

Appendix A – Multi Criteria Analysis Tables

Table 1: SAS 1 Route 1A

MCA criteria	Assessment Sub-Criteria	Scheme Option 1A1	Scheme Option 1A2
Economy	1.a. Capital Cost	Capital Cost: €1.56M Length: 1.5km Cost/Km: 1.04M Indicative Scheme Infrastructure Works Cost - € 1.18M Land Acquisition Cost - € 0.38M - 252 sq.m. of residential land	Capital Cost: €1.56M Length: 1.5km Cost/Km: 1.04M Indicative Scheme Infrastructure Works Cost - € 1.18M Land Acquisition Cost - € 0.38M - 252 sq.m. of residential land
	Rank		
	1.b. Transport Reliability and Quality (Journey Time)	Journey Time: 4 mins both directions Length: 1.5km No. of signalised intersections: 2	Journey Time: 5 mins both directions Length: 1.5km No. of signalised intersections: 2
	Rank		
Integration	2.a. Land Use Integration	Integrates with existing / planned residential, medical and leisure uses in this established area.	Integrates with existing / planned residential, medical and leisure uses in this established area.
	Rank		
	2.b. Residential Population and Employment Catchments	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.
	Rank		
	2.c. Transport Network Integration	Potential for interchange with the Luas Green Line and neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	Potential for interchange with the Luas Green Line and neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.
	Rank		
	2.d. Cycle Network Integration	Both directions of route 1A align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1A align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.
	Rank		
2.e. Traffic Network Integration	This scheme option would consolidate existing facilities. Resurfacing would be required along with the provision of segregated cycle lanes both inbound and outbound. There are no parking spaces identified in this section which would be affected by the proposed works.	This scheme option would provide a new streetscape which would increase pedestrian facilities by widening the northern footpath whilst maintaining full bus and cyclist facilities. This is achieved by extending the outbound one lane configuration before widening to two lanes. There are no parking spaces identified in this section which would be affected by the proposed works. The extension of one lane would have some impact upon the existing traffic network.	
Rank			

Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)	Both scheme options follow the same route and hence, serve the same trip attractors.	Both scheme options follow the same route and hence, serve the same trip attractors.
	Rank		
	3.b. Deprived Geographic Areas	This option primarily serves areas considered affluent, marginally above and marginally below as identified in the Pobal Deprivation Index.	This option primarily serves areas considered affluent, marginally above and marginally below as identified in the Pobal Deprivation Index.
	Rank		
Safety	4.a. Road Safety	No. of Junctions: 2 <u>Turning movements:</u> Inbound: No turning movements required Outbound: 1 right turn movement required	No. of Junctions: 2 <u>Turning movements:</u> Inbound: No turning movements required Outbound: 1 right turn movement required Scheme Option 1A2 would increase footpath width, providing safer facilities for pedestrians and those accessing public transport. Hence, this scheme option scores higher.
	Rank		
Physical Activity	5.a Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.
	Rank		
Environment	6.a. Archaeology and Cultural Heritage	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.
	Rank		
	6.b. Architectural Heritage	1 protected structure fronting onto Stillorgan Road.	1 protected structure fronting onto Stillorgan Road.
	Rank		
	6.c. Flora & Fauna	No appreciable impacts	No appreciable impacts
	Rank		
	6.d. Soils and Geology	No appreciable impacts	No appreciable impacts
	Rank		
	6.e. Hydrology	No appreciable impacts	No appreciable impacts
	Rank		
	6.f. Landscape and Visual	Scheme Option 1A2 scored higher as it would provide a wider pedestrian facility, improving the streetscape in front of Donnybrook Parish Church	Scheme Option 1A2 scored higher as it would provide a wider pedestrian facility, improving the streetscape in front of Donnybrook Parish Church
	Rank		
	6.g. Air Quality	No appreciable impacts	No appreciable impacts
	Rank		
6.h. Noise & Vibration	No appreciable impacts	No appreciable impacts	
Rank			
6.i. Land Use Character	No appreciable impacts	No appreciable impacts	
Rank			

Table 2: SAS 1 Route 1B

MCA criteria	Assessment Sub-Criteria	Scheme Option 1B1	Scheme Option 1B2	Scheme Option 1B3
Economy	1.a. Capital Cost	Capital Cost: €0.33M Length: 0.3km Cost/Km: 1.1M Indicative Scheme Infrastructure Works Cost - € 0.33M Land Acquisition Cost - € 0 - 0 sq.m. of residential land	Capital Cost: €0.57M Length: 0.3km Cost/Km: 1.9M Indicative Scheme Infrastructure Works Cost - € 0.45M Land Acquisition Cost - € 0.12M - 81 sq.m. of land	Capital Cost: €0.87M Length: 0.3km Cost/Km: 2.9M Indicative Scheme Infrastructure Works Cost - € 0.49M Land Acquisition Cost - € 0.38m - 252 sq.m. of land
	Rank			
	1.b. Transport Reliability and Quality (Journey Time)	Journey Time: 2 mins both directions Length: 0.3km No. of signalised intersections: 1	Journey Time: 1 mins inbound and 2 mins outbound Length: 0.3km No. of signalised intersections: 1	Journey Time: 1 mins inbound and outbound Length: 0.3km No. of signalised intersections: 1
	Rank			
Integration	2.a. Land Use Integration	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area.
	Rank			
	2.b. Residential Population and Employment Catchments	All scheme options follow the same route and hence, serve the same trip attractors.	All scheme options follow the same route and hence, serve the same trip attractors.	All scheme options follow the same route and hence, serve the same trip attractors.
	Rank			
	2.c. Transport Network Integration	All scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	All scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	All scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.
	Rank			
	2.d. Cycle Network Integration	Both directions of route 1B align with primary route 12 as identified in the GDA Cycle Network Plan. Cyclist share with buses in both directions. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1B align with primary route 12 as identified in the GDA Cycle Network Plan. Scheme Option 1B2 scores higher than 1B1 due to the proposed segregated inbound cycle lane. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1B align with primary route 12 as identified in the GDA Cycle Network Plan. Scheme Option 1B3 scores highest due to the proposed segregated inbound and outbound cycle lanes. See report Section 2 Figure 2.2 and 2.3.
	Rank			
2.e. Traffic Network Integration	Scheme Option 1B1 proposals include cyclists and buses sharing exclusive lanes on both the inbound and outbound carriageways throughout the section. The provision of the exclusive lanes would require reducing the number of outbound traffic lanes from two to one. There are no parking spaces identified in this section which would be affected by the proposed works.	Scheme Option 1B2 proposals include segregated cyclist facilities and an exclusive bus lane on the inbound carriageway. On the outbound carriageway cyclists and buses share an exclusive lane. The provision of the exclusive lanes would require reducing the number of outbound traffic lanes from two to one. There are no parking spaces identified in this section which would be affected by the proposed works.	Scheme Option 1B3 proposals include segregated cyclist and bus facilities inbound and outbound. The provision of the exclusive lanes would require reducing the number of outbound traffic lanes from two to one. There are no parking spaces identified in this section which would be affected by the proposed works.	
Rank				

Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)	All scheme options follow the same route and hence, serve the same trip attractors.	All scheme options follow the same route and hence, serve the same trip attractors.	All scheme options follow the same route and hence, serve the same trip attractors.
	Rank			
	3.b. Deprived Geographic Areas	This option primarily serves areas considered marginally above as identified in the Pobal Deprivation Index.	This option primarily serves areas considered marginally above as identified in the Pobal Deprivation Index.	This option primarily serves areas considered marginally above as identified in the Pobal Deprivation Index.
	Rank			
Safety	4.a. Road Safety	No. of Junctions: 1 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Scheme Option 1B1 provides the lowest protection for cyclists, who share with buses inbound and outbound.	No. of Junctions: 1 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Scheme Option 1B2 is safer than 1B1 due to the segregation of cyclists and buses in the inbound direction.	No. of Junctions: 1 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Scheme Option 1B3 is the safest option due to the segregation of cyclists and buses in the inbound and outbound direction.
	Rank			
Physical Activity	5.a Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.
	Rank			
Environment	6.a. Archaeology and Cultural Heritage	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.
	Rank			
	6.b. Architectural Heritage	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank			
	6.c. Flora & Fauna	Scheme Option 1B1 would impact on approximately existing tree.	Scheme Option 1B2 would impact on approximately two existing trees.	Scheme Option 1B3 would impact on approximately two existing trees.
	Rank			
	6.d. Soils and Geology	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank			
	6.e. Hydrology	No appreciable impacts	No appreciable impacts	No appreciable impacts
	Rank			
	6.f. Landscape and Visual	Road widening would impact upon approximately one tree, affecting streetscape.	Road widening and landtake would impact upon approximately two trees, affecting streetscape. However, inbound cycle lane provides improved multi-modal streetscape.	Road widening and landtake would impact upon approximately two trees, affecting streetscape. However, inbound and outbound cycle lanes provide improved multi-modal streetscape.
	Rank			
	6.g. Air Quality	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby improving air quality.	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby improving air quality.	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby improving air quality.
	Rank			
6.h. Noise & Vibration	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby reducing noise and vibration.	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby reducing noise and vibration.	All scheme options would require reducing the number of outbound traffic lanes from two to one, thereby reducing noise and vibration.	
Rank				

	6.i. Land Use Character	No existing on-street parking.	No existing on-street parking. On-street loading bay maintained. Some impact on adjacent parking.	No existing on-street parking. On-street loading bay maintained. Some impact on adjacent parking.
	Rank			

