

16.0 EFFECT ON THE ENVIRONMENT: Material Assets – Traffic & Transportation and Parking.

16.1 Introduction.

- 16.1.1 This chapter has been prepared by MVA Consultancy and assesses the traffic impact on the local road network as a result of the construction and operation of development under the Draft Poolbeg Peninsula Planning Scheme.
- 16.1.2 The information used in this chapter has been compiled from many sources, including site visits, desk top study and a review of transport and planning policy documents describing the receiving environment, as detailed in the section.
- 16.1.3 The Draft Poolbeg Planning Scheme promotes a mix of residential and commercial land uses and includes provision for retail and community facilities. This chapter presents the multi-modal aspects of the Draft Poolbeg Planning Scheme and addresses the transport environment for all road users including general traffic, pedestrian, cycling and public transport.

16.2 Assessment Methodology.

- 16.2.1 The transportation assessment was undertaken with reference to the Environmental Protection Agency's "Guidelines on the information to be contained in Environmental Impact Statements", the National Roads Authority's "Traffic and Transport Assessment Guidelines" and the United Kingdom Highways Agency document "Design Manual for Roads and Bridges" (DMRB).
- 16.2.2 The Draft Poolbeg Planning Scheme provides a framework for the development of the area and, as such, includes a substantial level of detail in relation to the proposed development. From this it is possible to assess the likely impact of the development on traffic movement once it is complete (Operational Assessment). The Draft Planning Scheme indicates the manner in which the area should be developed and includes:
- the nature and extent of the proposed development;
 - the proposed distribution and location of uses;
 - proposals in relation to the overall design of the proposed development, including the maximum heights of structures;

- proposals relating to transportation, including the roads layout, the provision of parking places and traffic management; and
- proposals relating to the development of amenities and the conservation of the architectural heritage or other features.

16.2.3 There are elements of the development which cannot be determined at Planning Scheme Stage. These elements relate to the site specific characteristics of individual developments that will comprise the Draft Planning Scheme. For that reason, a further transport impact assessment (TIA) is required to be submitted with each Application for Certification.

16.2.4 The site specific Transport Impact Assessments (TIA) will be required to assess the traffic and transportation impacts on the local road and public transport networks. A TIA should identify what measures may be required to deal with the predicted transport impacts and to improve accessibility and safety, especially for pedestrians, cyclists and public transport users. A TIA should include an assessment of the following issues:

- Existing conditions;
- Development proposals;
- Trip generation;
- Trip distribution and assignment;
- Multi-modal assessment;
- Public transport impact;
- Details of access and servicing arrangements;
- Details of cycle and car parking; and
- Transport impacts and mitigation measures, including the impact during construction stage.

- 16.2.5 *Operational Assessment.*
- 16.2.5.1 The Census results for 2006 and the current DTO multi-modal transportation model (2002 base) were used to inform the mode share estimates for the Draft Poolbeg Planning Scheme. These data sources were also used to assess the existing traffic situation. In addition, traffic counts were commissioned at key junctions in the surrounding area.
- 16.2.5.2 The trip generation for the three hour morning peak (07:00-10:00hrs) has been calculated using information from the development schedule and trip rates per 100m² based on the DTO Trip Attraction / Generation Model (TAGM)¹, which is a sub model of the DTO multi-modal transportation model.
- 16.2.5.3 Base trip rates by mode for inbound and outbound trips in the morning peak have been calculated for residential and commercial uses. Applying the TAGM base trips, an inbound trip rate of 3.78 per 100m² of commercial space and a trip rate of 0.15 per 100m² of residential space have been assumed. Outbound trip rates of 1.82 and 0.28 per 100m² have been applied for residential and commercial respectively, based on TAGM base trips rates.
- 16.2.5.4 There is a degree of flexibility within the Draft Planning Scheme which allows for limited variation in land use split. For the purposes of this EIS, a conservative worst case scenario is considered within the assessment of traffic and transport impacts. As the rate of trip generation is highest for commercial development (3.78 per 100m²), the situation in which the proportion of commercial development is highest represents the worst case. Details of the land use considered and resultant trip generation is contained within later sections. Furthermore, to ensure a robust traffic assessment, the level of background trip demand has not been reduced to take account of the development proposed under the Draft Planning Scheme. It would be reasonable to assume that if the envisaged quantum of development proposed for the Draft Planning Scheme was realised that other areas of the city would not develop to the same extent. However for this assessment no reductions in future year background trip demand was made to reflect this, thereby ensuring a conservative traffic assessment.
- 16.2.5.5 Future year traffic predictions and mode share statistics were extracted from the DTO multi-modal transportation model for the forecast year of 2020. The DTO multi-modal transportation model has been used for this assessment because it considers all modes of transport and is ideal for assessing the impact of large scale developments, such as is proposed for Poolbeg. The DTO multi-modal transportation model also takes account of future road improvements including the

¹ The Trip Attraction / Generation Model (TAGM) provides an analysis of existing trip rates and prediction of trip generations and attractions in future years. The TAGM takes into account land use and demographic forecasts for an area and calculates the resultant changes in the demand for travel.

