists would share with buses along this section.	route 7 and secondary cycle route 9B. This option proposes to maintain a similar arrangement to the existing one on Patrick Street with cyclists sharing the bus lane with buses. In addition, dedicated raised adjacent cycle lanes in each direction would be provided on Werburgh Street/Bride Street/Kevin Street Upper. No inbound cycle lane would be provided on Bride Street for a short section between Kevin Street Upper and Peter Street	routes 7, 8, and 9, and secondary cycle route 9B. This option proposes to maintain a similar arrangement to existing with cyclists sharing the bus lane with buses.
	Rank				
Accessibility and Social Inclusion	Key Trip Attractors (Education/Health /Commercial/Employment)	***Retail*** - Patrick Street - Lord Edward Street/Dame Street ***Leisure*** - Wide variety of city centre locations - St. Patrick's Park - Christchurch - St. Patrick's Cathedral ***Employment*** - Wide variety of city centre locations ***Education*** - Liberties College - St. Patrick's Cathedral Grammar School	***Retail*** - Patrick Street - Lord Edward Street/Dame Street ***Leisure*** - Wide variety of city centre locations - St. Patrick's Park - Christchurch - St. Patrick's Cathedral ***Employment*** - Wide variety of city centre locations ***Education*** - Liberties College - St. Patrick's Cathedral Grammar School	***Retail*** - Patrick Street - Lord Edward Street/Dame Street ***Leisure*** - Wide variety of city centre locations - St. Patrick's Park - Christchurch - St. Patrick's Cathedral ***Employment*** - Wide variety of city centre locations ***Education*** - Liberties College - St. Patrick's Cathedral Grammar School	***Retail*** - Patrick Street - Lord Edward Street/Dame Street ***Leisure*** - Wide variety of city centre locations - St. Patrick's Park - Christchurch - St. Patrick's Cathedral ***Employment*** - Wide variety of city centre locations ***Education*** - Liberties College - St. Patrick's Cathedral Grammar School - DIT (Aungier Street, Kevin Street, National Optometry Centre)

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
	Rank				
	Deprived Geographic Areas	The route serves a number of RAPID areas in the South Inner City of Dublin, including the areas around Cook Street and St. Luke's Avenue.	The route serves a number of RAPID areas in the South Inner City of Dublin, including the areas around Cook Street and St. Luke's Avenue.	The route serves a number of RAPID areas in the South Inner City of Dublin, including the areas around Cook Street and St. Luke's Avenue.	The route serves a number of RAPID areas in the South Inner City of Dublin, including the areas around Cook Street and St. Luke's Avenue.
	Rank				
Safety	Road Safety	No. of Junction: 3 2 turn movements required in each direction (1 left and 1 right in both inbound and outbound directions).	No. of Junction: 3 2 turn movements required in each direction (1 left and 1 right in both inbound and outbound directions).	No. of Junction: 3 2 turn movements required in each direction (1 left and 1 right in both inbound and outbound directions).	No. of Junction: 3 2 turn movements required in each direction (1 left and 1 right in both inbound and outbound directions).
	Rank				
Environment	Archaeology and Cultural Heritage	The route is within the Zone of Archaeological Interest for the City. There are approximately 29 RMP Sites along the route or within the immediate vicinity of the route. The proposed route would require widening up to 1m to the south along Christchurch Place and to east along Nicholas Street (1m) and Patrick Street (3m). In addition, the central median would be removed. Widening has the potential to impact on archaeological features. Cognisance would need to be given to these features during design stage.	The route is within the Zone of Archaeological Interest for the City. There are approximately 29 RMP Sites along the route or within the immediate vicinity of the route. The proposed route would require widening up to 1m to the south along Christchurch Place and to east along Nicholas Street and Patrick Street (approximately 3m). Widening has the potential to impact on archaeological features. Cognisance would need to be given to these features during design stage.	The route is within the Zone of Archaeological Interest for the City. There are approximately 29 RMP Sites along the route or within the immediate vicinity of the route. The proposed route would require widening up to 1m to the south along Christchurch Place and to east along Nicholas Street and Patrick Street (approximately 4m). Widening has the potential to impact on archaeological features. Cognisance would need to be given to these features during design stage.	This route is within the Zone of Archaeological Interest for the City. There are approximately 30 RMP Sites along the route or within the immediate vicinity of the route. Widening on Patrick Street has the potential to impact on archaeological features. Cognisance would need to be given to these features during design stage.
	Rank				
	Architectural Heritage	There are approximately 13 Protected Structures along this route and approximately 35 buildings	There are approximately 13 Protected Structures along this route and approximately 35	There are approximately 13 Protected Structures along this route and approximately 35	There are approximately 16 Protected Structures and approximately 19 buildings

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
		recorded on the National Inventory of Architectural Heritage. The majority of these relate to Nicholas St. Flats, Iveagh Buildings, St. Patrick Church and Park and the lamp standards on both sides of Nicholas Street and Patrick Street. The proposed widening works would not directly impact any of the recorded buildings with the exception of the lamp standards on the east side which would need to be removed and reinstated. Cognisance would also need to be given to the curtilage associated with the Protected Structures, where relevant.	buildings recorded on the National Inventory of Architectural Heritage. The majority of these relate to Nicholas St. Flats, Iveagh Buildings, St. Patrick Church and Park and the lamp standards on both sides of Nicholas Street and Patrick Street. The proposed widening works would not directly impact any of the recorded buildings with the exception of the lamp standards along the east side which would need to be removed and reinstated. Cognisance would also need to be given to the curtilage associated with the Protected Structures, where relevant.	buildings recorded on the National Inventory of Architectural Heritage. The majority of these relate to Nicholas St. Flats, Iveagh Buildings, St. Patrick Church and Park and the lamp standards on both sides of Nicholas Street and Patrick street. The proposed widening works would not directly impact any of the recorded buildings with the exception of the lamp standards along the east side which would need to be removed and reinstated. Cognisance would also need to be given to the curtilage associated with the Protected Structures, where relevant.	recorded on the National Inventory of Architectural Heritage. The majority of these relate to apartment buildings, Iveagh buildings and the lamp standards on both sides of Nicholas Street and Patrick Street. Widening on Patrick Street has the potential to impact on archaeological features. Cognisance would need to be given to these features during design stage.
	Rank				
	Flora & Fauna	The route does not cross any site of International, European or National conservation value. The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. It is not considered that the proposed works would impact on this culvert. There are trees along the perimeter of St. Patrick Park which are likely to be of ecological interest. However, it is not considered that the proposed widening will impact these trees. The trees in the median along the northern extent of St. Patrick Street	The route does not cross any site of International, European or National conservation value. The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. It is not considered that the proposed works would impact on this culvert. There are tree along the perimeter of St. Patrick Park which are likely to be of ecological interest. However, it is not considered that the proposed works will impact these trees. The trees in the median along the northern extent of St. Patrick Street	The route does not cross any site of International, European or National conservation value. The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. It is not considered that the proposed works would impact on this culvert. There are tree along the perimeter of St. Patrick Park which are likely to be of ecological interest. However, it is not considered that the proposed works will impact these trees.	The route does not cross any site of International, European or National conservation value. This route traverses the culverted River Poddle. Works along this stretch would occur within the road reserve so impacts to the culvert are unlikely. Trees within the footpath along the southern end of Bride St. are unlikely to be impacted by the proposed works.

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
		will be removed which has the potential to negatively impact on local biodiversity.	would not be removed. However there is potential for impact during construction.	The trees in the median along the northern extent of St. Patrick Street would not be removed. However there is potential for impact during construction.	
	Rank				
	Soils and Geology	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.	Minimal potential for impacts to soils and geology and no evidence of historic industries or gravel pits that could give rise to potential contamination.
	Rank				
	Hydrology	The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. Works along this stretch would occur within the road reserve so impacts to the culvert are unlikely.	The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. Works along this stretch would occur within the road reserve so impacts to the culvert are unlikely.	The Poddle River is culverted under St. Patrick Street. It turns eastward north of Ross Road. Works along this stretch would occur within the road reserve so impacts to the culvert are unlikely.	The culverted River Poddle crosses under Bride Street and would therefore be traversed by this option. Works along this stretch would occur within the road reserve so impacts to the culvert are unlikely.
	Rank				
	Landscape and Visual	Area of land between St. Patrick Street, Bull Alley Street, Bride Street and Kevin Street Upper is designated as a conservation area within the DCC Development Plan. Protected view along New Street South to St. Patrick Cathedral and along St. Patrick Street to Christchurch (as per Fig. 4 Views and Prospects, DCC Development Plan). The setting and character of this view will be impacted along Nicholas Street with the proposed removal of the median. However	Area of land between St. Patrick Street, Bull Alley Street, Bride Street and Kevin Street Upper is designated as a conservation area within the DCC Development Plan. Protected view along New Street South to St. Patrick Cathedral and along St. Patrick Street to Christchurch (as per Fig. 4 Views and Prospects, DCC Development Plan). Protected Structures along the route on both sides.	Area of land between St. Patrick Street, Bull Alley Street, Bride Street and Kevin Street Upper is designated as a conservation area within the DCC Development Plan. Protected view along New Street South to St. Patrick Cathedral and along St. Patrick Street to Christchurch (as per Fig. 4 Views and Prospects, DCC Development Plan). Protected Structures along the route on both sides.	Area of land between St. Patrick Street, Bull Alley Street, Bride Street and Kevin Street Upper is designated as a conservation area within the DCC Development Plan Protected view along New Street South to St. Patrick Cathedral and along St. Patrick Street to Christchurch (as per Fig. 4 Views and Prospects, DCC Development Plan). Protected Structures along the route.

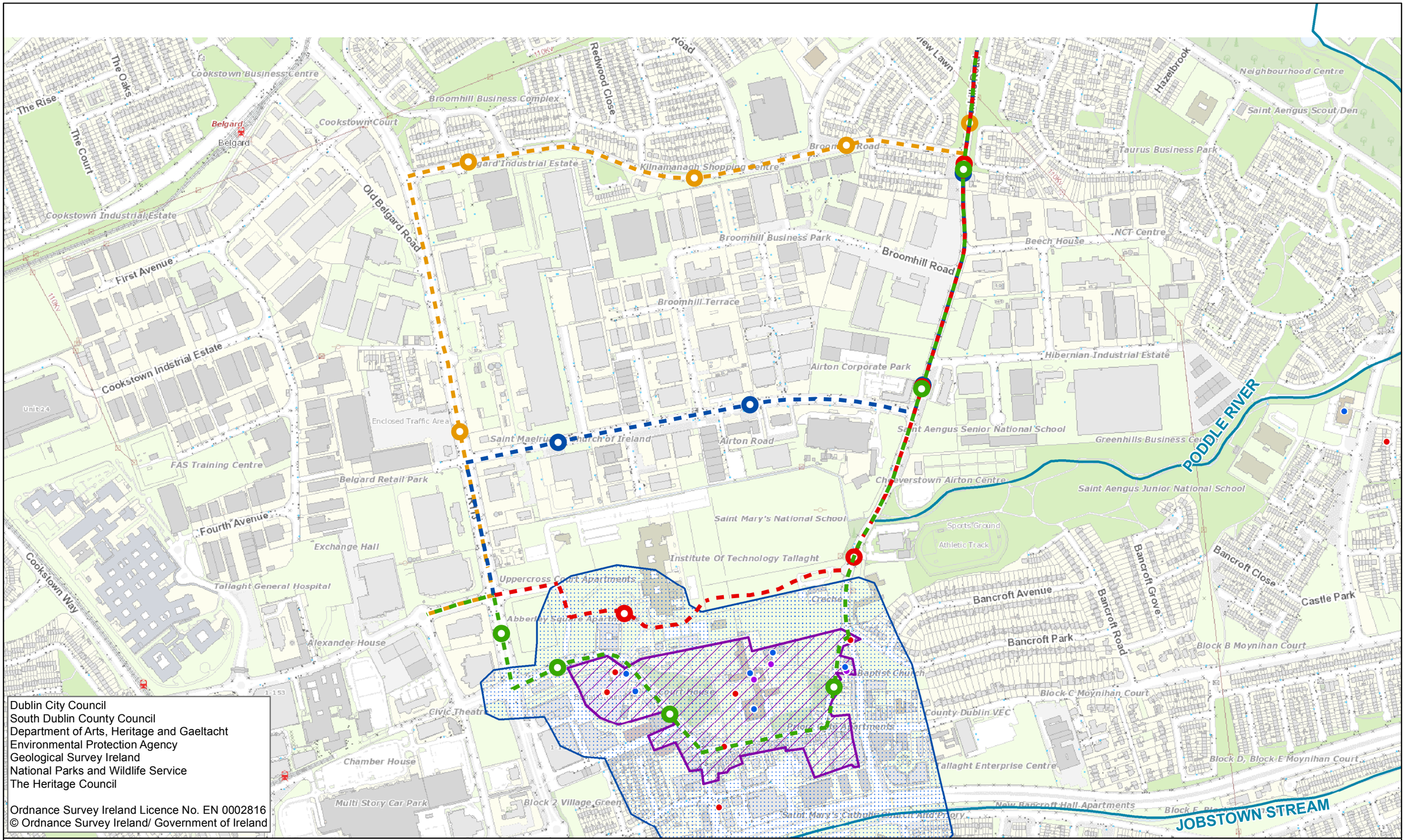
Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
		the view will not be obstructed by the proposed works. Protected Structures along the route on both sides. Makes use of existing road corridors with no particular landscape and visual sensitivities. Loss of trees within the central median will have an impact on the character and streetscape of the area. However, this impact of this is not considered to be significant.	Makes use of existing road corridors with no particular landscape and visual sensitivities. There is no loss of trees along the route.	Makes use of existing road corridors with no particular landscape and visual sensitivities. There is no loss of trees along the route.	Makes use of existing road corridors with no particular landscape and visual sensitivities. There is no loss of trees along the route.
	Rank				
	Air Quality	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in pollutant concentrations at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of Patrick Street due to road widening. This may result in an increase in pollutant concentrations at these receptors.
	Rank				
	Noise & Vibration	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in noise emissions at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in noise emissions at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of the route due to road widening. This may result in an increase in noise emissions at these receptors.	Traffic would be closer to a number of residential sensitive receptors along the east of Patrick Street due to road widening. This may result in an increase in noise emissions at these receptors.
	Rank				
	Land Use Character	Route has no impact on existing land use.	Route has no impact on existing land use.	Route would require the removal of loading bays on Patrick Street north of Bull Alley Street. Parking would need to be	Route has no impact on existing land use.