Table 3: SAS 1 Route 1C

MCA criteria	Assessment Sub-Criteria	Scheme Option 1C1	Scheme Option 1C2
Economy	1.a. Capital Cost	<p>Indicative Scheme Infrastructure Works Cost</p> <ul style="list-style-type: none"> - € 0.0715M <p>Land Acquisition Cost</p> <ul style="list-style-type: none"> - € 0 - 0 sq.m. of residential land 	<p>Indicative Scheme Infrastructure Works Cost</p> <ul style="list-style-type: none"> - € 0.275M <p>Land Acquisition Cost</p> <p>In 2013, 2 no. properties (No. 30-32 and 34 Main Street, Donnybrook) were costed for full acquisition. The combined estimated total price for full acquisition of both properties was €2,725,000. There are a further 6 properties within and bordering 1C2 that would require consideration for acquisition to implement the configuration of Scheme Option 1C2.</p>
	Rank		
	1.b. Transport Reliability and Quality (Journey Time)	<p>Journey Time: 60 - 90 seconds both directions</p> <p>Length: 0.11km</p> <p>No. of signalised intersections: 0</p>	<p>Journey Time: 30 - 60 seconds both directions</p> <p>Length: 0.11km</p> <p>No. of signalised intersections:0</p>
	Rank		
Integration	2.a. Land Use Integration	Maintains existing land use characteristics.	Street widening will require landtake which will affect buildings to the east of Donnybrook. The buildings are zoned as Z4: To provide for and improve mixed-services facilities. Potential for likely significant impacts on property owners and businesses.
	Rank		
	2.b. Residential Population and Employment Catchments	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.
	Rank		
	2.c. Transport Network Integration	Both scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	Both scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.
	Rank		
	2.d. Cycle Network Integration	<p>Both directions of route 1C align with primary route 12 as identified in the GDA Cycle Network Plan.</p> <p>See report Section 2 Figure 2.2 and 2.3.</p> <p>This scheme option proposes a shared bus and cycle lane in both directions and hence, scores lower than Scheme Option 1C2.</p>	<p>Both directions of route 1C align with primary route 12 as identified in the GDA Cycle Network Plan.</p> <p>See report Section 2 Figure 2.2 and 2.3.</p> <p>This scheme option proposes segregated inbound and outbound cycle lanes.</p>
	Rank		
2.e. Traffic Network Integration	Both scheme options would maintain one inbound traffic lane and reduce the existing two outbound traffic lanes to one.	Both scheme options would maintain one inbound traffic lane and reduce the existing two outbound traffic lanes to one.	
Rank			
Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)	Both scheme options follow the same route and hence, serve the same trip attractors.	Both scheme options follow the same route and hence, serve the same trip attractors.
	Rank		
	3.b. Deprived Geographic Areas	This option primarily serves an area considered affluent in the Pobal Deprivation Index.	This option primarily serves an area considered affluent in the Pobal Deprivation Index.
	Rank		

Safety	4.a. Road Safety	<p>No. of Junctions: 0 (1 pedestrian crossing)</p> <p><u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Scheme Option 1C1 would mix cyclists with buses and hence, scores lower.</p>	<p>No. of Junctions: 0 (1 pedestrian crossing)</p> <p><u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Scheme Option 1C2 would segregate buses and cyclists and hence, scores higher.</p>
	Rank		
Physical Activity	5.a Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.
	Rank		
Environment	6.a. Archaeology and Cultural Heritage	The following records are located adjacent to Donnybrook Rd; Enclosure DU018-060021, 16th/17th century DU018-060001, Ecclesiastical enclosure DU018-060009, House (fortified) DU018-060020 and Windmill DU018-060006. As further information is not available on the state of these records, it is unclear if they still exist. It is not likely that significant environmental affects will occur from the extent of the proposed works. An 18th/19th Century house (DU018-061) is also recorded on the corner of Morehampton Rd and Belmont Avenue and is marked as a Site of Archaeological Interest in the Dublin City Development Plan (DCDP) 2016-2022. Donnybrook Rd is also within a Zone of Archaeological Interest as designated in the DCDP. Ground works may therefore result in impacts.	The following records are located adjacent to Donnybrook Rd; Enclosure DU018-060021, 16th/17th century DU018-060001, Ecclesiastical enclosure DU018-060009, House (fortified) DU018-060020 and Windmill DU018-060006. As further information is not available on the state of these records, it is unclear if they still exist. It is not likely that significant environmental affects will occur from the extent of the proposed works. An 18th/19th Century house (DU018-061) is also recorded on the corner of Morehampton Rd and Belmont Avenue and is marked as a Site of Archaeological Interest in the Dublin City Development Plan (DCDP) 2016-2022. Donnybrook Rd is also within a Zone of Archaeological Interest as designated in the DCDP. Ground works may therefore result in impacts.
	Rank		
	6.b. Architectural Heritage	The houses along Belmont Avenue and Mount Eden Road are within an Architectural Conservation Area as illustrated in the DCDP zoning maps. Three protected structures are also indicated on the DCDP maps; a house at 2 Belmont Avenue, The Old Magdalene Laundry at The Crescent and The Irish Sisters of Charity Chapel at The Crescent. Significant impacts are not likely.	The houses along Belmont Avenue and Mount Eden Road are within an Architectural Conservation Area as illustrated in the DCDP zoning maps. Three protected structures are also indicated on the DCDP maps; a house at 2 Belmont Avenue, The Old Magdalene Laundry at The Crescent and The Irish Sisters of Charity Chapel at The Crescent. Significant impacts are not likely.
	Rank		
	6.c. Flora & Fauna	There are no trees along Route 1C which could be impacted.	There are no trees along Route 1C which could be impacted.
	Rank		
	6.d. Soils and Geology	No appreciable impacts	No appreciable impacts
	Rank		
	6.e. Hydrology	No appreciable impacts.	No appreciable impacts
	Rank		
6.f. Landscape and Visual	Maintains existing streetscape of Donnybrook Village.	No protected views will be affected. Widening of the street (R138) including the landtake of building fronts may have a significant impact due to the removal of well known, recognised establishments in a mature streetscape that have been present for decades.	
Rank			
6.g. Air Quality	There is expected to be minimal change in air quality due to increased bus load. Impacts may occur from construction and alteration of buildings.	There is expected to be minimal change in air quality due to increased bus load. Impacts may occur from construction and alteration of buildings.	
Rank			

	6.h. Noise & Vibration	There is expected to be minimal change in noise and vibration due to increased bus load. Short term impacts may occur from construction and demolition of buildings.	There is expected to be minimal change in noise and vibration due to increased bus load. Short term impacts may occur from construction and demolition of buildings.
	Rank		
	6.i. Land Use Character	There are no parking spaces along Route 1C which would be affected by the proposed works.	There are no parking spaces along Route 1C which would be affected by the proposed works.
	Rank		

Table 4 SAS 1 Route 1D

MCA criteria	Assessment Sub-Criteria	Scheme Option 1D1	Scheme Option 1D2
Economy	1.a. Capital Cost	Capital Cost: €1.38M Length: 1km Cost/Km: 1.38M Indicative Scheme Infrastructure Works Cost - € 1.38M Land Acquisition Cost - € 0 - 0 sq.m. of residential land	Capital Cost: €1.38M Length: 1km Cost/Km: 1.38M Indicative Scheme Infrastructure Works Cost - € 1.38M Land Acquisition Cost - € 0 - 0 sq.m. of residential land
	Rank		
	1.b. Transport Reliability and Quality (Journey Time)	Journey Time: 4 mins both directions Length: 1km No. of signalised intersections: 4	Journey Time: 4 mins both directions Length: 1km No. of signalised intersections: 4
	Rank		
Integration	2.a. Land Use Integration	Integrates with existing / planned residential, educational, medical and leisure uses in this established area. However, Scheme Option 1D2 has been designed to take consideration of the areas zoning as a Residential Neighbourhood (Conservation Area) by the Dublin City Development Plan 2016-2022.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area. Scheme Option 1D2 has been designed to take consideration of the areas zoning as a Residential Neighbourhood (Conservation Area) by the Dublin City Development Plan 2016-2022.
	Rank		
	2.b. Residential Population and Employment Catchments	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.
	Rank		
	2.c. Transport Network Integration	Both scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	Both scheme options have potential for interchange with neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.
	Rank		
	2.d. Cycle Network Integration	Both directions of route 1D align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1D align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.
	Rank		
2.e. Traffic Network Integration	Both scheme options maintain one lane of traffic in both directions.	Both scheme options maintain one lane of traffic in both directions.	
	Rank		
Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)	Both scheme options follow the same route and hence, serve the same trip attractors.	Both scheme options follow the same route and hence, serve the same trip attractors.
	Rank		

	3.b. Deprived Geographic Areas	This option primarily serves areas considered affluent and very affluent in the Pobal Deprivation Index.	This option primarily serves areas considered affluent and very affluent in the Pobal Deprivation Index.
	Rank		
Safety	4.a. Road Safety	No. of Junctions: 4 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required	No. of Junctions: 4 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required
	Rank		
Physical Activity	5.a Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.
	Rank		
Environment	6.a. Archaeology and Cultural Heritage	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.
	Rank		
	6.b. Architectural Heritage	Approx. 75 protected structures front onto Morehampton Road.	Approx. 75 protected structures front onto Morehampton Road.
	Rank		
	6.c. Flora & Fauna	The installation of cycle lanes running adjacent to the carriageway would require the removal of approximately 38 existing trees along the route segment. It unlikely that these trees are of roosting importance for bats.	This scheme option would remove approximately 15 trees along this route segment. It unlikely that these trees are of roosting importance for bats.
	Rank		
	6.d. Soils and Geology	No appreciable impacts	No appreciable impacts
	Rank		
	6.e. Hydrology	No appreciable impacts.	No appreciable impacts
	Rank		
	6.f. Landscape and Visual	The installation of cycle lanes adjacent to the carriageway would require the removal of the majority of the existing treeline that frames the route segment, impacting upon the streetscape.	This option would have a lesser impact on existing treeline which forms the streetscape.
	Rank		
	6.g. Air Quality	Existing route carries bus traffic already.	Existing route carries bus traffic already.
Rank			
6.h. Noise & Vibration	Existing route carries bus traffic already.	Existing route carries bus traffic already.	
Rank			
6.i. Land Use Character	Both scheme options require the removal of the majority of on-street car parking.	Both scheme options require the removal of the majority of on-street car parking.	
Rank			