M50 Upgrade and the Samuel Beckett Bridge as well as public transport schemes to be delivered under Transport 21 (e.g. Luas Red Line Extension, City Centre Rail Interconnector). Also considered within the DTO multi-modal transportation model are predicted future land use changes across the Greater Dublin Area.

- 16.2.5.6 The DTO multi-modal transportation model was used to test ‘do minimum’ and ‘do something’ land use scenarios. These scenarios were processed using the DTO’s Trip Attraction and Generation Model (TAGM) and the DTO projected trip distribution² for the Poolbeg area of the Docklands for the regional planning guidelines forecast year, 2020. This process enabled the derivation of the predicted trip volumes, trip distribution and mode share for public transport, car and other modes (i.e. walking and cycling).
- 16.2.5.7 Predicted traffic generated by the Poolbeg Draft Planning Scheme was assessed in the context of the future year flows to determine the impact of the proposed development at Poolbeg on the local and strategic road network.
- 16.2.5.8 Future year traffic flows extracted from the DTO multi-modal transportation model take into consideration anticipated growth and development outside the Draft Planning Scheme Area. Consideration has been given to the anticipated growth in traffic within the Poolbeg Peninsula and also outside the Draft Planning Scheme area, to the extent known at present. This includes traffic predicted to be generated by the Dublin Waste to Energy Project located on the Peninsula. For this purpose, the EIS for the Waste to Energy Project was reviewed to determine the predicted traffic movements generated by the facility. The traffic related to the Waste to Energy Project was included for in the ‘do-minimum’ scenario.

16.2.6 *Assessment Scenarios*

- 16.2.6.1 An assessment has been undertaken for a future year of 2020, by which time the full development of the Draft Planning Scheme could be delivered. For the future year a ‘do minimum’ and a ‘do something’ scenario are used for the assessment of the impact. These scenarios are summarised as follows:
- 2020 do minimum (future year with committed developments, but without the development of the Draft Planning Scheme); and
 - 2020 do something (future year with committed developments and development, including road infrastructure and public transport improvements, as contained within the Draft Planning Scheme).

² The Trip Distribution Model (TDM) provides an analysis of existing trip patterns and prediction of trip patterns for future years.

16.2.6.2 The traffic impact generated by the proposals on the surrounding highway network has been assessed using the highway component (SATURN traffic model³) of the DTO multi-modal transportation model.

2020 Do Minimum.

16.2.6.3 The 'do minimum' scenario represents the future base year, 2020 without the proposed Poolbeg Planning Scheme development. It includes committed developments in the local vicinity. The SATURN traffic model for the 'do minimum' scenario considers the level of future background traffic on the surrounding highway network arising from the growth of the wider city and region. Furthermore, the modelling approach adopted using the full DTO multi-modal transportation model facilitates consideration of the impact of Transport 21 projects on mode share, including the planned City Centre Rail Interconnector, which provides a tunnelled linking Heuston Station to the Docklands, via St. Stephen's Green, and the Luas Red Line extension to the Point Depot. Strategic and local road improvements are also considered including the Samuel Beckett Bridge and the M50 Upgrade.

2020 Do Something.

16.2.6.4 The 'do something' scenario assesses the impact of the Poolbeg Planning Scheme on the local road network. As part of the Draft Planning Scheme, a number of transport infrastructural improvements will be delivered. These have been included in the 'do something' assessment and have been incorporated into the 2020 'do something' SATURN traffic model. By 2020, it is assumed that the following aspects of the transport strategy of the Poolbeg Draft Planning Scheme have been delivered:

- upgrading of Sean Moore Road to accommodate two lanes of traffic in both directions and turning flare lanes on the approaches to junctions;
- the replacement of the Sean Moore Road Roundabout with a fully signalised junction to enhance the safe movement environment for all road users through the junction;
- enhanced bus services (the extension of existing services from the surrounding area to Poolbeg and the introduction of new services);
- the provision of Docklands Rapid Transit between Poolbeg and the City Centre;
- the provision of water bus services between Poolbeg Harbour and the City Centre; and
- the extension of Luas to Poolbeg.

³ The SATURN model allows the examination of highway impact resulting from the development.