Assessment Criterion	Assessment Sub-Criterion	Route Option GC1a (Two way along Patrick Street, Remove Median)	Route Option GC1b (Two way along Patrick Street, Maintain Median)	Route Option GC1c (Two way along Patrick Street, Maintain Median, Cyclists on Werburgh and Bride Street)	Route Option GC2 (One way via Patrick Street and Bride Street)
				removed along Bride Street/Werburgh Street.	
	Rank				

Appendix B

Environmental Constraints Maps

A3

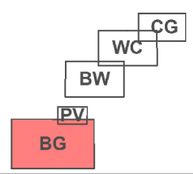


Dublin City Council
South Dublin County Council
Department of Arts, Heritage and Gaeltacht
Environmental Protection Agency
Geological Survey Ireland
National Parks and Wildlife Service
The Heritage Council

Údarás Náisiúnta Iompair
National Transport Authority

- Route option BG1
- Route option BG2
- Route option BG3
- Route option BG4
- National Monuments (NMS)
- National Inventory Architectural Heritage (DAHG)
- Record of Protected Structures (DCC & SDCC)
- Burial Grounds (Dublin City only, Heritage Maps)
- Architectural Conservation Area (DCC & SDCC)
- Archaeology Zones (DCC & SDCC)
- Conservation Areas (DCC only)
- River Network Routes (EPA)
- Proposed Natural Heritage Areas (NPWS)
- Special Areas of Conservation (NPWS)
- Special Protection Areas (NPWS)
- Ancient Established Woodland Inventory 2010 (DAHG)
- Active Quarries (GSI)
- Historic Contamination- Mines waste points (EPA)
- Historic Contamination- Mines spoil heaps (EPA)

Key Plan



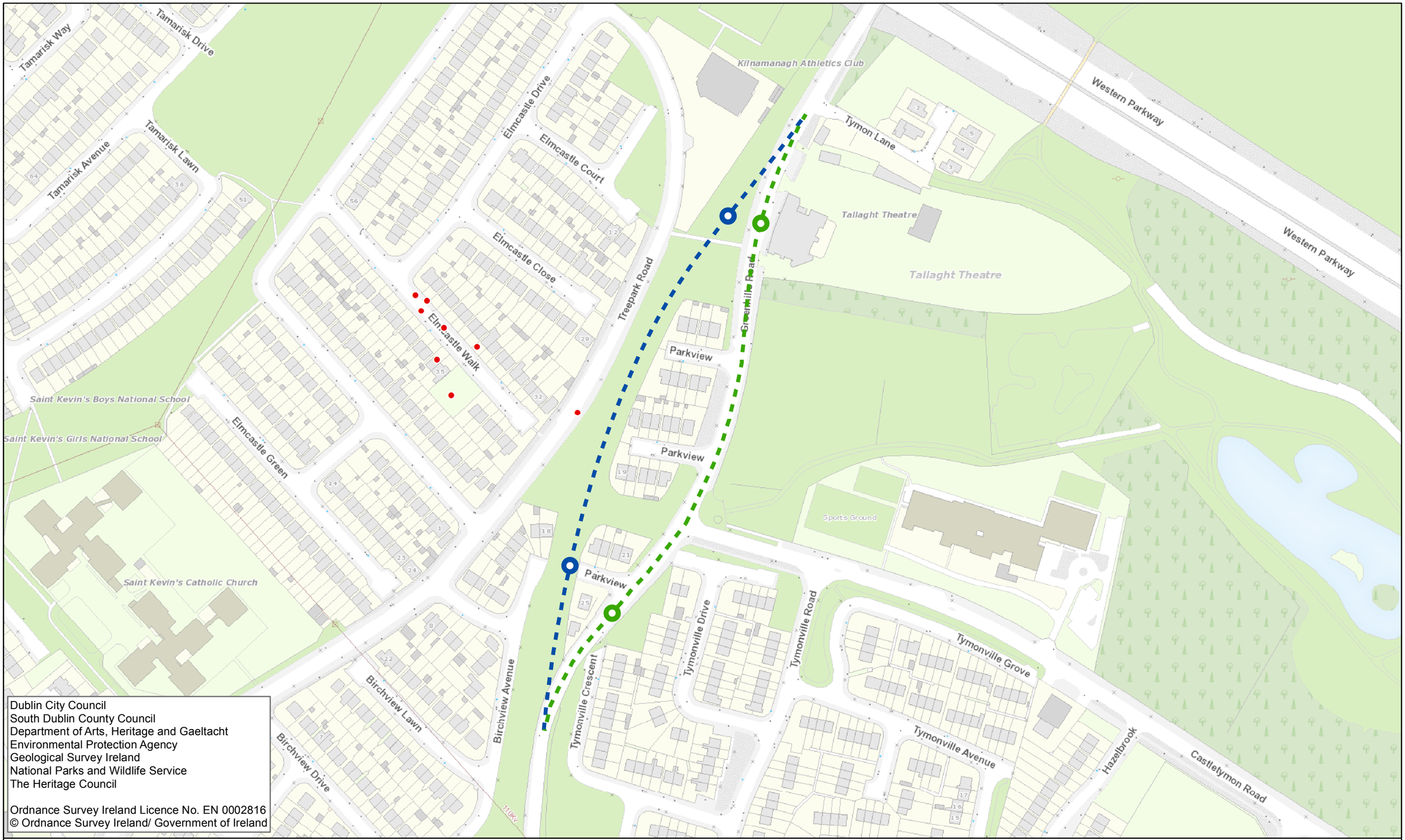
GC Christchurch
Grand Canal
Crumlin
Ballymount
Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option BG1 to BG4

Date: 26/05/2016 | Scale: 1:7,000.23 | Figure

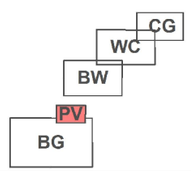
A3



Údarás Náisiúnta Iompair
National Transport Authority

- Route option PV1
- Route option PV2
- National Monuments (NMS)
- National Inventory Architectural Heritage (DAHG)
- Record of Protected Structures (DCC & SDCC)
- Burial Grounds (Dublin City only, Heritage Maps)
- Architectural Conservation Area (DCC & SDCC)
- Archaeology Zones (DCC & SDCC)
- Conservation Areas (DCC only)
- River Network Routes (EPA)
- Proposed Natural Heritage Areas (NPWS)
- Special Areas of Conservation (NPWS)
- Special Protection Areas (NPWS)
- Ancient Established Woodland Inventory 2010 (DAHG)
- Active Quarries (GSI)
- Historic Contamination- Mines waste points (EPA)
- Historic Contamination- Mines spoil heaps (EPA)

Key Plan



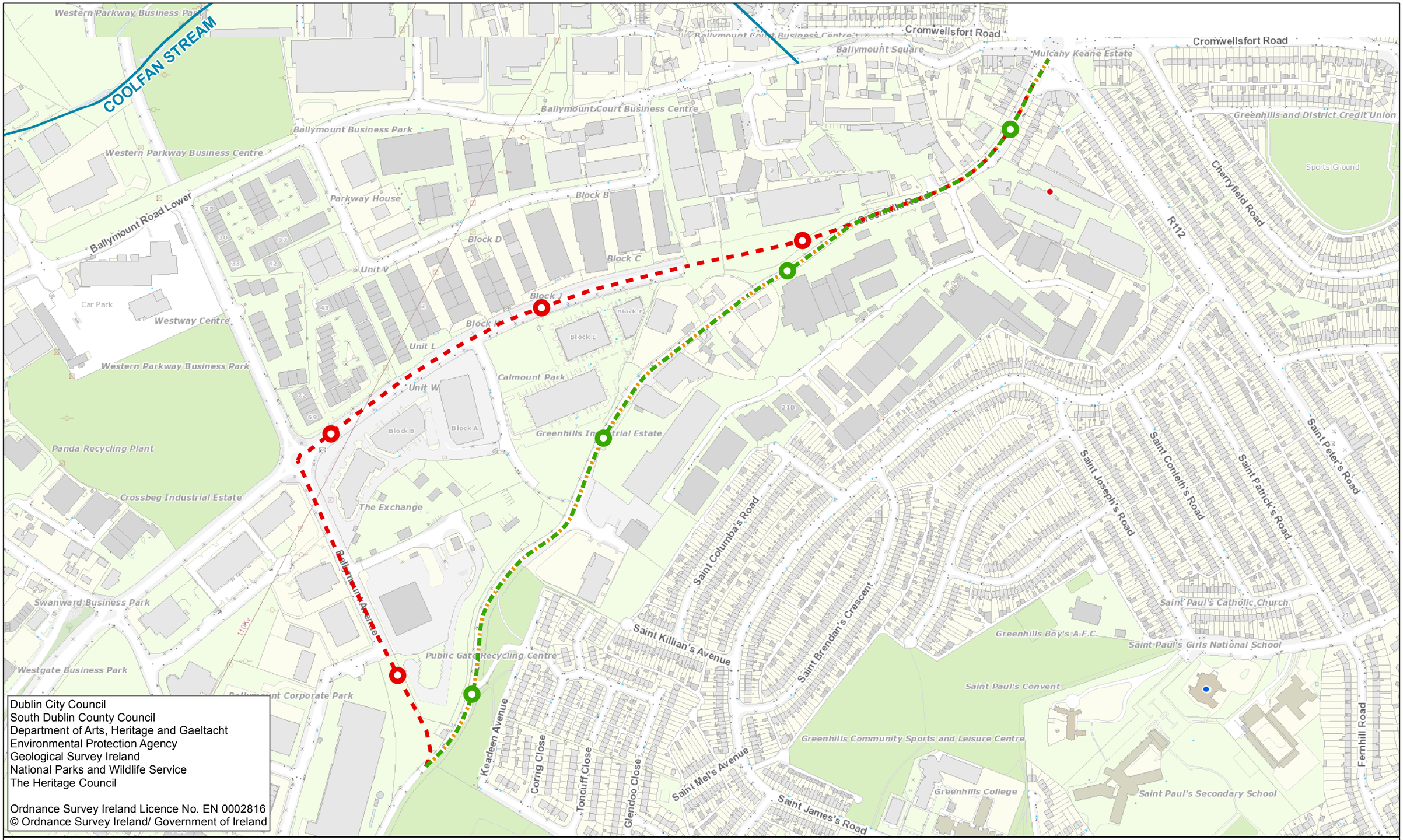
GC Christchurch
Grand Canal
Crumlin
Ballymount
Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option PV1 to PV2

Date: 26/05/2016	Scale: 1:2,500	Figure

A3

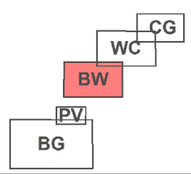


Dublin City Council
South Dublin County Council
Department of Arts, Heritage and Gaeltacht
Environmental Protection Agency
Geological Survey Ireland
National Parks and Wildlife Service
The Heritage Council