Table 5: SAS 1 Route 1E

MCA criteria	Assessment Sub-Criteria	Scheme Option 1E1	Scheme Option 1E2	Scheme Option 1E3
Economy	1.a. Capital Cost	Capital Cost: €0.99M Length: 0.55km Cost/Km: 1.8M Indicative Scheme Infrastructure Works Cost - €0.99M Land Acquisition Cost - € 0 - 0 sq.m. of residential land	Capital Cost: €1.63M Length: 0.55km Cost/Km: 2.96M Indicative Scheme Infrastructure Works Cost - € 1.63M Land Acquisition Cost - € 0 - 0 sq.m. of residential land	Capital Cost: €0.99M Length: 0.55km Cost/Km: 1.8M Indicative Scheme Infrastructure Works Cost - €0.99M Land Acquisition Cost - € 0 - 0 sq.m. of residential land
	Rank			
	1.b. Transport Reliability and Quality (Journey Time)	Journey Time: 3 mins both directions Length: 0.55km No. of signalised intersections: 4	Journey Time: 3 mins both directions Length: 0.55km No. of signalised intersections: 4	Journey Time: 3 mins both directions Length: 0.55km No. of signalised intersections: 4
	Rank			
Integration	2.a. Land Use Integration	Integrates with existing / planned residential, educational, medical and leisure uses in this established area. However, Scheme Option 1E3 has been designed to take consideration of part of the routes zoning as a Residential Neighbourhood (Conservation Area) by the Dublin City Development Plan 2016-2022.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area. However, Scheme Option 1E3 has been designed to take consideration of part of the routes zoning as a Residential Neighbourhood (Conservation Area) by the Dublin City Development Plan 2016-2022.	Integrates with existing / planned residential, educational, medical and leisure uses in this established area. Scheme Option 1E3 has been designed to take consideration of part of the routes zoning as a Residential Neighbourhood (Conservation Area) by the Dublin City Development Plan 2016-2022.
	Rank			
	2.b. Residential Population and Employment Catchments	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.	Both scheme options use the same bus stops, hence the residential and employment catchments are the same.
	Rank			
	2.c. Transport Network Integration	Potential for interchange with the Luas Green Line and neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	Potential for interchange with the Luas Green Line and neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.	Potential for interchange with the Luas Green Line and neighbouring Core Bus Corridors i.e. Dun Laoghaire to City Centre CBC.
	Rank			
	2.d. Cycle Network Integration	Both directions of route 1E align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1E align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.	Both directions of route 1E align with primary route 12 as identified in the GDA Cycle Network Plan. See report Section 2 Figure 2.2 and 2.3.
	Rank			
2.e. Traffic Network Integration	This scheme option would consolidate the existing facilities. Resurfacing would be required along with the provision of segregated bus and cycle lanes both inbound and outbound.	This scheme option proposes using bus gates at both ends of Sussex Road to separate buses, cyclists and other forms of traffic along either Sussex Road or Leeson Street Upper i.e. to convert either of these streets into an exclusively bus and cyclist only section. As the buses approach the bus gates, traffic signals stop traffic which allows buses and cyclists priority access through the junction. This arrangement would involve either outbound or inbound (depending on whether Leeson Street	This scheme option would extend the one way traffic lane further on both the inbound and outbound section before widening to two lanes. As a result, this option would have some impact upon the existing traffic flows. Resurfacing would be required along with the provision of segregated bus and cycle lanes both inbound and outbound.	

			Upper or Sussex Road is used for bus and cyclist exclusively) buses and cyclists to cross into/out of the exclusive section. This priority movement (buses and cyclists) would require traffic in both directions to be stop to facilitate the cross-over at either end of Sussex Road, causing a significant impact on traffic. Furthermore, an exclusive bus and cycle street would remove or restrict access for traffic to the existing side streets off either Leeson Street Upper or Sussex Road.	
	Rank			
Accessibility & Social Inclusion	3.a. Key Trip Attractors (Education/Health/Commercial/Employment)	Both scheme options follow the same route and hence, serve the same trip attractors.	Both scheme options follow the same route and hence, serve the same trip attractors.	Both scheme options follow the same route and hence, serve the same trip attractors.
	Rank			
	3.b. Deprived Geographic Areas	This option primarily serves areas considered affluent, very affluent and marginally above in the Pobal Deprivation Index.	This option primarily serves areas considered affluent, very affluent and marginally above in the Pobal Deprivation Index.	This option primarily serves areas considered affluent, very affluent and marginally above in the Pobal Deprivation Index.
	Rank			
Safety	4.a. Road Safety	No. of Junctions: 4 <u>Turning movements:</u> Inbound: No turning movements required Outbound: No turning movements required	No. of Junctions: 4 <u>Turning movements:</u> Inbound: 1 turning movements required Outbound: 1 turning movements required Due to the segregation of buses and cyclists from vehicular traffic along different routes, Scheme Option 1E2 offers greater safety benefits over other scheme options.	No. of Junctions: 4 <u>Tuning movements:</u> Inbound: No turning movements required Outbound: No turning movements required Due the reduction in traffic lanes from two lanes to one lane along parts of the route, there is an improvement in safety for road users.
	Rank			
Physical Activity	5.a Physical Activity	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.	This criterion relates to the health benefits derived from using different transport modes. The subject scheme options under consideration relate to the same mode of travel (bus). As such, this criterion will not produce any relative differences between the options.
	Rank			
Environment	6.a. Archaeology and Cultural Heritage	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.	Route 1 is in immediate proximity to 15 recorded monuments , including Stephen's Green, which is a National Monument . This scheme option would not impact on any of the recorded monuments.
	Rank			
	6.b. Architectural Heritage	Approx. 65 protected structures front onto Leeson St Upper.	Approx. 65 protected structures front onto Leeson St Upper.	Approx. 65 protected structures front onto Leeson St Upper.
	Rank			
	6.c. Flora & Fauna	Some impact on existing trees (approximately 16 trees removed).	Some impact on existing trees (approximately 16 trees removed).	Lesser impact on existing trees (approximately 6 trees removed).
	Rank			
6.d. Soils and Geology	Minimum impact.	Minimum impact.	Minimum impact.	
	Rank			

	6.e. Hydrology	Route crosses the Grand Canal. No appreciable impacts expected due to designs being within existing bridge width.	Route crosses the Grand Canal. No appreciable impacts expected due to designs being within existing bridge width.	Route crosses the Grand Canal. No appreciable impacts expected due to designs being within existing bridge width.
	Rank			
	6.f. Landscape and Visual	Some impact upon trees along the route and thus streetscape along the route (approximately 16 trees removed)..	Bus only street requiring introduction of new signage and road delineation strategy. In addition, some impact on tree and thus streetscape along the route (approximately 16 trees removed).	Lesser impact on existing trees line and thus scheme options maintains a key aspect of the existing streetscape (approximately 6 trees removed)..
	Rank			
	6.g. Air Quality	Minimum impact.	Minimum impact.	Minimum impact.
	Rank			
	6.h. Noise & Vibration	Minimum impact.	Minimum impact.	Minimum impact.
	Rank			
	6.i. Land Use Character	Some parking provisions affected by scheme option.	Some parking provisions affected by the scheme option. Furthermore, an exclusive bus and cycle street would remove traffic access to parking on either Leeson Street Upper or Sussex Road.	Some parking provisions affected by the scheme option.
	Rank			

Appendix B – Data Collection

1. Study area visit

Each of the route sections were visited / driven and audited to identify any constraints which may not have been evident from maps and drawings. The site visits enabled a comprehensive evaluation of the route options in terms of their capacity to accommodate of a core bus corridor.

2. Land Use and Planning

The land use assessment was carried out using GIS and examined private and public land along the different route options. This information was used for developing cost estimates for each of the route options, based on the area and nature (public or private) of the land acquisition required. The land use assessment results are presented in the MCA tables in Appendix A.

3. Existing Bus Lanes

A map indicating the existing bus lanes throughout the CBC study area was produced to highlight sections of the corridor already capable of accommodating segregated facilities. Blue routes indicate inbound bus lanes while red routes indicated outbound bus lanes.

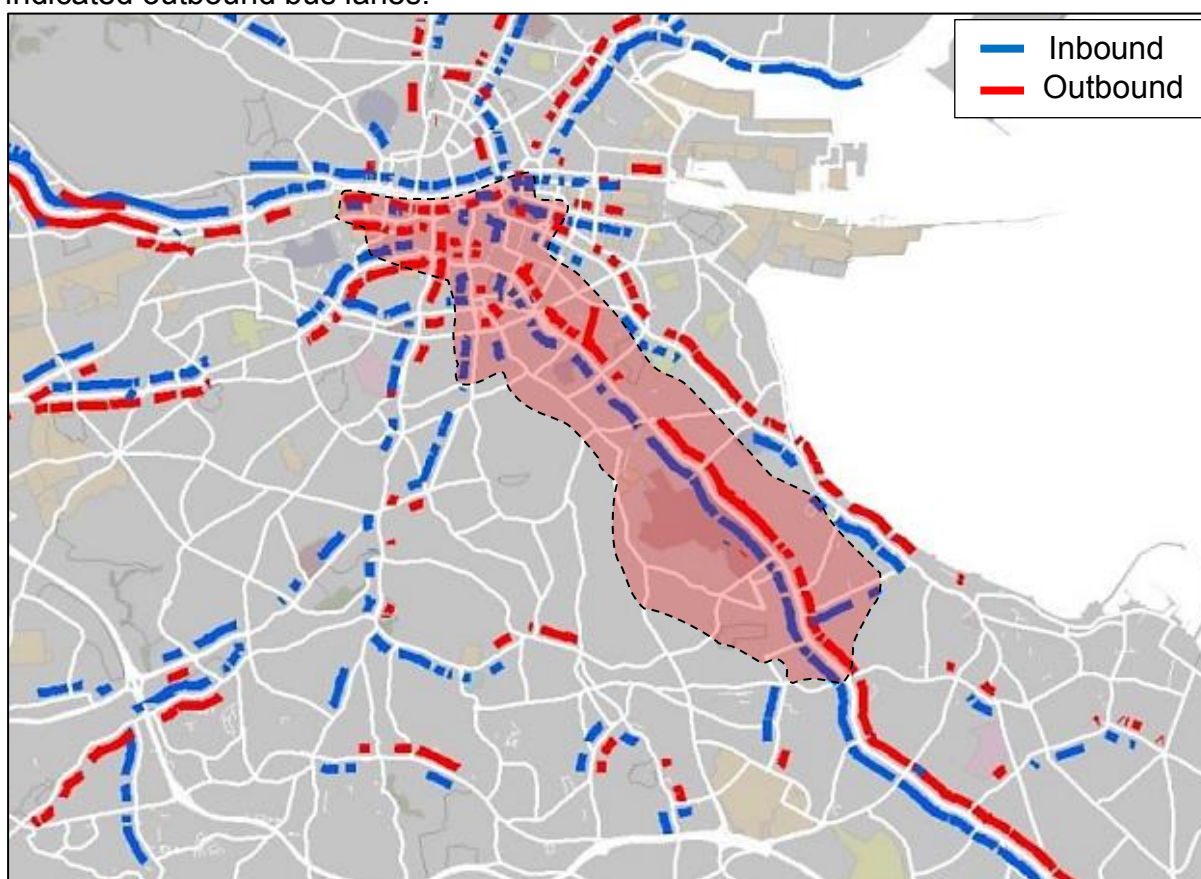


Figure 1: Existing bus lanes within the study area (Source: NTA Core Bus Network Report - Figure 4.1. Existing Bus Infrastructure – Metropolitan Area)

4. Bus Journey Times

The bus travel times for each scheme option were estimated based on a number of criteria, including;

- Length of segregated bus lane;
- Length of shared bus / traffic lane;
- Number of signalised junctions;
- Number of pedestrian crossings; and
- Number of bus stops.