- 16.2.6.5 Two vehicular access points from Sean Moore Road to the Draft Planning Scheme Area are also assumed as follows:
- the primary access to be provided along South Bank Road at the existing Sean Moore Road roundabout, with junction alterations, including signalisation of the roundabout, which will be linked to a signal control system, such as Dublin City Council's SCATS system; and
 - A second access to be provided from Sean Moore Road in the south west corner of the site, opposite Bremen Road, with junction alterations, including signalisation.
- 16.2.6.6 Road infrastructure improvements on Sean Moore Road are proposed including the widening of Seán Moore Road to accommodate two lanes in each direction and turning flare lanes at junctions. The additional traffic lanes will facilitate vehicular access to the Draft Planning Scheme Area, the committed developments on the Peninsula and the existing land uses which are to be retained. Furthermore, the additional capacity provided by the improvements to Sean Moore Road will minimise the impact of the Draft Planning Scheme on current traffic flows.
- 16.2.6.7 The Eastern Bypass scheme has not been included in this traffic assessment. The proposed development within the Poolbeg Draft Planning Scheme will not rule out the provision of the Eastern Bypass. Should the scheme be progressed, the Eastern Bypass will be the subject of a separate EIS.

16.3 Receiving Environment

- 16.3.1 The existing transport issues related to the Poolbeg Area Draft Planning Scheme have been assessed using the following methods:
- site visits within the area;
 - review of planning and transportation policy documents; and
 - traffic surveys which were undertaken at eight key junctions in the area.
- 16.3.2 Traffic count data acquired during the surveys has been extracted and is summarised within section 16.3.6 below.
- 16.3.2 Site Location.*
- 16.3.2.1 The Poolbeg Draft Planning Scheme Area is located within the most easterly part of the Dublin Docklands to the south of the River Liffey. It is bounded by the River Liffey, Dublin Bay, Beach

Road, Sean Moore Road and the R131. The Poolbeg Draft Planning Scheme Area is located approximately 2km to the east of Dublin City Centre and close to newly regenerated areas such as the Grand Canal Dock. Due to its close proximity to the City Centre, with its high number of employment opportunities and social and amenity facilities, the area is considered to have significant development potential.

16.3.2.2 The site is surrounded by water on three sides with limited facilities to cross the River Liffey to the north of the site. Access by land to the Peninsula is possible from the western boundary of the Peninsula which is approximately one kilometre wide.

16.3.2.3 To the west, the Poolbeg Peninsula is bordered by Ringsend (to the northwest) and Sandymount (to the southwest). Ringsend is segregated from Poolbeg by the Sean Moore Road while Sandymount is segregated from Poolbeg by Beach Road / Strand Road. Both of these roads currently carry high volumes of through traffic during peak hour periods, which can affect the pedestrian environment. Traffic count data is presented in section 16.3.6 below. Both Sandymount and Ringsend are long established communities and predominantly residential.

16.3.3 Existing Road Network.

16.3.3.1 The existing road network within the Draft Planning Scheme Area is limited. Within the Poolbeg Peninsula, the road network primarily consists of a single spine road corridor, which comprises South Bank Road, Whitebank Road and Pigeon House Road. Access roads to the existing land uses are connected to the spine corridor. South Bank Road and Whitebank Road are distributor roads for HGVs accessing the Poolbeg Peninsula and have very wide traffic lanes.

16.3.3.2 The road network around Poolbeg Peninsula comprises strategic and local roads. The major roads, such as the R131, Sean Moore Road and the R131, East Link Road, carry significant volumes of traffic in the morning and evening peak periods.

16.3.3.3 The key roads in the vicinity of Poolbeg Peninsula are:

- R131, Sean Moore Road;
- R131, East Link Road;
- East Link Bridge;
- Beach Road/Strand Road;
- Ringsend Road/Irishtown Road;

- Church Avenue/Bath Avenue; and
- Londonbridge Road.

16.3.3.4 Sean Moore Road has one wide traffic lane in each direction with additional turning lanes provided at its junction with South Bank Road and East Link Road. At present this junction comprises a five-arm roundabout with a dominant north-south flow from Sean Moore Road to East Link Road and three minor arms including the main access road to the Poolbeg Peninsula (South Bank Road). Two signalised pedestrian crossings are provided on Sean Moore Road near the junctions with Pine Road and Bremen Road.

16.3.3.5 East Link Road is an extension of the East Link Bridge which is a tolled bridge over the River Liffey. There is generally one lane in each direction with additional lanes on both sides of the tollbooths. The East Link Bridge is operated by National Toll Roads. At the northern end of the bridge there is a significant junction with East Wall Road and North Wall Quay which is currently operated by way of a priority roundabout.