Údarás Náisiúnta Iompair
National Transport Authority

- Route option BW1
- Route option BW2
- Route option BW3
- National Monuments (NMS)
- National Inventory Architectural Heritage (DAHG)
- Record of Protected Structures (DCC & SDCC)
- Burial Grounds (Dublin City only, Heritage Maps)
- Architectural Conservation Area (DCC & SDCC)
- Archaeology Zones (DCC & SDCC)
- Conservation Areas (DCC only)
- River Network Routes (EPA)
- Proposed Natural Heritage Areas (NPWS)
- Special Areas of Conservation (NPWS)
- Special Protection Areas (NPWS)
- Ancient Established Woodland Inventory 2010 (DAHG)
- Active Quarries (GSI)
- Historic Contamination- Mines waste points (EPA)
- Historic Contamination- Mines spoil heaps (EPA)

Key Plan



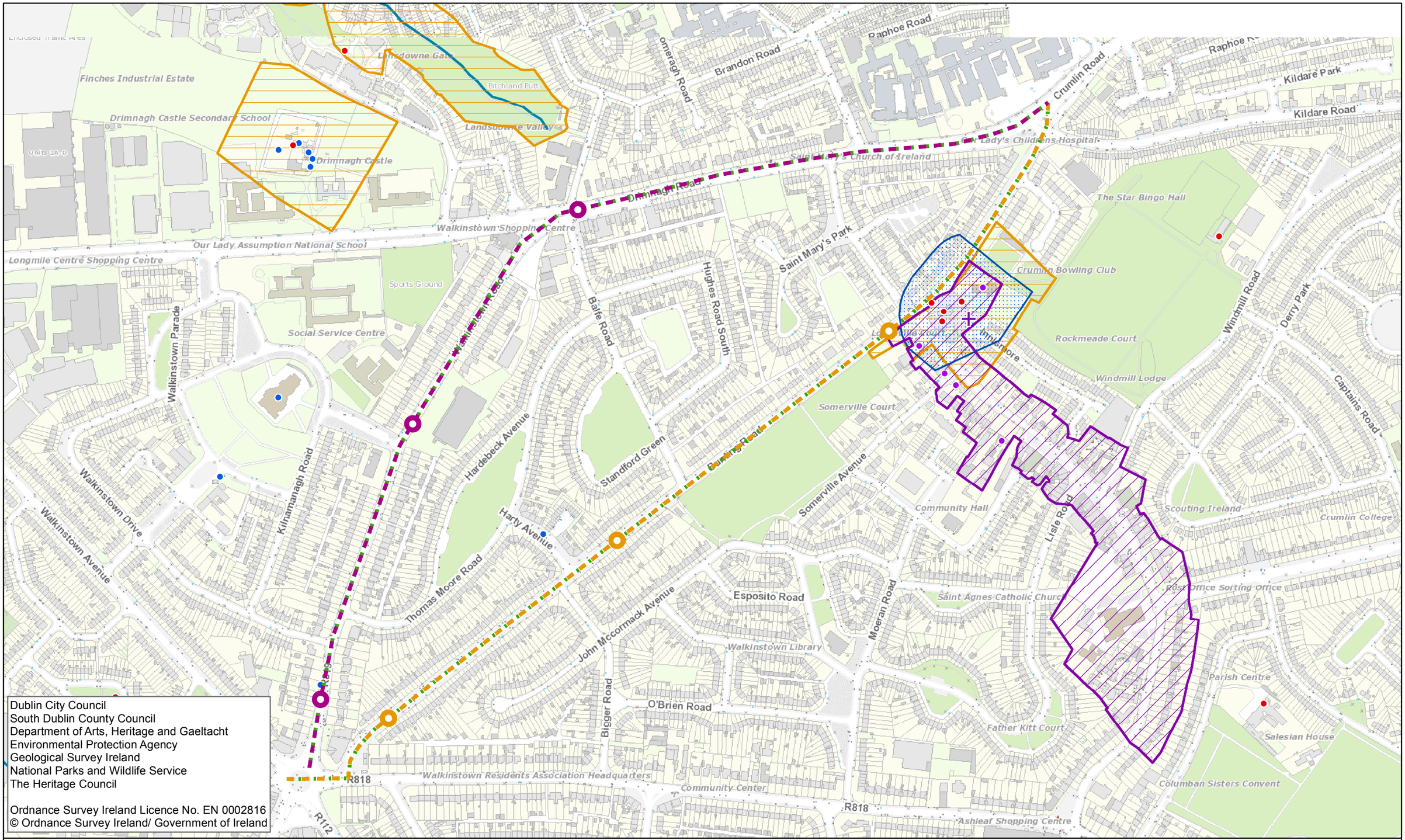
GC Christchurch
Grand Canal
Crumlin
Ballymount
Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option BW1 to BW3

Date: 26/05/2016	Scale: 1:5,000	Figure

A3

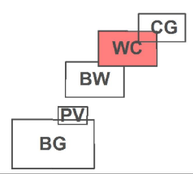


Dublin City Council
South Dublin County Council
Department of Arts, Heritage and Gaeltacht
Environmental Protection Agency
Geological Survey Ireland
National Parks and Wildlife Service
The Heritage Council

Údarás Náisiúnta Iompair
National Transport Authority

- Route option WC1
- Route option WC2
- Route option WC3
- National Monuments (NMS)
- National Inventory Architectural Heritage (DAHG)
- Record of Protected Structures (DCC & SDCC)
- Burial Grounds (Dublin City only, Heritage Maps)
- Architectural Conservation Area (DCC & SDCC)
- Archaeology Zones (DCC & SDCC)
- Conservation Areas (DCC only)
- River Network Routes (EPA)
- Proposed Natural Heritage Areas (NPWS)
- Special Areas of Conservation (NPWS)
- Special Protection Areas (NPWS)
- Ancient Established Woodland Inventory 2010 (DAHG)
- Active Quarries (GSI)
- Historic Contamination- Mines waste points (EPA)
- Historic Contamination- Mines spoil heaps (EPA)

Key Plan



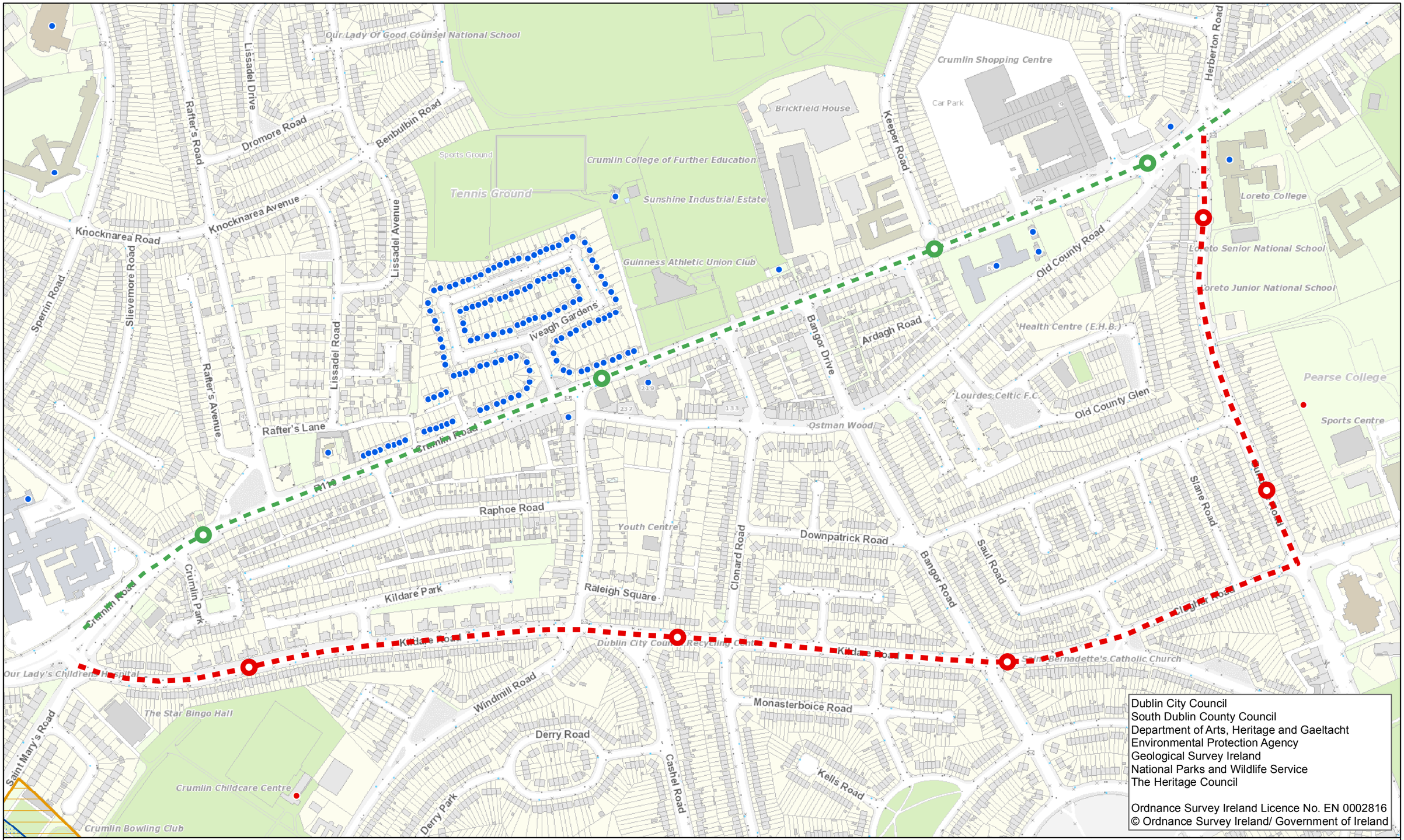
GC Christchurch
Grand Canal
Crumlin
Ballymount
Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option WC1 to WC3

Date: 26/05/2016 | Scale: 1:5,000 | Figure

A3

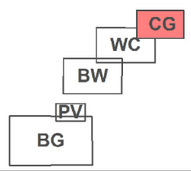


Dublin City Council
South Dublin County Council
Department of Arts, Heritage and Gaeltacht
Environmental Protection Agency
Geological Survey Ireland
National Parks and Wildlife Service
The Heritage Council

Údarás Náisiúnta Iompair
National Transport Authority

- Route option CG1
- Route option CG2
- National Monuments (NMS)
- National Inventory Architectural Heritage (DAHG)
- Record of Protected Structures (DCC & SDCC)
- Burial Grounds (Dublin City only, Heritage Maps)
- Architectural Conservation Area (DCC & SDCC)
- Archaeology Zones (DCC & SDCC)
- Conservation Areas (DCC only)
- River Network Routes (EPA)
- Proposed Natural Heritage Areas (NPWS)
- Special Areas of Conservation (NPWS)
- Special Protection Areas (NPWS)
- Ancient Established Woodland Inventory 2010 (DAHG)
- Active Quarries (GSI)
- Historic Contamination- Mines waste points (EPA)
- Historic Contamination- Mines spoil heaps (EPA)