Due to the large number of route options and calculations, the results of the bus journey time estimates are presented in Appendix C.

5. Road collision history

The Road Safety Authority database of personal injury accidents was examined to establish if there are any existing safety issues along the route options that were not evident from the site visits. The database provides accident records for the period 2005 to 2013; in terms of location, year, road user type involved (pedestrian, car, cyclist, motorcyclist, bus etc.), circumstances and severity of collision (minor, serious or fatal). The following bus collision history maps indicate the location of incidents along the route options identified within each Study Area Section.

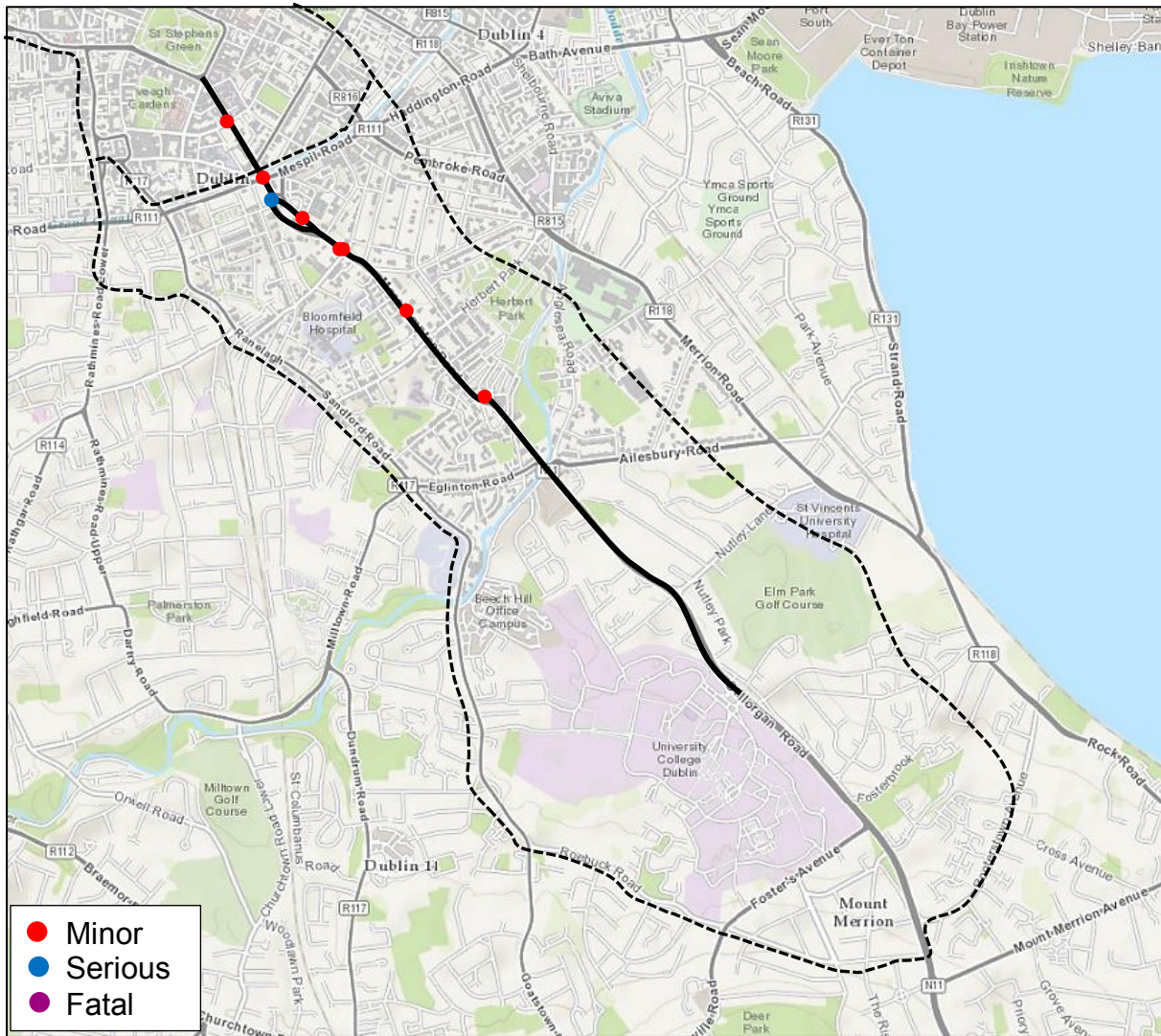


Figure 2: Bus collision history along SAS 1 route options

6. Tree surveys

Dr. Phillip Blackstock was commissioned to carry out a detailed and high-level tree survey along the route options. The tree survey assessment identified the number and approximate location of all roadside trees along the route options, as well as trees and hedges growing on adjoining grounds where their canopy extends over the carriageway. It also noted the location of those trees that have trunks or limbs close to and or within 5.1m above the carriageway. Due to the large number of drawings received, the results of the tree survey are contained in a separate stand alone document.

7. Architectural and Archaeological information

Irish Archaeological Consultancy (IAC) and Roughan & O' Donovan (ROD) provided an environmental assessment of the different route options under the following criteria:

- Archaeology and Cultural Heritage
- Architectural Heritage
- Flora & Fauna
- Soils and Geology
- Hydrology
- Landscape and Visual
- Air Quality
- Noise & Vibration
- Land Use Character

The architectural and archaeological assessment results are presented in the MCA tables in Appendix A.

8. Route Audit

A detailed assessment of each route option was carried out to identify existing facilities and constraints. The results of this assessment are contained in a report in Appendix D.

9. Parking survey

A parking survey study was carried out to identify the parking conditions in the existing road network. Each route was assessed under the following criteria:

- *Formal Parking*: On-street parking in which marked spaces has been provided. These are spaces in which the Local Authority charges an hourly rate to use.
- *Informal Parking*: On-street parking in which spaces may or may not be marked and in which the Local Authority does not charge for use.
- *Adjacent Parking*: Parking which is accessible to the general public and is located in close proximity to the street. These are spaces in which the Local Authority charges an hourly rate to use.

The results of the parking survey assessment are contained in a report in Appendix E.

10. Cost estimates

A breakdown of the cost estimation process is presented in Appendix F.