16.3.3.6 Beach Road and Strand Road have one traffic lane in each direction. There are a number of junctions along these roads which connect with local roads to the west. The majority of these junctions comprise mini roundabouts. Signalised pedestrian crossings are provided intermittently along the road.

16.3.4 National Road Network.

16.3.4.1 The Poolbeg Draft Planning Scheme Area is located within the Dublin Docklands to the east of Dublin City Centre. The national road network of the Greater Dublin Area can be described as a radial road network with key routes into the City Centre interlinked by the M50. The Poolbeg Peninsula and its surrounds are not directly connected to the current national road network. The closest national route is Dublin Port Tunnel to the north. The port tunnel primarily caters for Heavy Goods Vehicles traffic to and from the port. Variable toll charges apply to general traffic, which are used as a demand management tool to deter car use especially during peak hours when tolls are set to high levels.

16.3.5 Function of the Strategic Road Network.

16.3.5.1 The Dublin City outer orbital runs through the Poolbeg area and extends along Londonbridge Road, Sean Moore Road, Eastlink Bridge, North Wall Quay, Guild Street and Seville Place.

16.3.5.2 The existing strategic road network within the vicinity of Poolbeg Peninsula comprises the following through routes:

- Access from the north (East Wall and North Wall area) via East Wall Road, the East Link Bridge and East Link Road;
- Access from the west (City Centre) via Irishtown Road, Ringsend Road and Sean Moore Road;
- Access from the southwest (Ballsbridge, Donnybrook, Ranelagh area) via Bath Avenue, Londonbridge Road and Sean Moore Road; and
- Access from the south (eastern coastline area, Blackrock), via Beach Road and Strand Road.

16.3.5.3 The majority of traffic on the strategic road network is through traffic. The Dublin Transportation Office Traffic Model has shown that approximately 77% of traffic on the road network within the vicinity of Poolbeg Peninsula has an origin or destination outside of the local area and therefore constitutes through traffic.

16.3.5.4 The strategic routes have limited access to land uses adjacent to these routes. The Eastlink Bridge connects the North and South Docks and a significant volume of HGV traffic uses it to transport goods between the two ports. As part of the Dublin City HGV management strategy a toll rebate scheme operates on the East Link Bridge to allow for these HGV movements.

16.3.5.5 The Peninsula can be accessed via two bridge links across the River Dodder. The Ringsend Road Bridge is approximately 5.5 metres in width. The width of the Londonbridge Road Bridge is limited to just over 3m for traffic and operates as a signalised tidal flow in each direction. The bridge widths can limit traffic flow on both routes.

16.3.6 Existing Traffic Flows / Traffic Data.

16.3.6.1 Full, classified traffic count surveys were undertaken on behalf of the Authority at eight key locations surrounding Poolbeg Peninsula at the following junctions:

- East Wall Road / North Wall Quay Roundabout;
- East Link Road / Seán Moore Road / South Bank Road Roundabout;
- Beach Road / Seán Moore Road Signal Controlled Junction;
- Bath Street / Pembroke Street / Sean Moore Road Signal Controlled Junction;
- Sandymount Road / Londonbridge Road / Irishtown Road Signal Controlled Junction;
- Ringsend Road / South Lotts Road Signal Controlled Junction;
- Bath Avenue / Shelbourne Road / South Lotts Road / Grand Canal; and

- Macken Street / Pearse Street.

- 16.3.6.2 The resulting baseline data used in the assessment of transport effects is described below. The traffic count data was supplemented with information gathered during site visits, a review of previous studies, information extracted from the DTO multi-modal transportation model and the 2006 Census. In this way a comprehensive analysis of the existing traffic conditions was undertaken.
- 16.3.6.3 Baseline flows for the AM and PM peaks are shown in Table 16.3.6.1 and Table 16.3.6.2 respectively. The flows presented within the tables are one-way directional flows on each of the network links. Total two-way flows are also provided in the tables. These peak hour traffic flows have been used to determine the baseline conditions of the local road network against which the draft scheme is assessed.