Key Plan



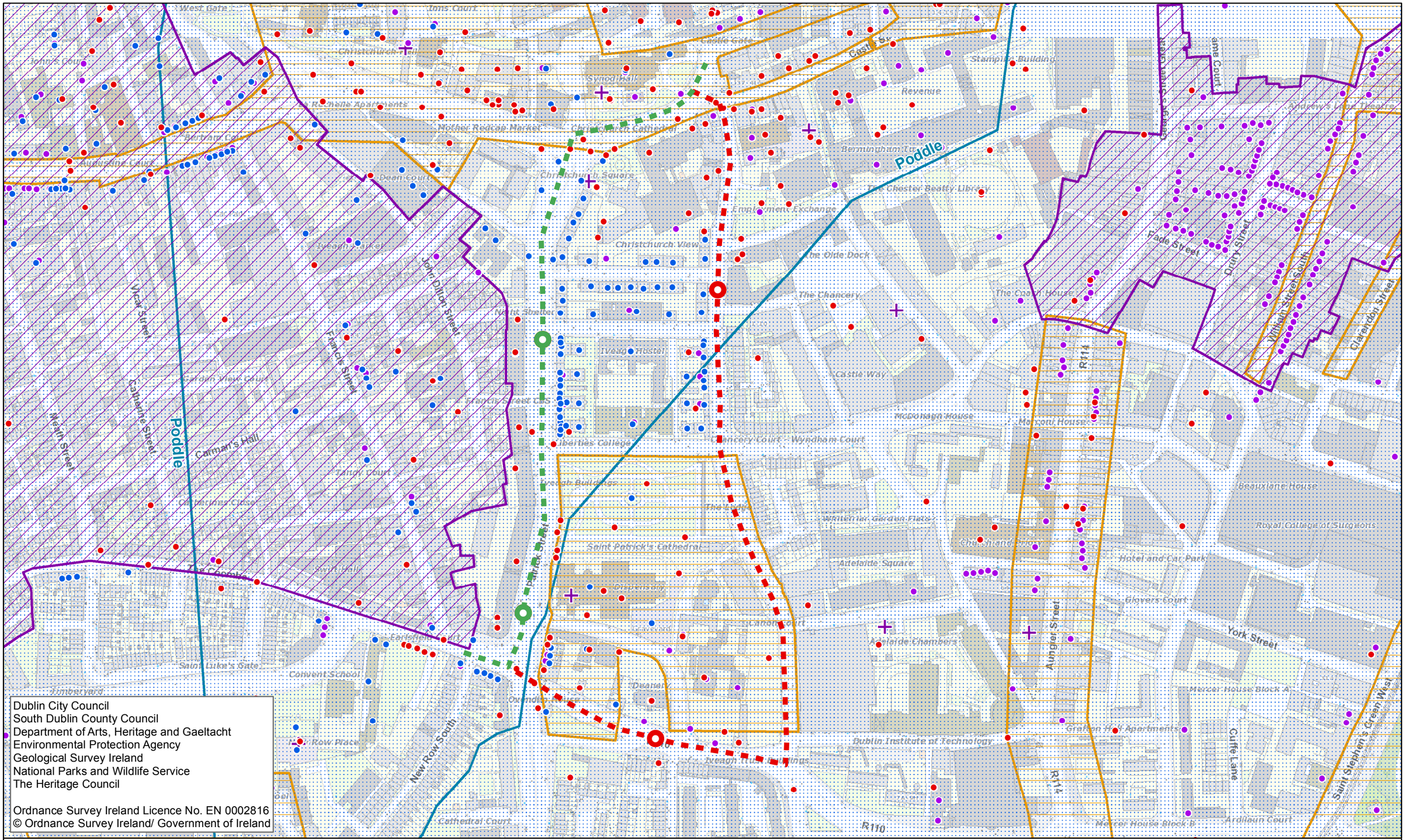
GC Christchurch
Grand Canal
Crumlin
Ballymount
Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option CG1 to CG2

Date: 26/05/2016	Scale: 1:4,000	Figure

A3



Dublin City Council
South Dublin County Council
Department of Arts, Heritage and Gaeltacht
Environmental Protection Agency
Geological Survey Ireland
National Parks and Wildlife Service
The Heritage Council

Ordnance Survey Ireland Licence No. EN 0002816
© Ordnance Survey Ireland/ Government of Ireland

Údarás **Náisiúnta** Iompair
National **Transport** Authority

- 🟩 Route option GC1
- 🟥 Route option GC2
- ● National Monuments (NMS)
- ● National Inventory Architectural Heritage (DAHG)
- ● Record of Protected Structures (DCC & SDCC)
- + Burial Grounds (Dublin City only, Heritage Maps)
- ▨ Architectural Conservation Area (DCC & SDCC)
- ▨ Archaeology Zones (DCC & SDCC)
- ☐ Conservation Areas (DCC only)
- — River Network Routes (EPA)
- ▨ Proposed Natural Heritage Areas (NPWS)
- ▨ Special Areas of Conservation (NPWS)
- ▨ Special Protection Areas (NPWS)
- ▨ Ancient Established Woodland Inventory 2010 (DAHG)
- ✳ Active Quarries (GSI)
- ★ Historic Contamination- Mines waste points (EPA)
- ▨ Historic Contamination- Mines spoil heaps (EPA)