Appendix C – Bus Journey Times

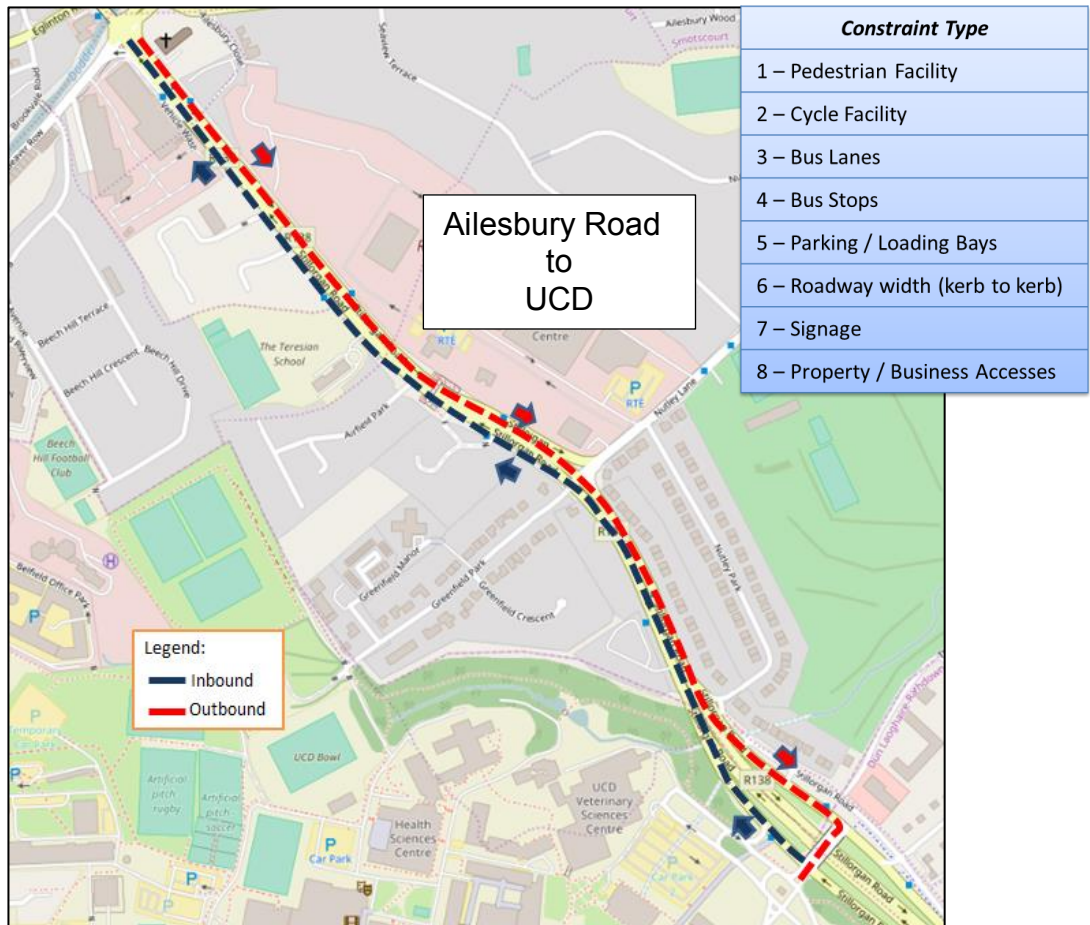
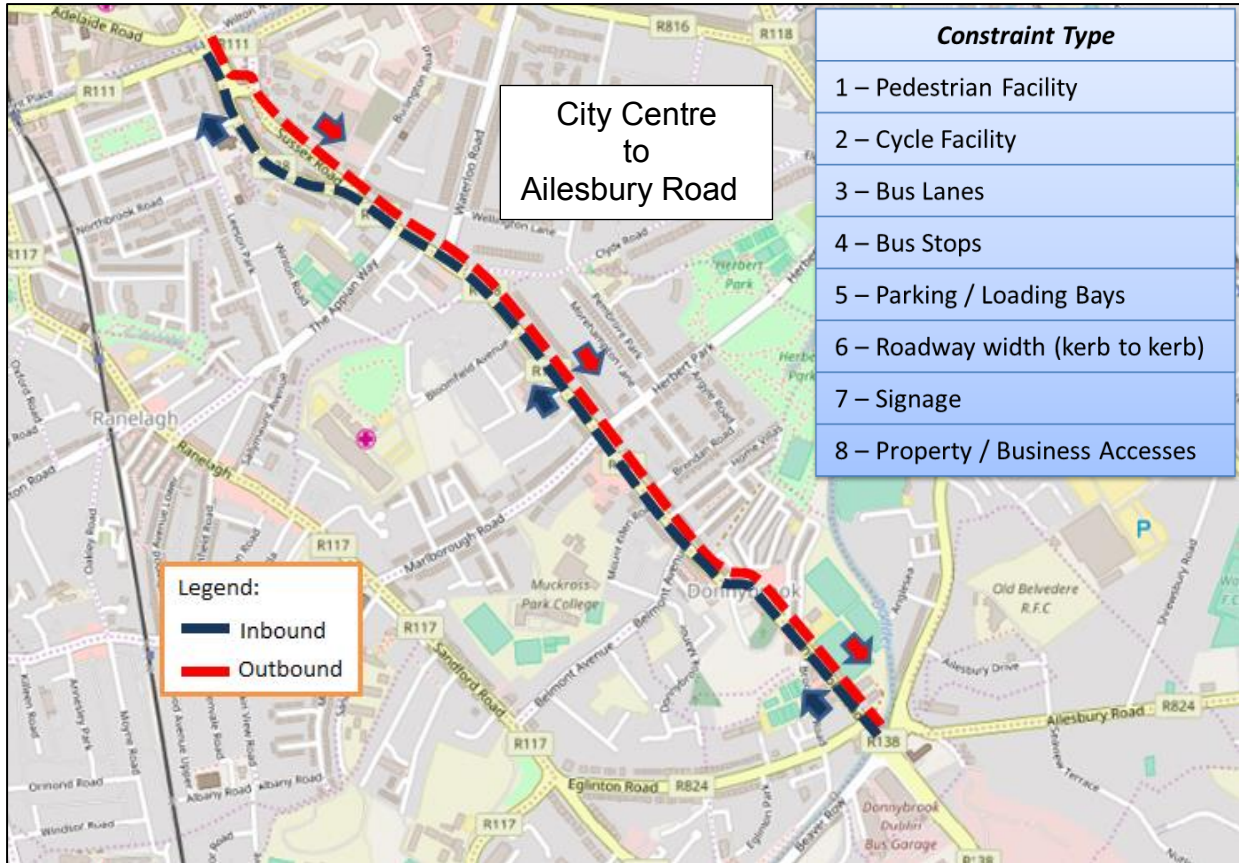


1. SAS 1 Journey Time

Route 1			Route Segment Scheme Options								
			1A inbound + outbound	1B1 inbound + outbound	1B2 inbound	1B2 outbound	1B3 inbound + outbound	1C1 inbound + outbound	1C2 inbound + outbound	1D inbound + outbound	1E inbound + outbound
	<i>KM per Hour</i>	<i>Average Delay (Minute)</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>	<i>Length (KM)/Nr Stops or Junctions</i>
Total Length			1.50	0.30	0.30	0.30	0.30	0.18	0.18	1.00	0.55
Fully Segregated Bus Lane (50kph top operational speed, travelling at average speed of 30kph)	30		1.50		0.30		0.30		0.18	1.00	0.55
Shared Bus/Cycle Lane	10			0.30		0.30		0.18			
Signalised Junction (Dwell time of 15 seconds per stop on average)		0.25	2	1	1	1	1	0	0	4	4
Pedestrian Crossing (15 second average)		0.25	0	0	0	0	0	1	1	2	0
Bus Stop Dwell Time (15 seconds average)		0.25	4	1	1	1	1	0	0	5	3
<i>Route Segment Journey Time (Nearest Minute)</i>			4	2	1	2	1	1	1	4	3

Appendix D – Route Audit

1. City Centre to UCD Route Audit



1.1 Leeson Street Upper to Wellington Place

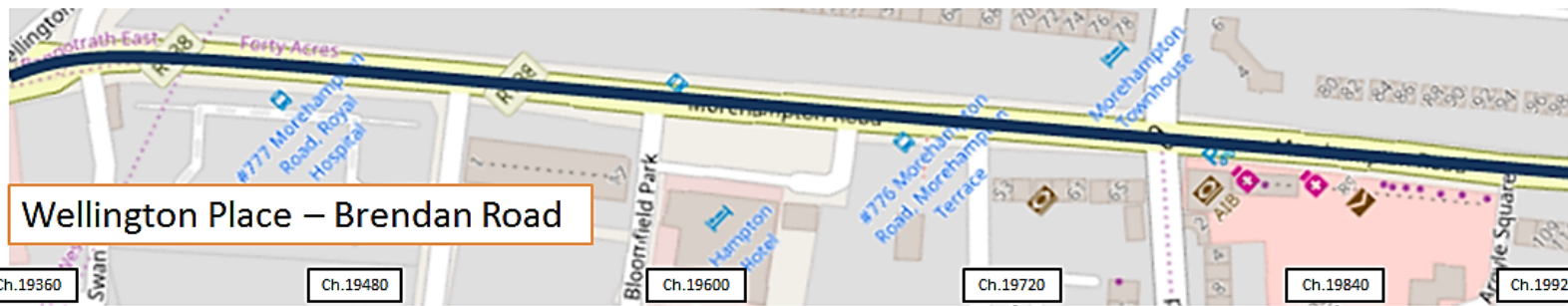
Section 1: Southbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.					
	2	On road cycle lane on Sussex Street			No cycle Lane		Cycle Lane
	3	No Bus lane		Bus Lane (along Sussex Street to Wellington Place)			
	4	No Bus Stops	Bus Stops	No Bus Stops	BS Sussex Street	No Bus Stops	Bus Stop
	5	Parking provided at various locations along this section.					
	6	+3m wide carriageway. Trees in central reserve on Leeson Street Upper.					
	7	Traffic signs at various locations					
	8	Residential and Commercial area. Accesses at numerous locations.					



Section 1: Northbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.					
	2	Cycle lane facilities along Leeson Street Upper			No cycle facilities		
	3	Bus Lane along majority of Leeson Street Upper			No Bus Lane		
	4	No Bus Stops	Bus Stop	No Bus Stops	Bus Stop	Bus Stop	Bus Stop
	5	Parking provided at various locations along this section.					
	6	+3m wide carriageway. Trees in central reserve on Leeson Street Upper.					
	7	Traffic signs at various locations					
	8	Residential and Commercial area. Accesses at numerous locations.					

1.2 Wellington Place to Brendan Road

Section 1: Southbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.					
	2	Cycle lane facilities provided					
	3	Bus Lane along the majority of this section					
	4	No Bus Stops		Bus Stop	No Bus Stops		
	5	Parking provided at several locations along this section					
	6	+3m wide carriageway					
	7	Traffic signs at various locations					
	8	Residential and Commercial area. Accesses at numerous locations.					



Section 1: Northbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.						
	2	Cycle lane facilities provided						
	3	Bus Lane along the majority of this section						
	4	No Bus Stops	Bus Stop	No Bus Stops	Bus Stop	No Bus Stops	Bus Stop	No Bus Stops
	5	Parking provided at several locations along this section						
	6	+3m wide carriageway						
	7	Traffic signs at various locations						
	8	Residential and Commercial area. Accesses at numerous locations.						

1.3 Brendan Road to Anglesea Bridge

Section 1: Southbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.					
	2	On-road Cycle lane facilities					
	3	Bus lane					
	4	Bus Stop	No Bus Stops	Bus Stop		Bus Stop	
	5	Parking (formal and informal) provided at several locations along this section					
	6	+3m wide carriageway					
	7	Traffic signs at various locations					
	8	Residential and Commercial area. Accesses at numerous locations.					



Brendan Road – Anglesea Bridge



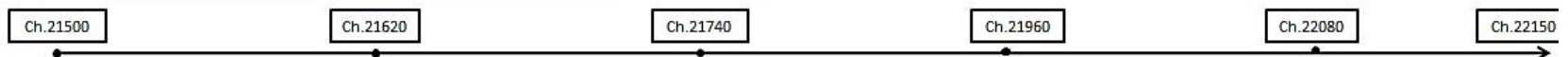
Section 1: Northbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.					
	2	On-road Cycle lane facilities		No cycle facilities		On-road Cycle lane facilities	
	3	Bus Lane	No Bus Lane		Bus Lane		
	4	No Bus Stops	Bus Stop	No Bus Stops		Bus Stop	No Bus Stops
	5	Parking (formal and informal) provided at several locations along this section					
	6	+3m wide carriageway					
	7	Traffic signs at various locations					
	8	Residential and Commercial area. Accesses at numerous locations.					