Table 16.3.6.1 AM Peak Traffic Flows on Nearby Roads – 2007 Observed Flows (08:00-09:00)

Road	Location		AM Peak (08.00-09.00)	Total Two-Way Flows
Beach Road	South of Junction with Seán Moore Road	Northbound	809	1,766
		Southbound	967	
Seán Moore Road	South of Seán Moore Road roundabout	Northbound	761	1,916
		Southbound	1,155	
South Bank Road	South-east of South Bank Road	Northbound	119	293
		Southbound	174	
East Link Road (R131)	West of Seán Moore Road roundabout	Westbound	804	2,065
		Eastbound	1,261	
Irishtown Road	South of Bridge Street	Westbound	276	497
		Eastbound	221	
Church Avenue	Between Londonbridge Road and Seán Moore Road	Westbound	152	396
		Eastbound	244	
Bath Street	Between Irishtown Road and Church Avenue	Northbound*	395	395

Road	Location	AM Peak (08.00-09.00)	Total Two-Way Flows
Pembroke Street	Between Irishtown Road and Church Avenue	Southbound*	251
Londonbridge Road	West of Church Avenue	Westbound	226
		Eastbound	202
Pearse Street	West of junction with Macken Street	Westbound	799
		Eastbound	555
Pearse Street	East of junction with Macken Street	Westbound	698
		Eastbound	584
Bath Avenue	East of junction with South Lotts Road	Westbound	374
		Eastbound	207
South Lotts Road	North of Junction withy Bath Avenue	Northbound	335
		Southbound	365

* One-way

16.3.6.4 As shown in Table 16.3.6.1, the maximum observed two-way flow in the AM peak occurs on the East Link Road, with a total flow of 2,065 vehicles. This link accommodates 804 vehicles in the westbound direction and 1,261 vehicles per hour in the eastbound direction.

16.3.6.5 The heaviest general traffic flows experienced during the morning peak hour period are on:

- East Link Road (eastbound),
- Sean Moore Road (southbound);
- Pearse Street (westbound) and
- Beach Road (southbound, south of the junction with Sean Moore Road).

16.3.6.6 Baseline flows for the PM peak (16:30-17:30)⁴ are shown in Table 16.3.6.2 below. Evening peak (16:30-17:30) traffic flows on all strategic and local roads around the Poolbeg area are generally lower than the morning peak. Similar to the morning peak, the highest flows occur on

⁴ The hour of 16.30-17.30 was chosen as the PM Peak hour through an assessment of the surveyed count data.

East Link Road (two-way flow of 1,977); Sean Moore Road (two-way flow of 1,685); and Beach Road (two-way flow of 1,182).

Table 16.3.6.2 PM Peak Traffic Flows on Nearby Roads – 2007 Observed Flows (16:30-17:30)

Road	Location	PM Peak	Total Two-Way Flows	
Beach Road	South of Junction with Seán Moore Road	Northbound	375	1,182
		Southbound	807	
Seán Moore Road	South of Seán Moore Road roundabout	Northbound	674	1,685
		Southbound	1,011	
South Bank Road	South-east of South Bank Road	Northbound	144	219
		Southbound	75	
East Link Road (R131)	West of Seán Moore Road roundabout	Westbound	1,014	1,977
		Eastbound	963	
Irishtown Road	South of Bridge Street	Westbound	325	561
		Eastbound	236	
Church Avenue	Between Londonbridge Road and Seán Moore Road	Westbound	110	427
		Eastbound	317	
Bath Street	Between Irishtown Road and Church Avenue	Northbound*	156	156
Pembroke Street	Between Irishtown Road and Church Avenue	Southbound*	315	315
Londonbridge Road	West of Church Avenue	Westbound	131	331
		Eastbound	200	
Pearse Street	West of junction with Macken Street	Westbound	469	971
		Eastbound	502	
Pearse Street	East of junction with Macken Street	Westbound	430	1,031
		Eastbound	601	

Road	Location	PM Peak	Total Two-Way Flows
Bath Avenue	East of junction with South Lotts Road	Westbound	172
		Eastbound	212
South Lotts Road	North of Junction withy Bath Avenue	Northbound	361
		Southbound	217

* One-way

16.3.7 Existing Uses within the Planning Scheme Area.

16.3.7.1 Table 16.3.7.1, below, sets out the existing land uses within the Planning Scheme Area and the existing level of trip generation in the peak hour predicted to be generated by those uses. This table shows that the existing uses are low generators of traffic as the activity associated with these existing uses are not major trip generators.

Table 16.3.7.1 Existing Uses within the Draft Planning Scheme Area and Level of Trip Generation

Site	Existing Use	Existing Level of peak hour Trip Generation
Seán Moore Park	Recreational Sports Ground	low
IGB	Brownfield site with no current use	none
Fabrizia	Brownfield site with no current use	none
Container Park and Molassess industrial Park	Trailer and container storage area for LoLo shipping facility	low to medium
South Shore Concrete Factory	Concrete batching facility	low
Irishtown Nature Reserve	Open space	none
Dublin Port Industrial Area	Fuel storage, concrete batching, metal recycling and the cooling race for Synergen Power Station	low