Key Plan

- GC Christchurch
- Grand Canal
- Crumlin
- Ballymount
- Tallaght

Greenhills to City Centre Core Bus Corridor

Environmental factors - Route Option GC1 to GC2

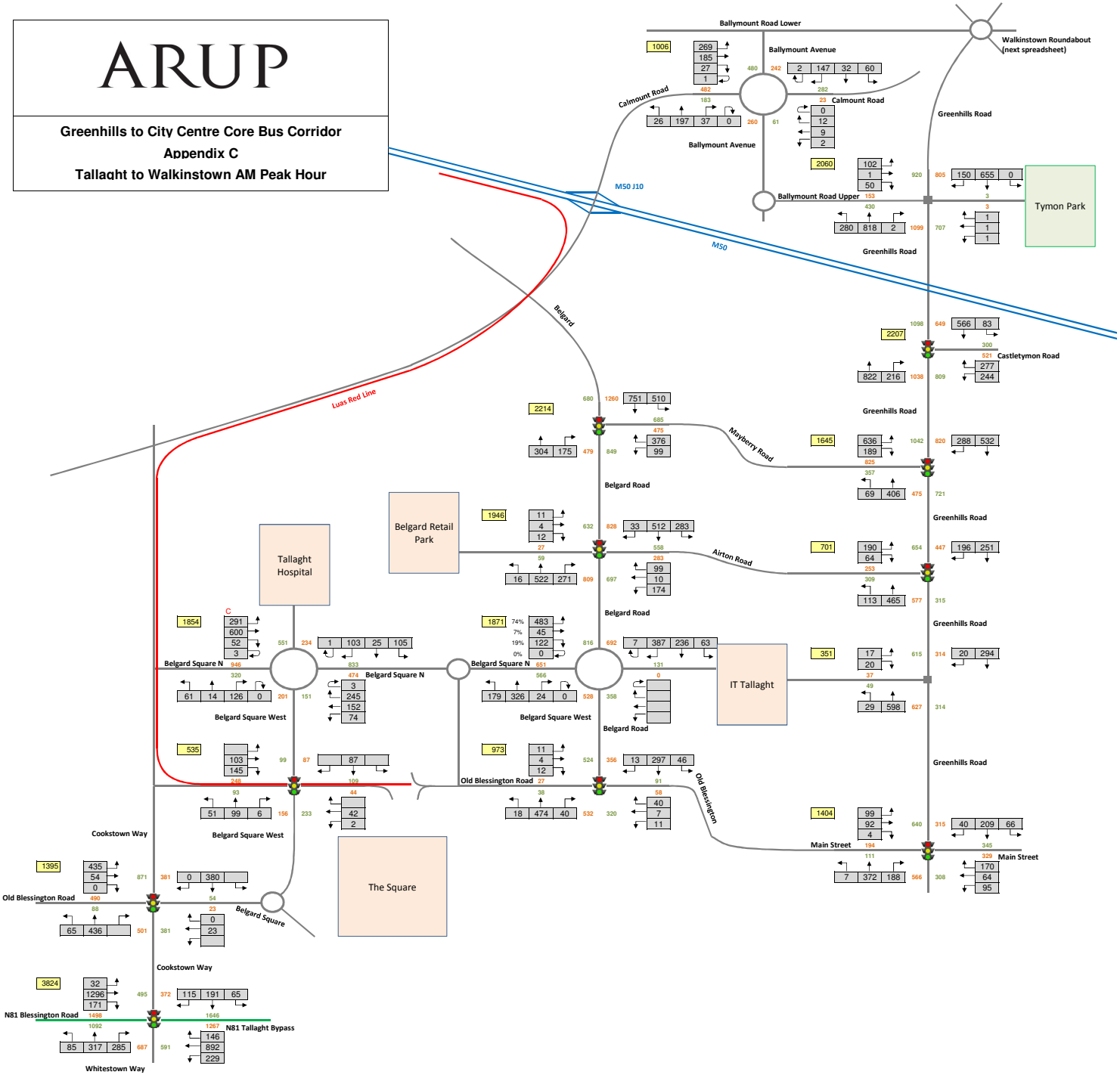
Date: 26/05/2016	Scale: 1:3,000	Figure

Appendix C

Traffic Survey Data

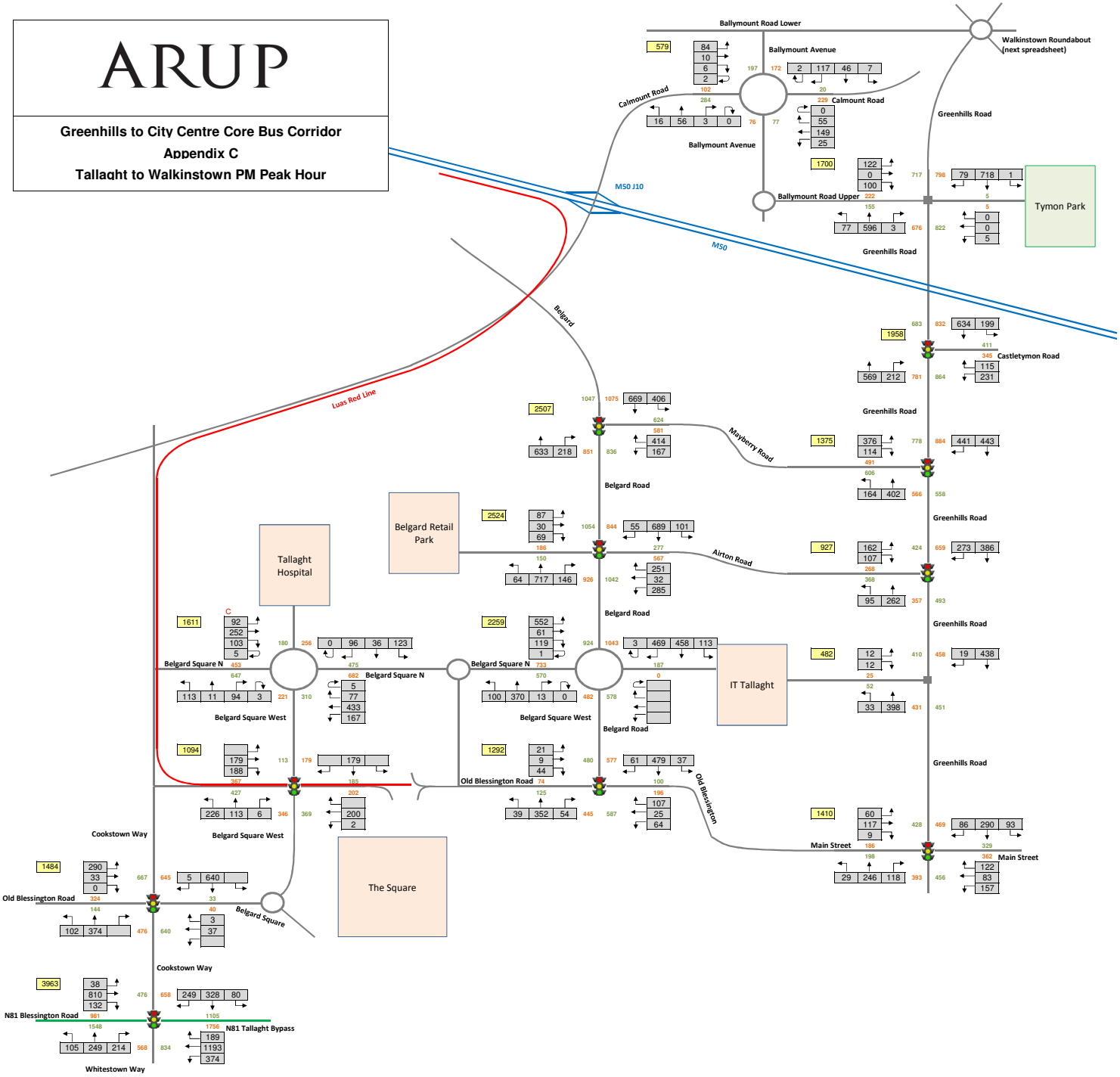
ARUP

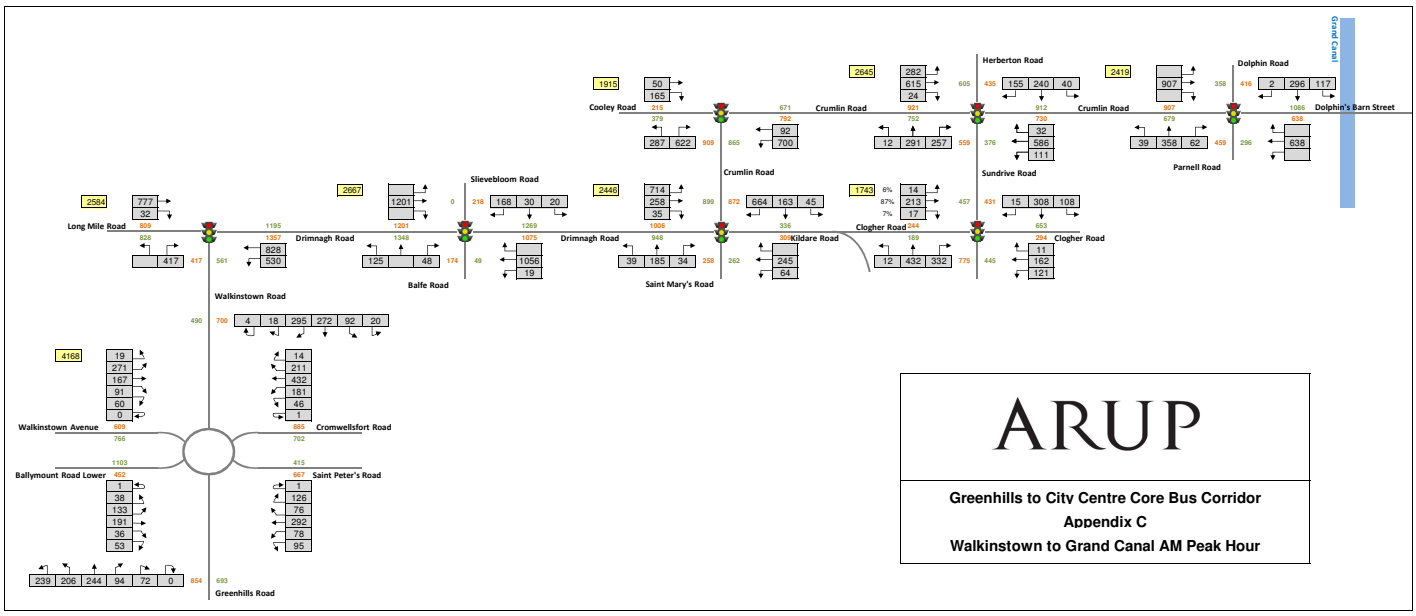
Greenhills to City Centre Core Bus Corridor
Appendix C
Tallaght to Walkinstown AM Peak Hour

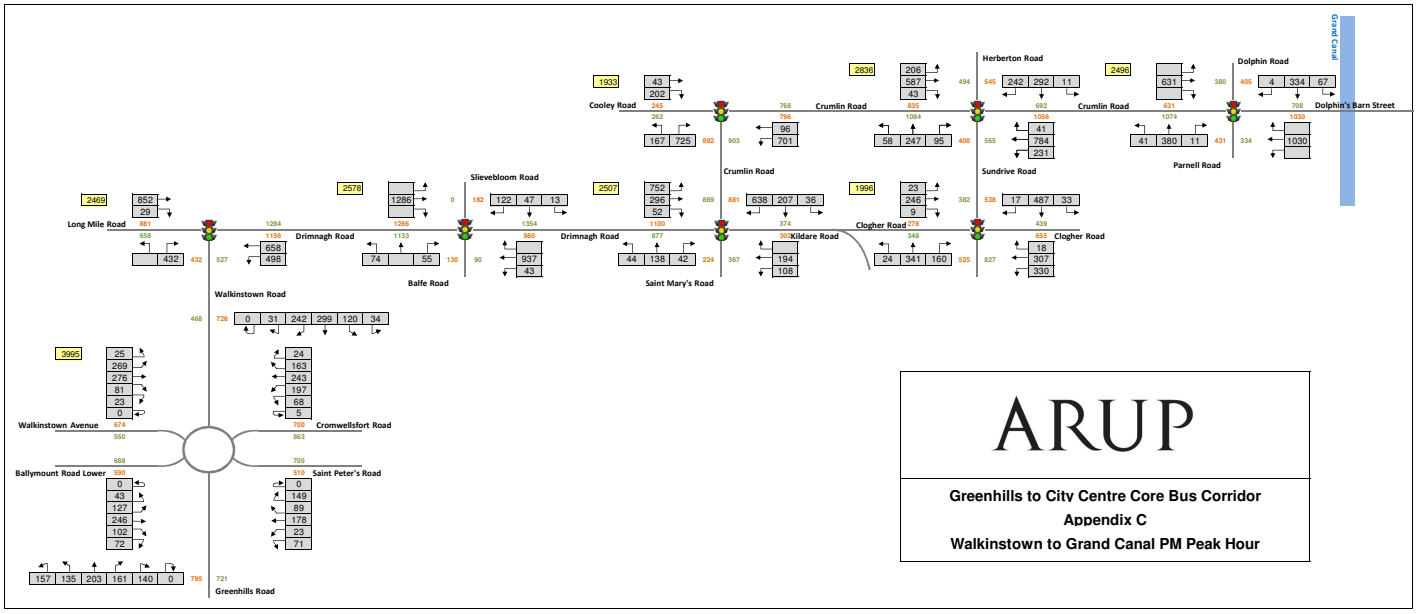


ARUP

Greenhills to City Centre Core Bus Corridor
Appendix C
Tallaght to Walkinstown PM Peak Hour

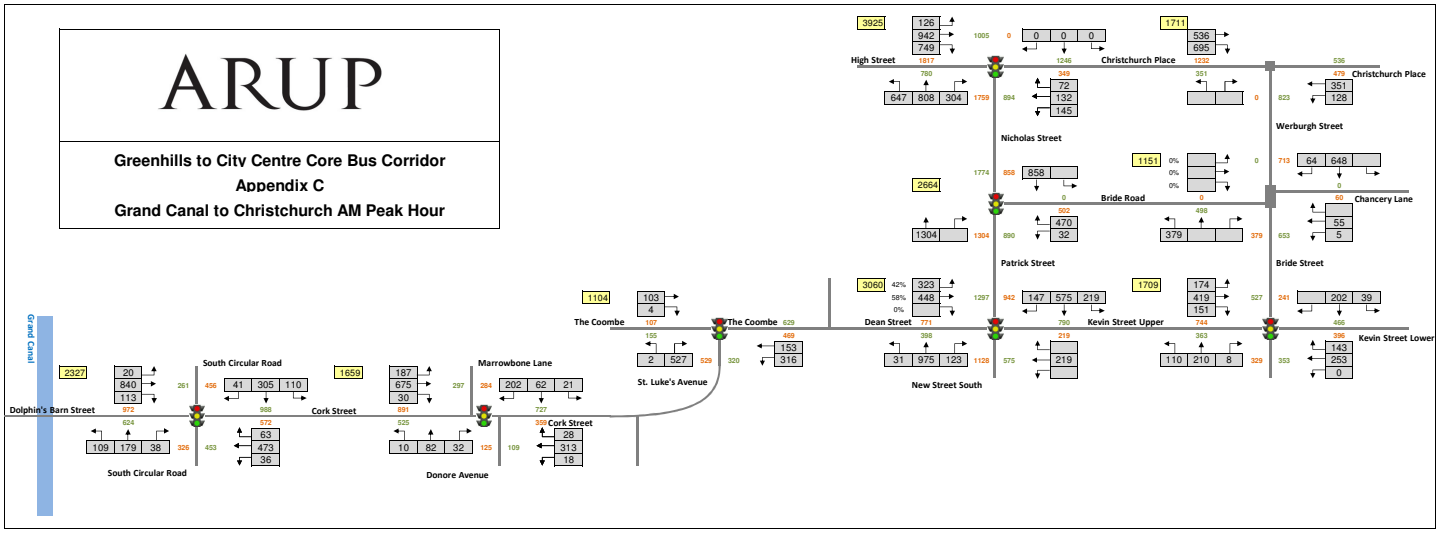



Grand Canal
Herberton Road
Dolphin Road
Cooley Road
Crumlin Road
Crumlin Road
Dolphin's Barn Street
Crumlin Road
Sundrive Road
Parnell Road
Slievebloom Road
Long Mile Road
Drimnagh Road
Drimnagh Road
Kildare Road
Clogher Road
Clogher Road
Balfe Road
Saint Mary's Road
Walkinstown Road
Walkinstown Avenue
Cromwellsfort Road
Ballymount Road Lower
Saint Peter's Road
Greenhills Road
ARUP
Greenhills to City Centre Core Bus Corridor
Appendix C
Walkinstown to Grand Canal AM Peak Hour


Grand Canal
Herberton Road
Dolphin Road
Cooley Road
Crumlin Road
Crumlin Road
Dolphin's Barn Street
Crumlin Road
Sundrive Road
Parnell Road
Slievebloom Road
Long Mile Road
Drimnagh Road
Drimnagh Road
Kildare Road
Clogher Road
Clogher Road
Balfe Road
Saint Mary's Road
Walkinstown Road
Walkinstown Avenue
Cromwellsfort Road
Ballymount Road Lower
Saint Peter's Road
Greenhills Road
ARUP
Greenhills to City Centre Core Bus Corridor
Appendix C
Walkinstown to Grand Canal PM Peak Hour

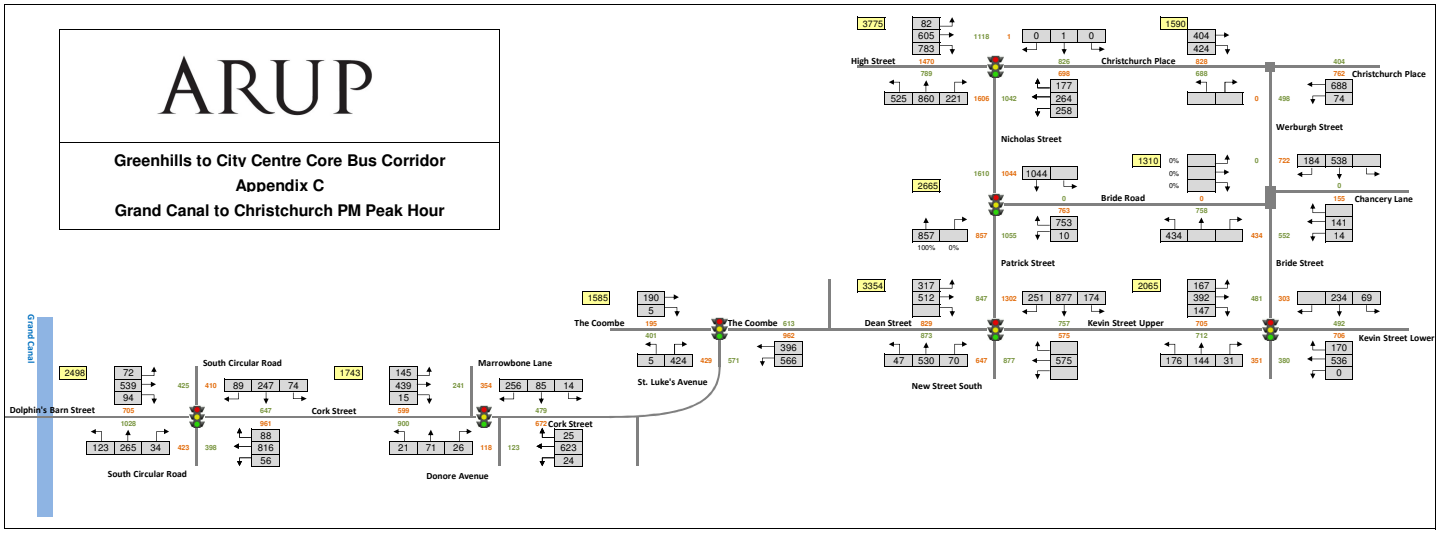
ARUP

Greenhills to City Centre Core Bus Corridor
Appendix C
Grand Canal to Christchurch AM Peak Hour



ARUP

Greenhills to City Centre Core Bus Corridor
Appendix C
Grand Canal to Christchurch PM Peak Hour



Appendix D

Stage 1 Road Safety Audit

National Transport Authority

Greenhills to City Centre Core Bus Corridor Options Study

Stage 1 Road Safety Audit

REP/Transport/RSA

Issue 1 | 23 November 2016

Job number 247592-00

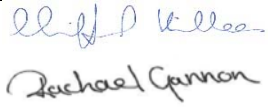
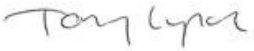
Ove Arup & Partners Ireland Ltd