1.4 Anglesea Bridge to Nutley Lane



Section 1: North/Southbound	1	Wide Footpath Facilities along the majority of this section. Trees and street furniture located in footpath at various locations.						
	2	On road Cycle lane facilities	Segregated cycle lane facilities North and Southbound					
	3	Bus Lane on Northbound and Southbound Carriageways for entire length of this section of route						
	4	No Bus Stops	Bus Stops	No Bus Stops	Bus Stops	No Bus Stops	Bus Stops	No Bus Stops
	5	No allocated parking						
	6	Min. 10m wide carriageway. Central reserve containing trees and topsoil along majority of this section. Pedestrian flyover at RTE						
	7	Traffic signage at various locations particularly surrounding junctions						
	8	Residential accesses at various locations along this section						

1.5 Nutley Lane to UCD



Section 1: North/Southbound	1	Wide Footpath Facilities along the majority of this section.			
	2	On road Cycle lane facilities on both North and southbound carriageways			
	3	Bus lanes on North and Southbound carriageways along majority of this section			
	4	No Bus Stops	Bus Stop		Bus Stops
	5	No designated parking			
	6	Min. 10m wide carriageway. Central reserve containing trees and topsoil along majority of this section.			
	7	Traffic signage at various locations particularly surrounding junctions			
	8	Residential accesses at various locations along this section			

Appendix E – Parking Survey

1. Introduction






AECOM have been tasked by the National Transport Authority (NTA) to identify viable routes for a Core Bus Corridor which aims to provide ease of bus travel with the objective of improving bus journey times from University College Dublin (UCD) into Dublin City Centre.

This report shall seek to identify the parking conditions in the existing road network. Each route was assessed using criteria specified by the NTA. The assessment criteria for the existing parking on the separate routes are listed as follows:

- *Formal Parking*: On-street parking in which marked spaces has been provided. These are spaces in which the Local Authority charges an hourly rate to use.
- *Informal Parking*: On-street parking in which spaces may or may not be marked and in which the Local Authority does not charge for use.
- *Adjacent Parking*: Parking which is accessible to the general public and is located in close proximity to the street. These are spaces in which the Local Authority charges an hourly rate to use.
- *Taxi Facilities*: Parking which is used exclusively for taxis.

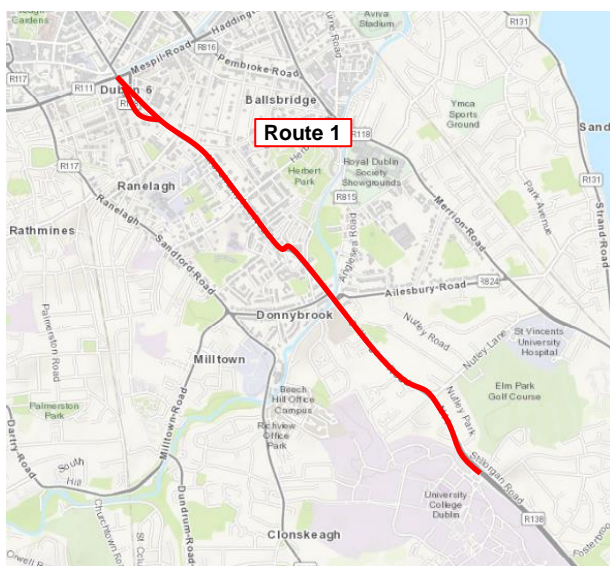
This report shall seek to quantify the impact on the existing parking conditions in the road network by the proposed scheme options.

2. Legend

-  - This colour represents sections along a route which has no parking facilities.
-  - This colour represents sections along a route which has formal parking facilities.
-  - This colour represents sections along a route which has informal parking facilities.
-  - This colour represents sections along a route which has adjacent parking facilities.
-  - This colour represents sections along a route which have taxi facilities.

3. UCD – Grand Parade

3.1.1 Route Map



3.1.2 Stillorgnan Road

The survey has shown no car parking facilities along Stillorgnan Road.

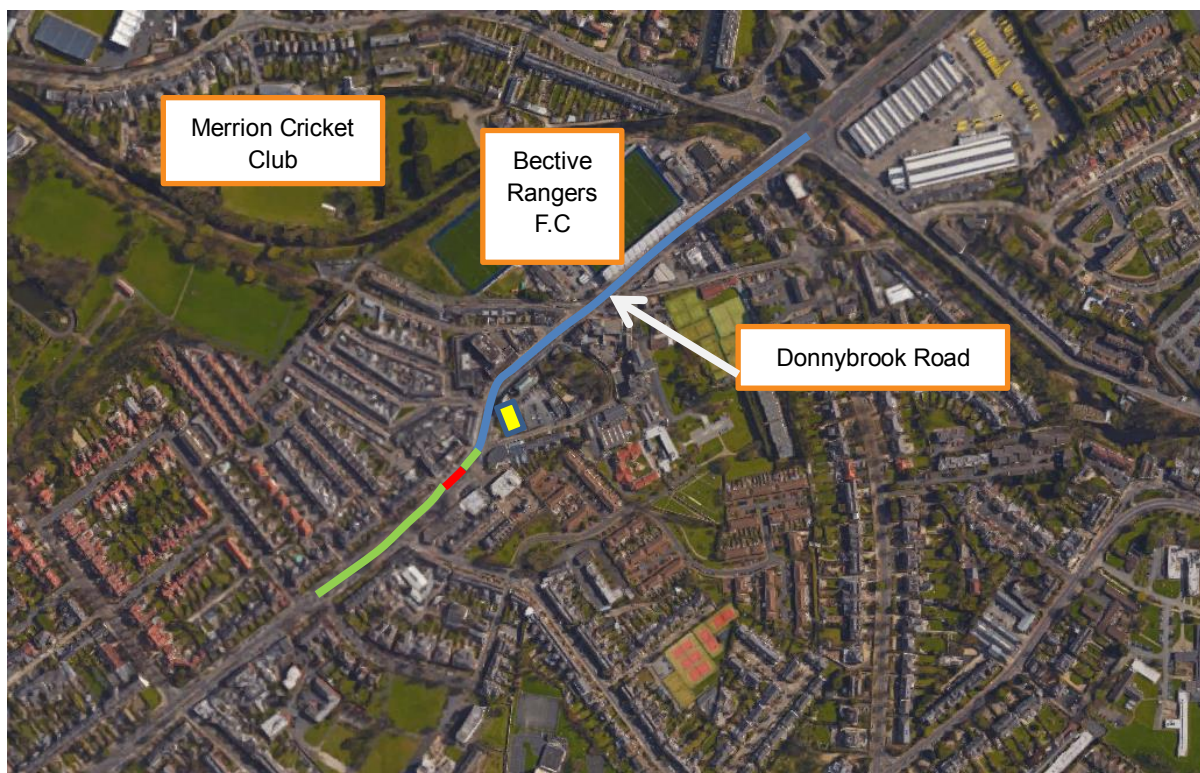
- Formal Parking – 0 Spaces.
- Informal Parking – 0 Spaces.
- Adjacent Parking – 0 Spaces.



3.1.3 Donnybrook Road

Following the survey formal, adjacent and informal car parking has been found on Donnybrook Road, the locations of which are as shown below. The breakdown of the car parking facilities along Donnybrook Road is as follows:

- Formal Parking – Approximately 35 (Of which 7 are Loading Bays between 07:00 and 10:00, Monday - Friday) Spaces.
- Informal Parking – Approximately 4 Spaces.
- Adjacent Parking – 15 Spaces.



All scheme options require full usage of almost the entire width of Donnybrook Road and as such, the formal parking spaces (approximately 35 No.) and all of the informal spaces (approximately 4 No.) will be removed as part of the proposed works. The adjacent spaces in the car park located at the Crescent, will not be affected by any of the proposed works.

3.1.4 Morehampton Road

The survey has shown formal car parking facilities along the entire length of Morehampton Road as shown below. There are no informal or adjacent parking spaces on Morehampton Road.

- Formal Parking – Approximately 55 (Of which 1 is Disabled Parking) Spaces.
- Informal Parking – 0 Spaces.
- Adjacent Parking – 0 Spaces.
- Taxi Rank – 0 Spaces.

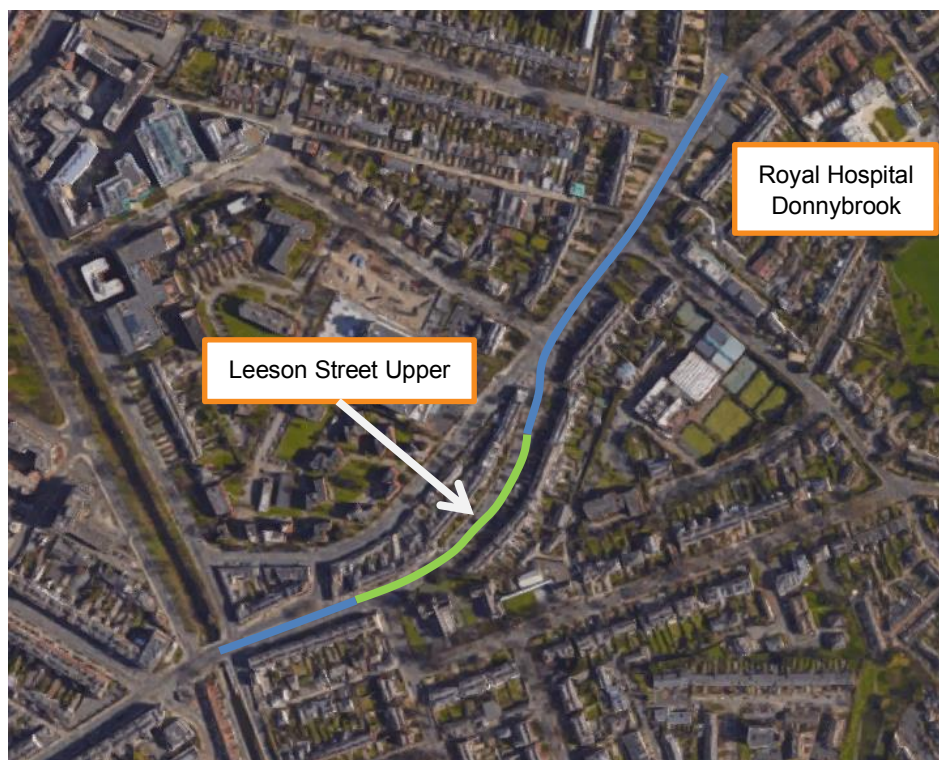


All scheme options require full usage of the entire width of Morehampton Road and as such, the formal parking spaces (approximately 55 No.) will be removed as part of the proposed works.