Site	Existing Use	Existing Level of peak hour Trip Generation
Industrial Area North of Overflow Tanks	Not in use	none
Waste Water Treatment Plant	Waste water treatment plant	low
Pigeon House Dock	Pigeon House Power Station including a small amount of office space	low
Eastern End of Peninsula	Fuel storage	none

16.3.8 Public Transport in the vicinity of the Planning Scheme Area

- 16.3.8.1 Due to the historic and existing land uses within the Peninsula, high capacity transport links have not been required, thus access to the Peninsula by public transport in particular is limited.
- 16.3.8.2 Bus is the only form of public transport available at present, within the immediate vicinity of the Planning Scheme Area. The most frequent local bus service serves the neighbouring Ringsend/Sandymount area, and is not routed along a Quality Bus Corridor for most of its route. Poolbeg Peninsula is served by bus route no. 1. This route is operated by a very limited service, with one morning and one evening service between the city and Poolbeg. The closest principal bus corridors are on the Pearse Street Quality Bus Corridor (QBC) and the Blackrock QBC.
- 16.3.8.3 Ringsend bus garage is located within 1.5km of Poolbeg. Recently a number of city services have been extended to Ringsend, including some Tallaght bus services. New services comprising the 74/A have also been introduced that terminate at Macken Street. Table 16.8.3.1 summarises the current service provision.

Table 16.8.3.1 Existing Bus Services

Service Number	Route	Peak Average Frequency	Average Journey Time from the city centre
1	Parnell Square – O’Connell St –Townsend St/Pearse St – Ringsend – Irishtown – Poolbeg	1	30 minutes full route
2 / 3	(Some services: Larkhill – Drumcondra - Dorset St)- – Parnell Square – O’Connell St –Townsend	6	30 minutes from Parnell Square to

	St/Pearse St – Ringsend – Sandymount – Strand Rd - – (Some services: Sydney Parade – Nutley Lane – UCD)		Sandymount
50 / 56A	Citywest/Tallaght – Walkinstown – Dolphin’s Barn – City Centre – Ringsend/Grand Canal Dock	4	15 minutes from Dolphin’s Barn to Grand Canal Dock
74/A	Ballycullen – Templeogue – Rathmines – St Stephen’s Green – Townsend St/Pearse St – Macken St	4	25 minutes from Earlsfort Tce to Macken St
77/A	Jobstown/Tallaght – Walkinstown – Dolphin’s Barn – City Centre – Ringsend/Grand Canal Dock	11	15 minutes from Dolphin’s Barn to Grand Canal Dock

16.3.9 Public Transport in the Surrounding Area

Heavy Rail

16.3.9.1 Lansdowne Road Station is the closest rail station, located approximately 1.5 km from the boundary of the Planning Scheme Area (approximately 20 minute walk). The DART line currently operates at a frequency of 4 trains per hour during off-peak periods, increasing to 6 per hour during peak demand. Each train has a capacity of approximately 1,400 people. There are four DART stations located to the south west of Poolbeg Peninsula - Tara Street, Pearse Street, Grand Canal Dock, and Lansdowne Road stations.

16.3.9.2 In addition to DART services, outer commuter services operate to Connolly, Pearse Street, Tara Street and the Docklands Station. The Docklands Station accommodates north-western commuter services to Clonsilla at a frequency of 2 trains per hour. The capacity of this new station is currently underutilised, and it is envisaged that other suburban services will connect here in future.

Light Rail

16.3.9.3 The existing Red Luas line operates between Tallaght and Connolly Station. Luas operates at a general headway of five minutes during peak periods with additional services between Connolly and Heuston and each tram has a capacity of approximately 350 people. At present, an extension to this line is under construction from Connolly to the Point Village and it is expected to be complete by late 2009. The terminus at the Point will be within approximately 1km distance of the boundary of the Planning Scheme Area.

Water-based Transport

16.3.9.4 A public ferry service currently operates all year round across the Liffey between Sir John Rogerson's Quay and North Wall thus providing a link between the north and south docks. From March to November, the Liffey Voyage provides sight-seeing tours of the River Liffey. There is potential to introduce regular commuter water bus services along the River Liffey.

Pedestrian and Cycle Facilities

16.3.9.5 Pedestrian footways are provided along the majority of roads within Poolbeg, Ringsend and Sandymount. However the high volume of traffic on the local road network reduces pedestrian circulation and cross movement in the area during peak periods.. There are pedestrian routes along the southern side of the Peninsula. Within the Peninsula footpaths are also provided along the main spine road, however they are poorly lit and large industrial buildings act as barriers to movements within the area.