Arup
One Albert Quay
Cork
Ireland
www.arup.com

ARUP

Document Verification

ARUP

Job title		Greenhills to City Centre Core Bus Corridor Options Study			**Job number** 247592-00
Document title		Stage 1 Road Safety Audit			**File reference** 4-04-02-S2 RSA
Document ref		REP/Transport/RSA			
Revision	**Date**	**Filename**	247592-00_20161117_S1-RSA_D1.docx		
Draft 1	17 Nov 2016	**Description**	First draft		
			Prepared by	**Checked by**	**Approved by**
		Name	Clifford Killeen/Rachael Gannon	Shane FitzGerald	Tony Lynch
		Signature			
Issue 1	23 Nov 2016	**Filename**	247592-00_20161123_S1-RSA_Issue 1.docx		
		Description	First Issue		
		Description	**Prepared by**	**Checked by**	**Approved by**
		Name	Clifford Killeen/Rachael Gannon	Shane FitzGerald	Tony Lynch
		Signature			
		Filename			
		Description			
			Prepared by	**Checked by**	**Approved by**
		Name			
		Signature			
		Filename			
		Description			
			Prepared by	**Checked by**	**Approved by**
		Name			
		Signature			

Contents

Appendices

1 Introduction

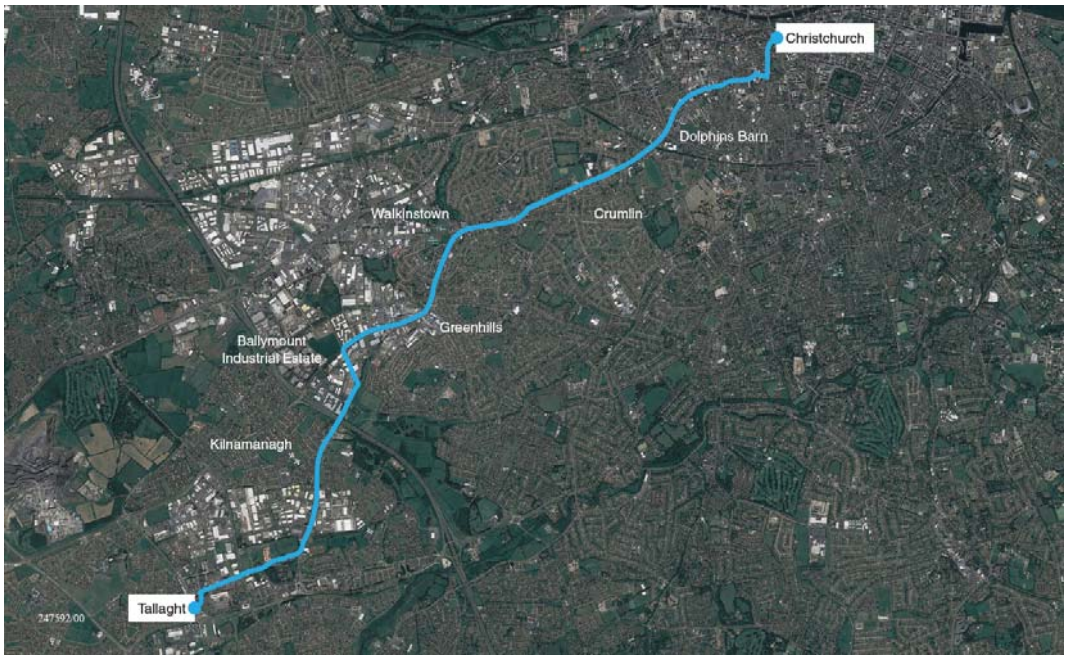
1.1 General

Arup has been appointed by the National Transport Authority (NTA) to undertake a feasibility and routes options assessment for the Greenhills to City Centre Core Bus Corridor. As part of this, this Stage 1 Road Safety Audit (RSA) of the concept scheme design is being carried out by the Arup Road Safety Audit team.

The concept scheme starts in Tallaght in West Dublin and continues North East along Greenhills Road and the R110 as far as Christchurch in the city centre. The proposed scheme includes the provision of new roads and junctions, upgrading of the existing roads and junctions and the provision of extensive new bus and cycle facilities along the route.

A plan showing the location of the scheme and extents is presented in Figure 1, below.

Figure 1: Scheme Location and Extents



1.2 Scheme Description

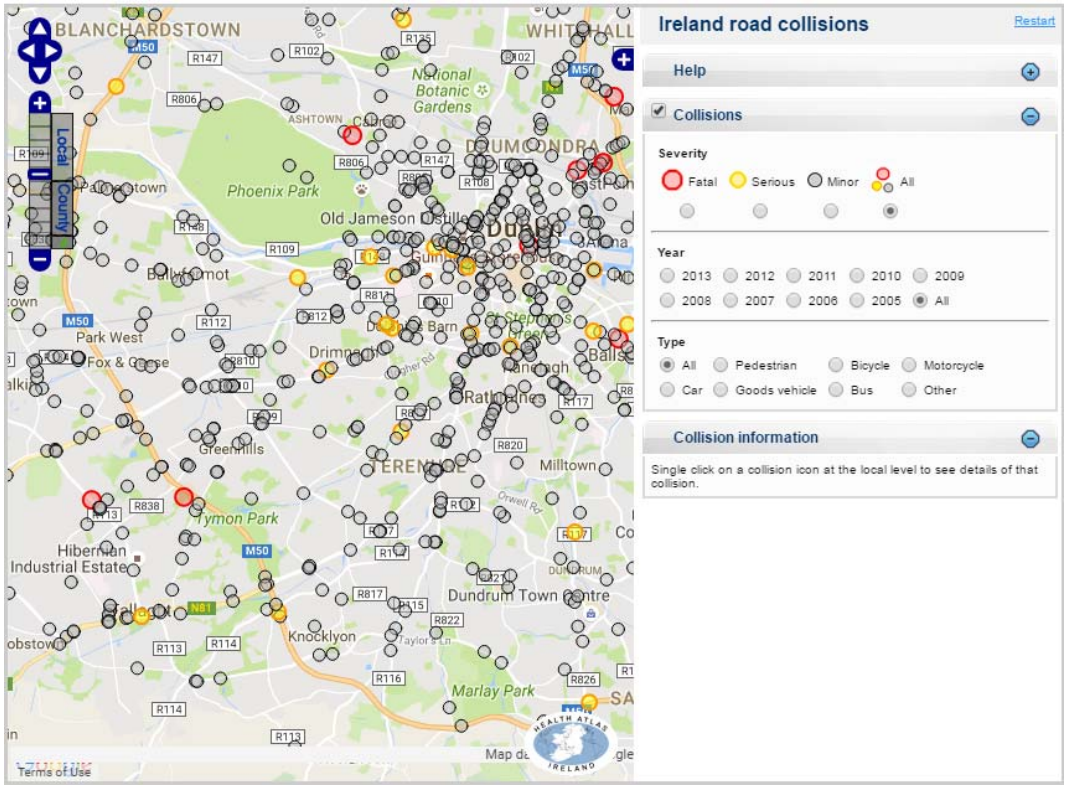
This scheme involves the delivery of the on-street infrastructure necessary to provide as near practical continuous priority for bus movements along the CBC route. This scheme also aims to provide on-street cycle facilities, segregated where practical to do so, and specifically providing for any cycle facilities along the route that are required under the Greater Dublin Area Cycle Network Plan.

In total, the emerging preferred route measures 11.2km. The proposed scheme is expected to improve the bus infrastructure provision along the route to approximately 91% (10.2km) in each direction. The proposed bus lanes along the route are to be 24-hour routes.

1.3 Collision History

A brief review of the collision history available on www.rsa.ie indicates many incidents on the existing road network in the locations where the proposed scheme will upgrade the road network. The available collision history covers the years 2005-2013 (inclusive). The route has a low cyclist-related collision history along the entire length, and a moderate pedestrian collision history. Clusters of pedestrian incidents were observed in particular on the R110 Long Mile Road, which is a primary traffic route in and out of Dublin.

Figure 3: RSA Collision History



1.4 Audit Team Details

The audit team members were as follows:

- Shane FitzGerald (Team Leader), Arup;
- Thomas Connell (Team Member), Arup;
- Clifford Killeen (Team Member), Arup; and
- Rachael Gannon (Observer), Arup.

1.5 Audit Methodology

The audit was carried out on 9th November 2016 during day time hours. The site was visited by Thomas Connell and Shane FitzGerald of the Road Safety Audit team.

The audit comprised an examination of the drawings relating to the scheme and a site visit made on Wednesday, November 9th 2016, between the hours of 12:30 and 16:00. During the site visits the weather was mostly clear and the road surface dry.

Information provided to assist the audit team comprised a series of layout drawings, listed in **Appendix A**. No previous Road Safety Audit has been carried out on this scheme.

The Audit has been carried out in accordance with the Transport Infrastructure Ireland (TII) document GE-STY-01024 "Road Safety Audits". The team has examined only those issues within the design relating to road safety implications of the scheme, and has therefore not examined or verified the compliance of the design to any other criteria.

A completed audit feedback form, signed by the designer and audit team leader is provided in Appendix A.

2 General Items Raised as part of this Stage 1 RSA

2.1.1 Problem: Screening and protection between old and new alignments

Location: Greenhills Road, Old Greenhills Road and Treepark Road.

Problem: There are a number of locations where new road infrastructure is shown on the drawings to be adjacent to existing (Dwg T0100-05 & 06 refer). There are also extensive level differentials between old and new carriageway proposals. Alignments that are parallel and closely located can lead to incidents arising from headlight glare, while significant vertical alignment issues can pose risks associated with errant vehicles leaving the carriageway. There are also a number of routes which will become cul-de-sacs due to the realignment proposals along the scheme, which are shown on the scheme drawings to be located extremely close to the new alignments.

Recommendation: Sufficient screening should be employed between adjacent carriageway alignments to mitigate against headlight glare. Elevated sections of carriageway should be provided with sufficient edge protection treatments where necessary.

2.1.2 Problem: Consistency of Route/Prohibited Movements

Location: Throughout scheme.

Problem: There is significant inconsistency throughout the scheme with regard to the permitting or prohibition of turning movements at junctions. For example, at the junction of Belgard Square North/Belgard Square West (Dwg T0100-02) a single left-turn movement is prohibited. A similar situation is shown at the junction of Greenhills Road/Castletymon Road (Dwg T0100-05). At the junction of South Circular Road/Dolphin's Barn (Dwg T0100-14), left-turn movements are prohibited from Dolphin's Barn. The area shown on Dwg T0100-01 which will become a bus-only link is not signed as such on the approaches from the north or south. At other locations, the proposals indicate that turning movements will not be permitted, but there is no associated signage to indicate this – for example at the junction of Belgard Square West/Belgard Square North (Dwg T0100-01) and the junction of Parnell Road/Dolphin's Barn (Dwg T0100-14) the bus lane configuration on the approaches (i.e. no termination of bus lanes) indicates that turning movements are not permitted, but are not signed as such on the scheme drawings.

It is not clear from the supplied drawings as to why turning movements are prohibited at specific junctions (and indeed on specific arms only). Inconsistency along a route which is intended to be largely homogenous in its' layout can lead to driver confusion and a significantly increased risk of incidents involving side-impact type collisions associated with turning movements across opposing traffic flows. In addition, the presence of cycle facilities along the scheme, across multiple junctions could further exacerbate the risk of vehicle/cyclist conflict.

Recommendation: The design team should seek to achieve as much consistency as is practically possible along the route in terms of junction control and permitting movements for vehicles where safe to do so. Where turning movements are to be prohibited, a comprehensive signage program will be required along the route to reinforce this, to advise alternatives and to minimise the risk of driver confusion.

2.1.3 Problem: Consistency of Commencement of Bus/Cycle Lanes

Location: Throughout scheme.

Problem: In many locations on the supplied drawings, the proposed bus and cycle facilities commence shortly after junctions by means of a gradual taper to guide traffic into the appropriate lanes. However in other locations these facilities are seen to immediately develop shortly after junctions. The lack of sufficient means to develop specific bus and cycle lanes can lead to sudden vehicle movements and driver confusion.

Recommendation: The design team should ensure consistency of proposals throughout the scheme for the commencement of bus and cycle lane facilities.

2.1.4 Problem: Bus/Cycle facility segregation

Location: Throughout scheme.

Problem: The proposals for the majority of the scheme comprise an on-road bus lane and on-road cycle lane adjacent to each other, on both sides of the route. The total width of the proposals combined is 5m (3m bus lane and 2m cycle lane). Throughout the entire scheme there are proposed bus stops shown which are kerbside, therefore being within the cycle lane.

This situation will force cyclists to weave around a stopped bus, out of the cycle lane and into the bus lane when they wish to overtake stationary buses. This, in turn brings cyclists into closer proximity to general traffic, which will increase the risk of vehicle/cyclist conflict.

Recommendation: The design team should consider providing segregated cycle facilities along the route to separate bus and cycle traffic.

2.1.5 Problem: Footpath Widths

Location: Belgard Square North.