3.1.5 Leeson Street Upper

The survey has shown formal car parking facilities at certain locations along the length of Leeson Street Upper as shown below. There are no informal or adjacent parking spaces on Leeson Street Upper.

- Formal Parking – Approximately 40 Spaces.
- Informal Parking – 0 Spaces.
- Adjacent Parking – 0 Spaces.

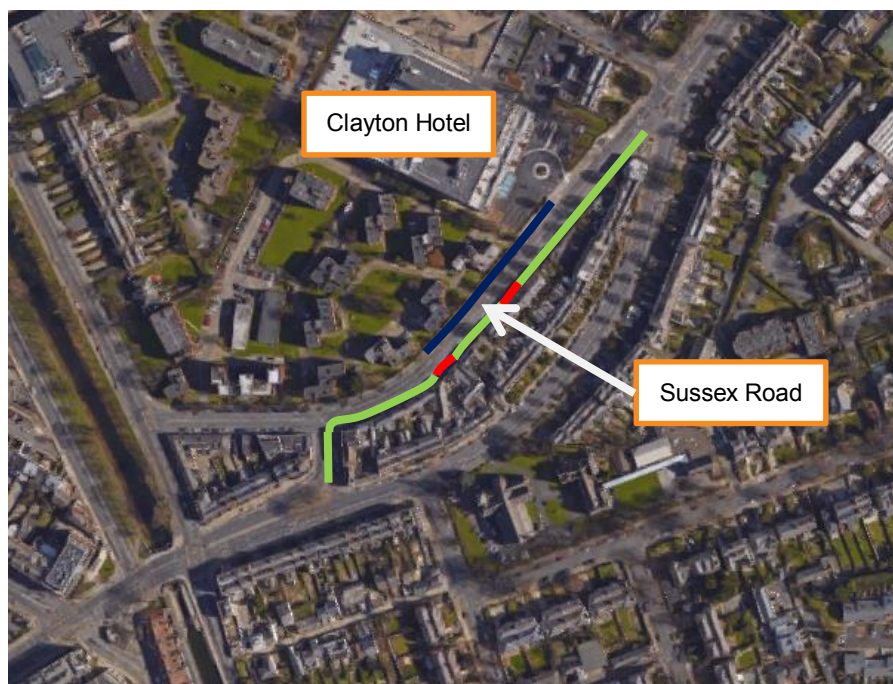


All scheme options can be contained within the existing conditions on Leeson Street Upper and as such, the formal parking spaces (approximately 40 No.) will not be removed as part of the proposed works.

3.1.6 Sussex Road

The survey has shown formal, informal and taxi rank car parking facilities at certain locations along the length of Sussex Road as shown below. The breakdown of the car parking facilities along Sussex Road is as follows:

- Formal Parking – Approximately 37 (Of which there is 1 Disabled Parking) Spaces.
- Informal Parking – Approximately 9 Spaces.
- Adjacent Parking – 0 Spaces.
- Taxi Rank – Approximately 17 Spaces.



All scheme options can be contained within the existing conditions on Sussex Road and as such, the formal parking spaces (approximately 37 No.), informal parking spaces (approximately 9 No.) and taxi rank spaces (approximately 20 No.) will not be removed as part of the proposed works.

Appendix F – Cost Estimate

Scheme Option 1A1					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.580			€ 377,000
2		0.340			€ 221,000
3				0.061	€ 152,500
4		0.203			€ 131,950
Total of Route Sections Cost					€ 882,450
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1				€ 70,000
No of CL2		1			€ 230,000
No of CL3					€ 0
Total of Junctions Lower Costs					€ 300,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).		252		378,000 €	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 378,000
Route: SA3 R1A1		Total Cost =		€ 1,560,450	

Scheme Option 1A2				
Route Sections	Route Section Cost Rates (EUR / km)			Route Section Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.580		€ 377,000
2		0.340		€ 221,000
3			0.061	€ 152,500
4		0.203		€ 131,950
Total of Route Sections Cost				€ 882,450
Junctions	Junction Cost Rates (EUR / junction)			Junctions Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1			€ 70,000
No of CL2		1		€ 230,000
No of CL3				€ 0
Total of Junctions Lower Costs				€ 300,000
Land Acquisition	Average Land Value (EUR / sq.m.)		Land Take Cost	
	1,500 €			
Sum of Residential along Route (sq.m).	252		378,000 €	
Sum of Commercial along Route (sq.m).			0 €	
Sum of Agricultural along Route (sq.m).			0 €	
Sum of Industrial along Route (sq.m).			0 €	
Total of Route Junctions Cost				€ 378,000
Route: SA3 R1A1				Total Cost = € 1,560,450

Scheme Option 1B1					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.028			€ 18,200
2			0.085		€ 110,500
3		0.032			€ 20,800
4			0.085		€ 110,500
5					
6					
Total of Route Sections Cost					€ 260,000
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1				€ 70,000
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 70,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).				0 €	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 0
Route: SA3 R1B1		Total Cost =		€ 330,000	

Scheme Option 1B2					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.028			€ 18,200
2				0.059	€ 147,500
3			0.072		€ 93,600
4				0.021	€ 52,500
5			0.051		€ 67,600
6					
Total of Route Sections Cost					€ 375,600
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1				€ 70,000
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 70,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).		81		€121,500	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 121,500
Route: SA3 R1B2		Total Cost =		€ 567,100	

Scheme Option 1B3					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.028			€ 18,200
2				0.096	€ 240,000
3			0.034		€ 44,200
4				0.021	€ 52,500
5			0.051		€ 66,300
6					
Total of Route Sections Cost					€ 421,200
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1				€ 70,000
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 70,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).		252		€378,000	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 378,000
Route: SA3 R1B3					Total Cost = € 869,200

Scheme Option 1C1					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.110			€ 71,500
2					€ 0
Total of Route Sections Cost					€ 71,500
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1					€ 0
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 0
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).				0 €	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 0
Total Cost =					€ 71,500

Scheme Option 1C2					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)			0.110	€ 275,000
2					€ 0
Total of Route Sections Cost					€ 275,000
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1					€ 0
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 0
Land Acquisition		Average Land Value (EUR / sq.m.)			Land Take Cost
Sum of Residential along Route (sq.m).		In 2013, 2 no. properties (No. 30-32 and 34 Main Street, Donnybrook) were costed for full acquisition. The combined estimated total price for full acquisition of both properties was €2,725,000. There is a further 6 properties within and bordering 1C2 that would require consideration for acquisition to implement the configuration of Scheme Option 1C2.			
Total of Route Junctions Cost					€ 0

Scheme Option 1D1					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)		0.105		€ 136,500
2			0.600		€ 780,000
11			0.125		€ 162,500
Total of Route Sections Cost					€ 1,079,000
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1		1			€ 70,000
No of CL2			1		€ 230,000
No of CL3					€ 0
Total of Junctions Lower Costs					€ 300,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).				0 €	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 0
Total Cost =					€ 1,379,000

Scheme Option 1D2				
Route Sections	Route Section Cost Rates (EUR / km)			Route Section Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)	0.105		€ 136,500
2		0.600		€ 780,000
3		0.125		€ 162,500
4				
5				
6				
Total of Route Sections Cost				€ 1,079,000
Junctions	Junction Cost Rates (EUR / junction)			Junctions Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1			€ 70,000
No of CL2		1		€ 230,000
No of CL3				€ 0
Total of Junctions Lower Costs				€ 300,000
Land Acquisition	Average Land Value (EUR / sq.m.)		Land Take Cost	
	1,500 €			
Sum of Residential along Route (sq.m).			0 €	
Sum of Commercial along Route (sq.m).			0 €	
Sum of Agricultural along Route (sq.m).			0 €	
Sum of Industrial along Route (sq.m).			0 €	
Total of Route Junctions Cost				€ 0
Route: SA3 R1D2			Total Cost =	€ 1,379,000

Scheme Option 1E1					
Route Sections		Route Section Cost Rates (EUR / km)			Route Section Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)		0.131		€ 170,300
2		0.078			€ 50,700
3			0.356		€ 462,800
4		0.115			€ 74,750
5			0.076		€ 98,800
6		0.095			€ 61,750
Total of Route Sections Cost					€ 919,100
Junctions		Junction Cost Rates (EUR / junction)			Junctions Cost
		CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
		€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1				€ 70,000
No of CL2					€ 0
No of CL3					€ 0
Total of Junctions Lower Costs					€ 70,000
Land Acquisition		Average Land Value (EUR / sq.m.)		Land Take Cost	
		1,500 €			
Sum of Residential along Route (sq.m).				0 €	
Sum of Commercial along Route (sq.m).				0 €	
Sum of Agricultural along Route (sq.m).				0 €	
Sum of Industrial along Route (sq.m).				0 €	
Total of Route Junctions Cost					€ 0
Route: SA3 R1E1		Total Cost =		€ 989,100	

Scheme Option 1E2				
Route Sections	Route Section Cost Rates (EUR / km)			Route Section Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)		0.521	€ 677,300
2			0.330	€ 429,000
3				€ 0
4				€ 0
5				€ 0
6				€ 0
Total of Route Sections Cost				€ 1,106,300
Junctions	Junction Cost Rates (EUR / junction)			Junctions Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1			€ 70,000
No of CL2		2		€ 460,000
No of CL3				€ 0
Total of Junctions Lower Costs				€ 530,000
Land Acquisition	Average Land Value (EUR / sq.m.)		Land Take Cost	
	1,500 €			
Sum of Residential along Route (sq.m).			0 €	
Sum of Commercial along Route (sq.m).			0 €	
Sum of Agricultural along Route (sq.m).			0 €	
Sum of Industrial along Route (sq.m).			0 €	
Total of Route Junctions Cost				€ 0
Route: SA3 R1E2			Total Cost =	€ 1,636,300