16.3.9.6 The Dublin Cycle Network comprises suburban routes, inner city routes, recreational routes and Quality Bus Corridor/cycle routes. The closest cycle route to Poolbeg Peninsula runs southwards from Thorncastle Street to Londonbridge Road. Another existing cycle route also runs westwards from Ringsend Road to the City Centre.

16.3.10 Existing Transportation Planning and Policy.

16.3.10.1 There are a number of existing policies which will influence the future development of transport which will affect Poolbeg Peninsula. The policies range from national plans (National Development Plan, Transport 21), to regional plans (Platform for Change – Dublin Transportation Office), to county plans (Dublin City Development Plan 2005-2011), and to local plans (2008 Draft Dublin Docklands Master Plan). Furthermore, there are emerging strategies that are currently being prepared that will influence transport in the coming years. Two of the most important emerging strategies are likely to be the 2020 Vision Sustainable Travel and Transport (Department of Transport) and the 2030 Vision for Greater Dublin Transport (Dublin Transportation Office).

16.3.10.2 Future transport infrastructure policy set out in Transport 21 and the Dublin City Development Plan (2005-2011) has been taken into consideration in the assessment of future year traffic impacts. Further details on particular schemes which will affect the future transport characteristics of the area are outlined in the next sections.

Transport 21

16.3.10.3 Transport 21 is a capital investment framework under the National Development Plan and covers the development of the national transport system from 2006 to 2015. Specific proposals for the Greater Dublin Area will be developed as part of Transport 21. The main components of

Transport 21 which will benefit the City Centre and the Dublin Docklands Area as a whole and consequently the Poolbeg Planning Scheme Area are:

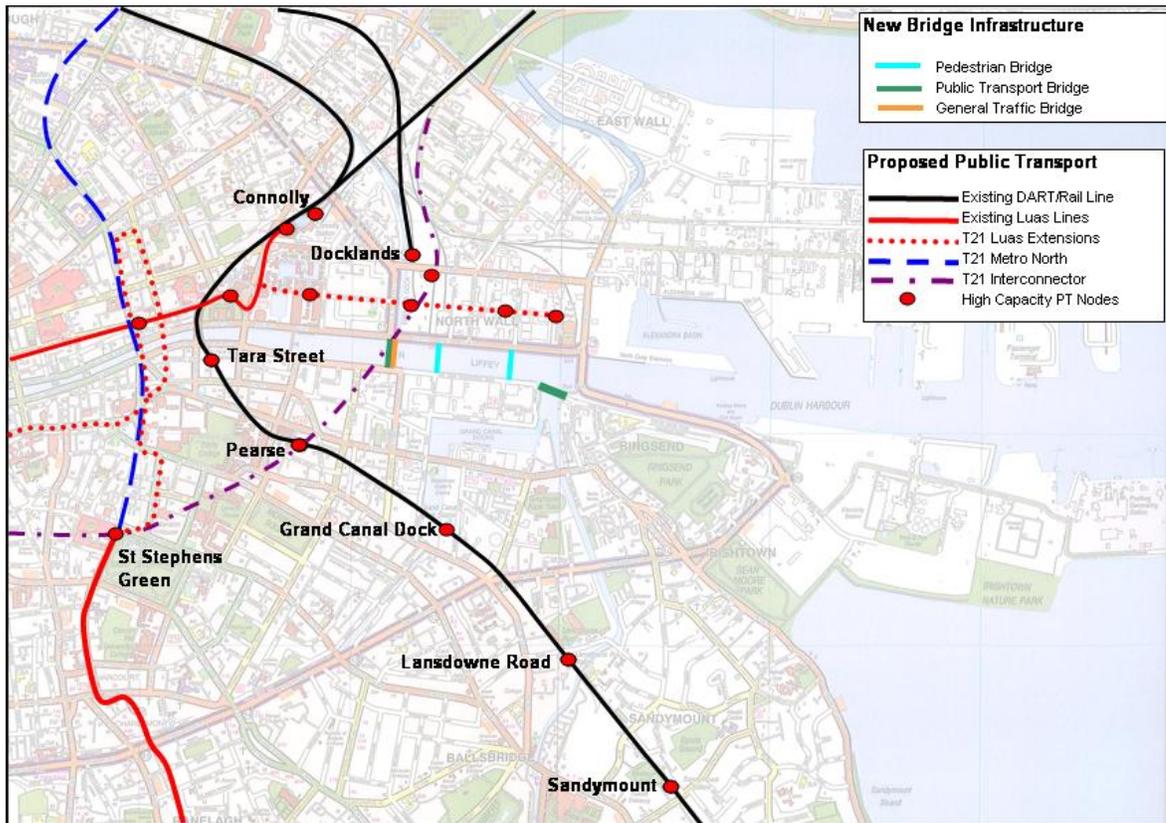
- the extension of the LUAS network to the Docklands and the construction of a new line from Lucan to the City Centre;
- the construction of the Suburban Rail Interconnector providing a tunnelled link between Heuston Station and the Docklands, via St. Stephen's Green and linking with the Northern line;
- the development of Metro North and Metro West;
- the development of the bus network to create a meshed network of services and reorient it to take account of the rail developments described above;
- the creation of a network of interchange points across the network to allow users transfer easily;
- the introduction of a smartcard integrated ticket which can be used on all public transport services;
- the implementation of demand management measures on a phased basis; and
- the introduction of an integrated public transport information system.