Problem: The supplied drawings indicate achievement of a 2m minimum footpath width along the majority of the scheme length (in many cases necessitating widening to achieve). However on Belgard Square North (Dwg T0100-02) there are a number of locations where the existing footpath appears to have been reduced due to the proposals, including in the vicinity of the hospital entrance and in the vicinity of the junctions with Belgard Square East, and Belgard Road.

Recommendation: The design team should ensure that sufficient footpath width is provided throughout the scheme.

2.1.6 Problem: Entry/Exit Lanes at Junctions

Location: Numerous junctions throughout the scheme.

Problem: The supplied drawings show a number of junctions where there are multiple entry lanes on one approach, with two 'ahead' lanes (one of which being a Bus Lane in some instances), but the opposite side of the junction (receiving) has a single lane. Examples include the junction of Ballymount Avenue and Calmount Road (Dwg T0100-07), the proposed replacement signalised junction at Walkinstown Roundabout (Option B – Dwg T0100-08B), the junction of Crumlin Road and Sundrive Road (Dwg T0100-13), the junction of Dolphin's Barn and Parnell Road (Dwg T0100-14) and the junction of High Street and Nicholas Street (Dwg T0100-17). Such arrangements can lead to sudden vehicle manoeuvres or braking when traffic is forced to suddenly merge due to insufficient lane provisions, increasing the risk of vehicular incidents and also the risk of vehicle/cyclist conflict due to sudden evasive manoeuvres.

Recommendation: The design team should ensure that the entry and exit lane configuration at junctions is consistent and that there is sufficient lane designation to accommodate same.

2.1.7 Problem: Advance Stacking Lanes (ASL's) for cyclists

Location: Throughout scheme.

Problem: The supplied drawings do not indicate proposals for right-turning cyclists at the majority of junctions throughout the scheme. There are a limited number of locations where box turning areas are shown, or a derivative of the jug turning layout, but the majority of locations do not show dedicated ASL facilities for right turning cyclists. It is not clear as to whether the speed limit on the route is appropriate for such facilities. The lack of facilities for right-turning cyclists could lead to an increased risk of vehicle/cycle conflict.

Recommendation: The design team should consider provision of facilities to accommodate right-turning cyclists at the various junctions along the scheme.

2.1.8 Problem: Cycle Lane Hatching

Location: Throughout scheme.

Problem: The supplied drawings do not indicate any proposals for cycle lane surface colouring. In particular, crossing and approaching junctions, where there will be an increased likelihood of vehicle/cyclist conflict, particularly where traffic flow must cross cycle lanes for access. The absence of suitable visual delineation of cycle facilities throughout the scheme can lead to an increased risk of incidents.

Recommendation: The design team should consider providing cycle lane surface colouring in accordance with the guidance in the National Cycle Manual.

2.1.9 Problem: Lack of Pedestrian Facilities on specific arms of junctions

Location: Throughout scheme.

Problem: The supplied drawings indicate a number of junctions where pedestrian facilities are proposed on some of the junction arms, but not on others.

Examples include the junction of Belgard Square South and Belgard square West, and the junction of Old Blessington Road/Belgard Square West (both on Dwg T0100-01), the junction of Greenhills Road and the ITT Access Road (Dwg T0100-03), the junction of Greenhills Road and Airton Road (Dwg T0100-04), Greenhills Road and Mayberry Road (Dwg 04), the junction of Greenhills Road and Ballymount Road Upper (Dwg 05), the junction of Walkinstown Road and Kilnamanagh Road (Dwg 09) and the junction of Dolphin's Barn and Parnell Road (Dwg 14). The absence of crossing facilities on certain junction arms can lead to an increased risk of vehicle/pedestrian conflict.

Recommendation: The design team should consider providing crossing facilities on all arms of signalised junctions, where feasible.

3 Items at Specific Locations raised as part of this Stage 1 RSA

3.1.1 Problem: Bus Only Route on Belgard Square West

Location: Junction of Belgard Square West and Belgard Square South

Problem: It is not clear from the supplied drawings as to whether or not a left-turning manoeuvre will be possible for buses turning left from Belgard Square West to Belgard Square South. There are no signs proposed on the supplied drawings to indicate prohibitions on this movement, but the kerb alignment indicated would likely make this movement impractical. The lack of clarity on permitted movements could lead to an increased risk of vehicular incidents.

Recommendation: The design team should clarify if particular turning movements are prohibited at this location, and appropriate signage should be incorporated into the scheme design if necessary.

3.1.2 Problem: ITT Access Road

Location: ITT Access Road linking Greenhills Road to IT Tallaght.

Problem: Drawing T0100-03 shows the proposed ITT Access Road. It is not clear from this drawing if the route will have provisions for pedestrians and cyclists, or to what extent. The lack of these facilities on an access route to IT Tallaght could lead to an increased risk of incidents. In addition, the route appears narrow for two-way traffic, in particular for two-way bus traffic.

Recommendation: The design team should ensure that facilities for pedestrians (including crossings) and cyclists are incorporated into the ITT Access Road design. The design team should also ensure that the road is sufficiently wide for the anticipated traffic expected.

3.1.3 Problem: Bus & Cycle Lane Termination

Location: Tallaght Athletic Club entrance.

Problem: Drawing T0100-03 shows the Tallaght Athletic Club & Westpark Fitness Centre access from Greenhills Road. At the entrance, the proposed bus lane terminates and is required to merge with general traffic. At the same time, the proposed cycle lane adjacent to the bus lane begins to terminate, but continues through the junction while doing so, before terminating at the junction stop line. The continuation of the cycle lane past the termination and merge of the bus lane could lead to an increased risk of cyclist/bus conflict if the bus encroaches onto the cycle lane.

Recommendation: The design team should consider terminating the cycle route in an alternative location to the proposed bus lane termination and associated merge with traffic, or provision of greater segregation for cyclists at this location.

3.1.4 Problem: Multiple Accesses to Old Greenhills Road

Location: Greenhills Road (realigned) approaching M50 overbridge.

Problem: Drawing T0100-05 shows the proposed realignment of Greenhills Road, and the various proposals for tie-in and access to the Old Greenhills Road. To the south, a signalised junction is proposed to link the two, while to the north, a one-way in link is proposed (unsignalised) from Greenhills Road to the Old Greenhills Road. This access is skewed, and could result in significant numbers of right-turning vehicles from Greenhills Road, in a location where there are two lanes of traffic opposing this (including a bus lane). There could be an increased risk of vehicular incidents at this location as a result.

Recommendation: The design team should consider removal of the right-turning movement of traffic to the one-way in access to Old Greenhills Road at this location.

3.1.5 Problem: Bus Lane Termination approaching overbridge

Location: Greenhills Road, approaching M50 overbridge from south.

Problem: Drawing T0100-05 shows a proposed northbound bus lane, which is shown to terminate immediately prior to the route crossing over the M50.

The bus lane will terminate and buses will be expected to merge back with general traffic. This location is coincidental with a bend in the proposed realigned Greenhills Road, from right to left, which means that buses waiting to merge at the end of the bus lane could be obstructing forward visibility to the overbridge and the oncoming traffic. If vehicles attempt to weave around a bus waiting to merge, or attempt to overtake a merging bus they could potentially move into the path of oncoming vehicles, possibly leading to an increased risk of head-on collisions. It is noteworthy that the opposite side of the overbridge has a similar situation on approach, but a bus gate is provided at the merge location.

Recommendation: The design team should consider providing a bus gate at the merge location, or terminating the bus lane further south.

3.1.6 Problem: Bus Stop close to left-slip

Location: Ballymount Avenue/Calmount Road Junction

Problem: Dwg T0100-07 shows the proposed arrangement at the junction of Ballymount Avenue and Calmount Road. There is a bus and cycle-only left-slip proposed from Calmount Road to Ballymount Avenue, following which, on Ballymount Avenue the bus lane and cycle lane continue south alongside a general traffic lane. Shortly after turning on to Ballymount Avenue, there is a proposed bus stop and bus bay shown, which would require cyclists to either stop or to weave around stationary buses. This could lead to an increased risk of vehicle/cyclist conflict at this location, given that the bus and cycle lanes are using the left-slip lane and ‘merging’ with a traffic lane.

Furthermore, it is not clear how westbound cyclists will pass through the junction from east to west – the indicated layout suggests that cyclists will be required to weave across multiple lanes of traffic to get from the cycle lane (and the left-slip to Ballymount Avenue) to the straight ahead lane.

Recommendation: The design team should consider locating the proposed bus stop further south. In addition, the design team should consider proposals for westbound cyclists at the junction.

3.1.7 Problem: Transition of Cyclists to on-road

Location: Walkinstown Roundabout.

Problem: Dwg T0100-08A shows the proposed Option A for Walkinstown Roundabout (the junction remains a roundabout in this scenario). The junction layout shows the cycle lanes on the approaching entry arms all transitioning to off-road before entering the junction, and subsequently cyclists are facilitated with crossings to change arms, and with a ramp back down to carriageway level once they have exited the roundabout. On the majority of the roundabout exit arms, the transition of the cycle lanes back to on-road occurs quite shortly after exiting the junction, and would appear to be encouraging cyclists to merge back with general traffic flow in locations that are not wide enough for the two to be segregated. This could lead to an increased risk of vehicle/cyclist conflict on what is an extremely heavily-trafficked junction.

Recommendation: The design team should consider providing greater segregation for cyclists from general traffic when merging upon exiting the junction, or to relocating the transitions to on-road further away along the roundabout exit arms.

3.1.8 Problem: Advisory Cycle Lane Provision

Location: Greenhills Road.

Problem: Dwgs T0100-06 & 07 show the proposed realignment of Greenhills Road to connect directly with Ballymount Avenue. The older alignment of Greenhills Road will be amended to provide advisory on-road cycle lanes and a new roundabout junction at a new road link to connect to Calmount Avenue. The older Greenhills Road alignment here will therefore be for local access only. Typical carriageway width along this route appears to be approximately 8m. On-road advisory cycle facilities are proposed. The carriageway width appears to be insufficient for mandatory cycle facilities, but too wide to function as a 'wide shared street' type arrangement. The carriageway width and the proposals for on-road advisory cycle lanes may encourage excessive vehicle speeds, and the 8m width is not sufficient for mandatory cycle facilities to be provided.

This may therefore lead to an increased risk of vehicles travelling at speed, and occupying portions of the advisory cycle lane. There are also no cycle facilities through the proposed roundabout junction to Calmount Avenue. A similar situation is also shown on Dwg T0100-11, which shows the roundabout junction of Kildare Road /Clonard Road – in this location mandatory cycle facilities are proposed on-road, but no facilities are shown at the roundabout.

Recommendation: The design team should consider reducing the total carriageway width to a 'wide shared street' arrangement, where cyclists are encouraged to 'take the lane' and appropriate signage and markings are provided to reinforce this. The design ream should also consider an alternative junction arrangement at the junction with the new link road to Calmount Avenue.

3.1.9 Problem: Access to Tallaght Truck Dismantlers Property

Location: Greenhills Road, approaching M50 overbridge from north.

Problem: Drawing T0100-05 shows the proposals on Greenhills Road, approaching the M50 overbridge from the north. The drawings indicate a proposed bus gate shown at the access to the Tallaght Truck Dismantlers property. It is not clear as to how this access to the property will function as a result of the proposals. Traffic exiting may be obstructed by buses positioned at the bus gate, which may increase the risk of incidents, while traffic entering the site may have visibility obstructed by buses in the bus gate, which could lead to an increased risk of conflict with other vehicles and pedestrians and cyclists.

Recommendation: The design team should consider relocation of the access to this property further north.

3.1.10 Problem: On-Street Parking & Proposed Cycle Facilities on Kildare Road

Location: Along Kildare Road.

Problem: Dwgs T0100-10, 11 and 12 show the proposed facilities along Kildare Road. The drawings indicated on-road mandatory cycle facilities along the route. The carriageway typical width is indicated as approximately 10m on the drawings, with 2m cycle lanes proposed on either side.

It was noted from the site visit that extensive on-street parking is occurring on Kildare Road, as well as extensive parking on the wide footpaths in locations. The route also has extensive traffic calming in place. Although the supplied drawings indicate that on-street parking is 'to be removed', it is highly likely that parking will continue in the on-road mandatory cycle lanes proposed. This could lead to an increased risk of vehicle/cyclist conflict. It is also unclear from the scheme drawings if the existing speed control ramps are to remain.

Recommendation: The design team should consider providing segregated cycle facilities along this portion of the route. The design team should also clarify if the traffic calming along the route is to remain.

3.1.11 Problem: Cycle Lane/Loading Bay/Parking Conflict

Location: Drimnagh Road and Patrick Street.