Route: SA3 R1E3				
Route Sections	Route Section Cost Rates (EUR / km)			Route Section Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 650,000	€ 1,300,000	€ 2,500,000	
1	Section Length (km)		0.131	€ 170,300
2		0.078		€ 50,700
3			0.356	€ 462,800
4		0.115		€ 74,750
5			0.076	€ 98,800
6		0.095		€ 61,750
Total of Route Sections Cost				€ 919,100
Junctions	Junction Cost Rates (EUR / junction)			Junctions Cost
	CAL 1: Minor	CAL 2: Moderate	CAL 3: Major	
	€ 70,000	€ 230,000	€ 1,000,000	
No of CL1	1			€ 70,000
No of CL2				€ 0
No of CL3				€ 0
Total of Junctions Lower Costs				€ 70,000
Land Acquisition	Average Land Value (EUR / sq.m.)		Land Take Cost	
	1,500 €			
Sum of Residential along Route (sq.m).			0 €	
Sum of Commercial along Route (sq.m).			0 €	
Sum of Agricultural along Route (sq.m).			0 €	
Sum of Industrial along Route (sq.m).			0 €	
Total of Route Junctions Cost				€ 0
Route: SA3 R1E3			Total Cost =	€ 989,100

Appendix G – Infrastructural Cost Estimate

See separate report

1. Scheme Option 1A1

Minor modifications are required at the UCD/Stillorgan Road/Slip Road junction i.e. i.e. the works associated with this categorization include: laying of anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such no property boundary re-instatement works are needed.

For 580m approximately, from the UCD/Stillorgan Road/Slip Road junction travelling towards the City, the proposed works have been categorized as **minor** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

Moderate modifications are required at the Nutley Lane/Stillorgan Road junction. I.e. the works associated with this categorization include: removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No Land take is required at this junction and as such property boundary re-instatement works are not needed.

For the next 340m, from the Nutley Lane/Stillorgan Road junction travelling in the direction of the City, the proposed works have been categorized as **minor** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 60m, approximately, the proposed works have been categorized as **major** i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For the next 205m, from the works at RTE travelling in the direction of the City, the proposed works have been categorized as **minor** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

2. Scheme Option 1A2

Minor modifications are required at the UCD/Stillorgan Road/Slip Road junction i.e. the works associated with this categorization include: laying of anti-skid surface,

removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such no property boundary re-instatement works are needed.

For 580m approximately, from the UCD/Stillorgan Road/Slip Road junction travelling towards the City, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

Moderate modifications are required at the Nutley Lane/Stillorgan Road junction. i.e. the works associated with this categorization include: removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No Land take is required at this junction and as such property boundary re-instatement works are not needed.

For the next 340m, from the Nutley Lane/Stillorgan Road junction travelling in the direction of the City, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 60m, approximately, the proposed works have been categorized as **major**. i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For the next 205m, from the works at RTE travelling in the direction of the City, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

3. Scheme Option 1B1

Minor modifications are required at the Anglesea Road/Stillorgan Road/Beaver Row/Donnybrook Road junction. i.e. the works associated with this categorization include: laying of anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For the next 28m approximately, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For 85m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

For the next 30m approximately, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For 85m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

4. Scheme Option 1B2

Minor modifications are required at the Anglesea Road/Stillorgan Road/Beaver Row/Donnybrook Road junction. i.e. the works associated with this categorization include: laying of anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For the next 30m approximately, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 60m, approximately, the proposed works have been categorized as **major**. i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For 70m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

For the next 20m, approximately, the proposed works have been categorized as **major**. i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For 50m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

5. Scheme Option 1B3

Minor modifications are required at the Anglesea Road/Stillorgan Road/Beaver Row/Donnybrook Road junction. i.e. the works associated with this categorization include: laying of anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For the next 30m approximately, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 95m, approximately, the proposed works have been categorized as **major**. i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or

replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For the next 20m, approximately, the proposed works have been categorized as **major**. i.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

For 50m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

6. Scheme Option 1C1

For the next 100m approximately, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

7. Scheme Option 1C2

For 110m approximately the proposed works have been categorised as **major**. I.e. the works associated with widening of the road to accommodate full bus and cyclist facilities include the removal of kerbs and footways greater than 500mm and the removal of and installation of new drainage systems. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water and gas) to be protected/relocated/diverted. To accommodate the road widening, a number of trees to be removed along the route and as such, limited earthworks works are also required along with full depth pavement reconstruction and associated road markings. Road signage is to be removed/ relocated or replaced. Some land take is required and as such boundary re-instatement works (walls, gates, driveways, etc.) are needed. Existing road markings are to be removed and replaced. Local road re-surfacing needed along parts of the route.

This scheme option also includes the proposed demolition of 8 No. buildings as part of the design.

8. Scheme Option 1D1

For 105m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

Moderate upgrade modifications are required at the Donnybrook Road/Belmont Avenue/Victoria Avenue/Morehampton Road junction i.e. the works to accommodate the proposed design include: General site clearance, removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 600m approximately, works have been categorized as **moderate** due to the removal of kerbs, footways and central median with a width greater than 500mm and the removal/realignment of drainage systems and services. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water, gas) will have to be protected/relocated/diverted. To accommodate the proposed design a sizeable number of trees to be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. Safety barriers/guardrails are to be removed and relocated and/or replaced. Road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. No land take is required along this section.

Minor modifications are required at the Wellington Place/Leeson Street Upper junction. i.e. the works associated with this categorization include laying of anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 125m approximately, travelling from Wellington Place to Appian Way, works have been categorized as **moderate** due to the removal of kerbs, central median and footways greater than 500mm and the removal/realignment of drainage systems and services. Road lighting (and associated works i.e. cabling and ducting) along the route are to be protected/relocated/diverted. Existing services (power supply, communications, water, gas) will have to be protected/relocated/diverted. Road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. No land take is required along this section.

9. Scheme Option 1D2

Although this scheme option proposal incorporates a design which seeks to avoid the removal of as many existing trees as possible, the costing proposals outlined in 1D1 above would also apply to this option as works include the following:

For 105m approximately, works have been categorized as **moderate** due to the removal of kerbs and footways greater than 500mm and the removal/realignment of drainage systems and services. Some road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. To accommodate the proposed design a number of trees must be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. No land take is required along this section.

Moderate upgrade modifications are required at the Donnybrook Road/Belmont Avenue/Victoria Avenue/Morehampton Road junction i.e. the works to accommodate the proposed design include: General site clearance, removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 600m approximately, works have been categorized as **moderate** due to the removal of kerbs, footways and central median with a width greater than 500mm and the removal/realignment of drainage systems and services. Road lighting (and associated works i.e. cabling and ducting) along the route to be protected/relocated/diverted. Existing services (power supply, communications, water, gas) will have to be protected/relocated/diverted. To accommodate the proposed design a sizeable number of trees to be removed along the route and as such, major landscaping works are also required along with full depth pavement reconstruction and associated road markings. Safety barriers/guardrails are to be removed and relocated and/or replaced. Road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. No land take is required along this section.

Minor modifications are required at the Wellington Place/Leeson Street Upper junction. i.e. the works associated with this categorization include: laying of Anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 125m approximately, travelling from Wellington Place to Appian Way, works have been categorized as **moderate** due to the removal of kerbs, central median and footways greater than 500mm and the removal/realignment of drainage systems and services. Road lighting (and associated works i.e. cabling and ducting) along the route are to be protected/relocated/diverted. Existing services (power supply, communications, water, gas) will have to be protected/relocated/diverted. Road signage and road furniture (bins and bollards) are to be removed/ relocated or replaced. No land take is required along this section.

10. Scheme Option 1E1

For 130m approximately from the extents of the section in the direction of the city, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and

chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

For the next 80m approximately along Leeson Street Upper, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 355m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

Minor modifications are required at the Mespil Road/Wilton Terrace/Grand Parade/Fitzwilliam Place junction. i.e. the works associated with this categorization include: laying of Anti-skid surface, removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 115m approximately outbound along Sussex Road, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For 75m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

For the next 95m approximately outbound along Sussex Road, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

11. Scheme Option 1E2

Moderate upgrade modifications are required at the Sussex Road/Leeson Street Upper junction to provide for proposed bus gates (2 No.) i.e. the works to accommodate the proposed design include: General site clearance, removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 515m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

For 330m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

Moderate upgrade modifications are required at the Sussex Road/Leeson Street Upper junction to provide for proposed bus gates i.e. the works to accommodate the proposed design include: General site clearance, removal and replacement of kerbs, footways and paved areas, laying of Anti-skid surface, Protection/relocation/diversion of services (i.e. power supply, communications, water and gas), removal and replacement of existing road markings, dished kerbs and tactile paving at all crossing points, the provision of guardrails and bollards, landscaping works, additional traffic signals including ducting, cabling and chambers and additional signal poles/heads. No land take is required at this junction and as such property boundary re-instatement works are needed.

12. Scheme Option 1E3

For 130m approximately from the extents of the section in the direction of the city, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

For the next 80m approximately along Leeson Street Upper, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For the next 355m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

Minor modifications are required at the Mespil Road/Wilton Terrace/Grand Parade/Fitzwilliam Place junction. i.e. the works associated with this categorization include: laying of anti-skid surface, removal and replacement of existing road

markings, dished kerbs and tactile paving at all crossing points. No land take is required at this junction and as such property boundary re-instatement works are needed.

For 115m approximately outbound along Sussex Road, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

For 75m approximately, works have been categorized as **moderate** i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. Works associated with the construction of bus gate facilities (i.e. additional traffic signals including ducting, cabling and chambers and additional signal poles/heads) would also require the protection/relocation/diversion of services (i.e. power supply, communications, water and gas) No land take is required along this section.

For the next 95m approximately outbound along Sussex Road, the proposed works have been categorized as **minor**. i.e. the works associated with this section involve removing and replacing existing road markings and local resurfacing of both the carriageway and the cycle lanes. No land take is required along this section.

Appendix H – Concept Design Drawings and Staging Diagrams

1. MCA Scheme Options

2. Emerging Preferred Scheme Option

1. MCA Scheme Options

2. Emerging Preferred Scheme Option