Problem: Dwgs T0100-10, 16 & 17 show proposals for parallel parking areas adjacent to junctions, where inset parallel parking bays are shown kerbside, behind proposed bus and cycle facilities. In the case of Drimnagh Road, this appears to be parking for residential purposes, which is being rationalised and reduced as part of the scheme proposals, while on Patrick Street, these spaces are existing loading spaces. On Drimnagh Road, there are three parking spaces proposed immediately at the junction with Kildare Road, a bus stop, and further three parking spaces immediately thereafter. The provision of spaces so proximate to the junction itself may increase the risk of indiscriminate parking, obstruction of the cycle lane and an increased risk of vehicle/cyclist conflict. On Patrick Street, indiscriminate parking in loading bay areas can lead to increased vehicle/cyclist conflict in the event of the cycle lane being obstructed. It is noted that at present on Patrick Street there is an advisory cycle lane, which is being replaced with a mandatory cycle lane. The advisory cycle lane here is often occupied with double-parked vehicles.

Recommendation: The design team should consider removal of the parking spaces at Drimnagh Road. Consideration should also be given to providing a segregated cycle facility on Patrick Street.

3.1.12 Problem: Cycle Lane Pinch Points

Location: Multiple locations.

Problem: Dwg T0100-10 shows the proposals at the junction of Drimnagh Road and Saint Mary's Road/Kildare Road, Dwg T0100-14 shows the junction of Parnell Road and Dolphin's Barn, Dwg T0100-17 shows the junction of High Street and Christchurch Place and Dwg T0100-09 shows the junction of the Long Mile Road and Walkinstown Road. In these locations, the proposed cycle facilities appear to be quite narrow or are seen to abruptly terminate. Insufficient cycle lane width can lead to an increased risk of vehicle/cyclist conflict, while abrupt termination of facilities can lead to cyclist and driver confusion and an associated increased risk of incidents.

Recommendation: The design team should ensure a minimum width of mandatory cycle facility can be achieved throughout the scheme. Cycle facilities that appear to terminate abruptly should be suitably designed to transition back to general traffic flow safely.

3.1.13 Problem: Junction Alignment

Location: Crumlin Road/Herberton Road junction.

Problem: Dwg T0100-13 shows the proposals at the junction of Crumlin Road and Herberton Road. The approach from the south-west on Crumlin Road is shown to have three lanes entering the junction, one turning left, one going straight and one turning right. The alignment of the 'ahead' lane is seen to guide traffic into the pedestrian island on the opposite side of the junction. This poses an increased risk of vehicle/pedestrian conflict in the event of a vehicle mounting the island, but also poses an increased risk of sudden vehicle weaving to avoid the island, in an area where there is an advisory cycle facility proposed passing through the junction, which could lead to an increased risk of vehicle/cyclist conflict.

Recommendation: The design team should ensure vehicle pathways are designed so as to minimise conflict with other modes at this location. It may be necessary to consider removal of the advisory cycle lane proposed through the junction.

3.1.14 Problem: Opposing Right-Turning Movements

Location: Cork Street/Donore Avenue/Marrowbone Lane junction.

Problem: Dwg T0100-15 shows the proposals at the junction of Cork Street, Donore Avenue and Marrowbone Lane. It is not clear from the supplied drawings if right-turning movements are to be retained as part of the proposals for this junction. No dedicated right-turning lanes are indicated on the scheme drawings (right-turning traffic will use the same lanes as straight ahead traffic), and the stagger of the junction is such that these opposing right-turning movements will have to pass each other. The proposals will also reduce the number of lanes for straight through traffic to one lane in each direction on the approaches. In the event of vehicles waiting to turn right into either side road, traffic travelling ahead will also be obstructed, which may increase the risk of vehicles using the bus lanes and cycle lanes to 'undertake' these stationary vehicles that are waiting to turn right. This could lead to an increased risk of vehicular incidents.

Recommendation: The design team should clarify if the proposed reconfiguration of this junction has been sufficiently assessed in terms of its operating capacity, and if there will be likely delay due to vehicles waiting to turn right.

3.1.15 Problem: Loss of traffic lane

Location: High Street/Nicholas Street junction.

Problem: Dwg T0100-17 shows the proposals at the junction of High Street and Nicholas Street. The drawings indicate two right-turning lanes from High Street to Nicholas Street, but only a single traffic lane with a bus lane and cycle lane adjacent on Nicholas Street. The sudden loss of a traffic lane can lead to an increase in weaving manoeuvres for vehicles and an associated increased risk of vehicular conflict and potential conflict with other modes.

Recommendation: The design team should clarify the proposals for right-turning traffic from High Street to Nicholas Street.

3.1.16 Problem: Access to Saint Peters Road

Location: Walkinstown Roundabout (Option B).

Problem: Dwg T0100-08B shows the proposals for Option B of the proposed upgrade to Walkinstown Roundabout, which changes the junction to a signalised crossroad junction with an adjacent priority junction to Saint Peters Road. The supplied drawings indicated that a left turn from Greenhills Road to Saint Peters Road (immediately after exiting the crossroads to Greenhills Road) will not be permitted (the bus lane here is not shown to terminate for left-turning traffic). The absence of this turning movement at the junction re-design could lead to an increased risk of drivers ignoring the restriction to avoid diverting on potentially circuitous alternative routeing. This could in turn lead to an increased risk of incidents.

Recommendation: The design team should clarify the proposals for left-turning traffic from Greenhills Road to Saint Peters Road.

3.1.17 Problem: No permitted access

Location: Kilnamanagh Road/Walkinstown Road junction.

Problem: Dwg T0100-09 shows the proposals at the junction of Kilnamanagh Road/Walkinstown Road and the adjacent shopping centre on the eastern side of Walkinstown Road. The drawings indicate that all turning movements from Walkinstown Road into Kilnamanagh Road and to the shopping centre are to be prohibited. It is not clear as to why these turning movements are to be removed from the slightly staggered junction. It is likely that significant numbers of drivers will choose to ignore these restrictions and make these turning movements regardless, given that these closures will require traffic to seek alternative routes. Furthermore, the northern access to the shopping centre is not indicated on the supplied drawings (i.e. an interruption to the bus lane is not shown at this access, which will become the sole access as part of the scheme proposals).

Recommendation: The design team should clarify the rationale for the access restrictions. Consideration should be given to making Kilnamanagh Road one-way eastbound approaching the junction to further reinforce the restriction if it is to remain.

3.1.18 Problem: Left-turn to South Circular Road

Location: Dolphin's Barn/South Circular Road junction & approaches.

Problem: Dwg T0100-14 shows the proposals at the junction of Dolphin's Barn and Rehoboth Road, and at the junction of Dolphin's Barn and South Circular Road. The drawings indicate that the existing left-turn from Dolphin's Barn (southbound) to South Circular Road is to be removed, while also showing a termination of the bus lane to facilitate the left-turn from Dolphin's Barn to Rehoboth Road. The proximity of both junctions to each other along Dolphin's Barn could lead to drivers mistakenly assuming that the termination of the bus lane for the turn to Rehoboth Road is also for left-turning to South Circular Road. Given that the left turn from Dolphin's Barn to Parnell Road is also prohibited (this would be the next available left turn after South Circular Road) there is an increased risk of drivers ignoring the restriction as well as potentially erroneously assuming the restriction is not present, and an associated risk of drivers using Rehoboth Road as a rat-run.

Recommendation: The design team should clarify the rationale for the access restrictions. Consideration should be given to retaining the left-turning movement to South Circular Road.

3.2 Comments/Notes

3.2.1 Comment: Incorrect Pedestrian Crossing Stagger

Location: Drimnagh Road/Kildare Road junction, Parnell Road/Dolphin's Barn junction and Crumlin Road/Herberton Road junctions.

Comment: Dwgs T0100-10, 13 and 14 illustrate pedestrian crossing proposals at the three junctions referred to above. In many instances these are existing junctions that are locally impacted by the proposals, and the existing crossing arrangements are to be retained. However at these three locations the stagger of the pedestrian crossings is contrary to best practice, with pedestrians facing away from oncoming traffic flow as they move from one crossing arm to another.

3.2.2 General Notes

Accident data was not available for the years 2014-present (inclusive). It is recommended that a more comprehensive dedicated accident investigation study be carried out for the route at detailed design stage.

A Stage 2 Road Safety Audit is recommended for the scheme.

No details of specific design elements such as drainage, lighting, surfacing, traffic signal arrangements, etc. were provided to the audit team – these items should form part of any Stage 2 audit.

4 Audit Team Statement

We certify that we have examined the drawing listed in the Appendix to this Report. The examination has been carried out with the sole purpose of identifying any features of the design that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report, together with associated safety improvement suggestions, which we recommend should be studied for implementation. The Auditors have not been involved with the scheme design.

Shane FitzGerald; …….

Signed:

Date: 23 November 2016

Thomas Connell, BEng MCIHT

Signed:

Date: 23 November 2016

Appendix A – Drawings Received

Drawing Title	Drawing Reference
General Arrangement	T0100-00 to 17 (pdf)

Appendix B – Safety Audit Feedback Form

Scheme: Greenhills to City Centre Bus Corridor Options Study	Location: Dublin City Centre & environs
Audit Stage: Stage 1 Road Safety Audit	Date Audit Completed: 17 November 2016

	To be completed by Designer/Contractor					To be completed by Audit Team Leader	
Problem	Problem Accepted		Recommended Measure Accepted		Designers Response	Alternative Measures Accepted	
	Yes	No	Yes	No		Yes	No
2.1.1	✓		✓		The recommended measure will be considered at the detailed design stage.		
2.1.2	✓		✓		The recommended measure will be considered at the detailed design stage.		
2.1.3	✓		✓		The recommended measure will be considered at the detailed design stage.		
2.1.4	✓		✓		The detail of interface between buses and cyclists at stops will be developed at the detailed design stage.		
2.1.5	✓		✓		A 2m footpath is maintained along the entire length of the route. Drawings have been updated to address the pinch point identified by the auditors.		
2.1.6	✓		✓		The recommended measure will be considered at the detailed design stage.		
2.1.7	✓		✓		Drawings have been updated to show box turns or jug turns for right turning cyclists at signalised junctions along the route		
2.1.8	✓		✓		The recommended measure will be considered at the detailed design stage.		
2.1.9	✓		✓		The recommended measure will be considered at the detailed design stage.		
3.1.1	✓		✓		Buses will be permitted to turn left at this location and the junction has been designed accordingly.		
3.1.2	✓		✓		The recommended measure will be considered will be considered in consultation with IT Tallaght at the detailed design stage.		

3.1.3	✓	✓	Drawings have been updated to move the location of the cyclist merge further south. The detail of this merge will be developed further at the next design stage.
3.1.4	✓	✓	The drawings have been updated to show a banned right turn into the Old Greenhills Road.
3.1.5	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.6	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.7	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.8	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.9	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.10	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.11	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.12	✓	✓	Drawings have been updated to remove the abrupt termination of cycle facilities at Drimnagh Road/Kildare Road junction. A minimum cycle lane width of 2m has been maintained throughout the scheme. The detail of transitions between where dedicated cycle facilities are proposed and where none are proposed will be considered at the detailed design stage.
3.1.13	✓	✓	The recommended measure will be considered at the detailed design stage.
3.1.14	✓	✓	Drawings have been updated to remove the short sections of bus lane in the middle of the junction to generally return the junction to its current configuration which is seen to work without issue.

3.1.15	✓		✓	Drawings have been updated to show a single lane turning right from High Street into Nicholas Street
3.1.16	✓		✓	Drawings have been updated to terminate the bus lane just in advance of St. Peters Road to allow for a left turning vehicle.
3.1.17		X	X	Access restrictions have been proposed to facilitate bus lanes to the stop line in each direction. Alternative routes are available for each of the banned movements, with minimal diversion required as a result. As such the proposals are considered appropriate. The drawings have been updated to show the northern access to SuperValu and a break in the bus lane to facilitate same.
3.1.18	✓		✓	Access restrictions have been proposed to facilitate bus lanes to the stop line. Appropriate signage and linemarkings will be proposed to remove confusion over where the turn ban is in place. An alternative route for traffic wishing to get to South Circular Road is in place via Donore Avenue. Given the width restriction along Rehoboth Place, consideration will be given to making this road one-way northbound at the next design stage i.e. Rehoboth Place would be an exit only onto Cork Street.
3.2.1	✓		✓	The recommended measure will be considered at the detailed design stage.

Signed		Designer	Date	24 Nov 2016
Signed		Audit Team Leader	Date	24 Nov 2016
Signed	.....	Employer	Date	.....