16.3.10.4 The Luas extension, C1, to the Point Depot, will provide a high quality public transport link through the north Docklands area linking it to the City Centre and key public transport nodes (Spencer Dock Station; Heuston Station; Connolly Station; Metro North and numerous Quality Bus Corridor Bus services). The Luas extension is currently under construction and the anticipated date of opening for services to the Point is late 2009. Depending on the frequency of vehicles, this line could have a capacity of between 3,500 and 8,000 passengers per hour. Poolbeg Peninsula could benefit from this route as the line will terminate at the Point, which is within walking distance (1km) of Poolbeg.

16.3.10.5 The Interconnector will provide significant additional capacity for heavy rail within the city centre as well as linking with almost all major rail services (Luas, Dart, Metro North, Kildare and Maynooth Rail services). The Interconnector has an anticipated year of opening of 2015. A new station will be provided within the North Docklands Area near Spencer Dock as well as new stations at St Stephens Green and High Street (Christchurch) and interchanges at Pearse and Heuston Stations.

16.3.10.6 The additional public transport will link to existing and future public transport hubs and nodes to achieve an integrated public transport network thereby expanding the public transport mode share right across the Docklands Area. Figure 16.3.10.1 illustrates the existing rail network and the additional rail infrastructure proposed within Transport 21 near the Docklands area.

Figure 16.3.10.1 Transport 21 Rail Proposals benefiting the Docklands Area



A Platform for Change 2000-2016

16.3.10.7 In 2001, the Dublin Transportation Office (DTO) published a long-term strategy for improving and managing Dublin's transport system for the period 2000-2016. The strategy has two elements:

- Infrastructure and Service Improvements to increase the supply of transport, including a substantial expansion of the public transport network, some strategic road construction and traffic management; and
- Demand management to reduce the growth in travel ... from the private car to sustainable modes of transport (such as public transport, cycling and walking).

16.3.10.8 The public transport elements of the strategy include the following:

- Improved DART / suburban rail network;
- Extension of the Luas;
- Development of a higher capacity segregated light rail network (METRO);
- Expanded bus network; and
- Measures to improve the integration and attractiveness of the public transport network.

16.3.10.9 Some of the components of this strategy have been completed or are included in Transport 21. For example, the red and green lines of Luas have been completed and new 8 carriage DART trains at peak times were introduced in 2005. Further, a Quality Bus Corridor (QBC) network has been developed. This initiative provides bus priority and service improvement measures for buses using QBC corridors.

16.3.10.10 The DTO has commenced work on developing a new Transport Strategy for the Greater Dublin Area (GDA) for the period up to 2030. It is expected that the new Strategy will be prepared by early 2010.

Dublin City Development Plan and Dublin Docklands Master Plan.

16.3.10.11 The Dublin City Development Plan 2005-2011 and the 2008 Dublin Docklands Development Plan support a number of proposals which will improve the transport network of the area. Additional bridge crossings will be provided which will greatly improve the connectivity of the area and improve access. The bridges will cater for different transport modes. In order to support the enhancement of sustainable transport, the vast majority of the new bridge infrastructure will be dedicated for pedestrian and public transport uses.

- 16.3.10.12 The Samuel Beckett Bridge, which is currently under construction between Macken Street and Guild Street, will provide an additional north – south road corridor across the Liffey. The provision of this bridge has been taken into account within this assessment and it is likely to benefit north-south traffic movements.
- 16.3.10.13 The 2005-2011 Dublin City Development Plan supports the provision of an Eastern Bypass Route. The route specified within the development plan links the northern port to the South Eastern Motorway (M50) by way of a bored tunnel under Sandymount and Merrion Strand. The precise alignment and detailed design of the route, should it be progressed, will be the subject of a variation to the development plan and will require an Environmental Impact Statement to be prepared. Provision of the Eastern Bypass, therefore, has not been included within this traffic assessment.
- 16.3.10.14 Water bodies located within the Docklands Area can pose a barrier to transport and movement. As such, the development of new bridge crossings will have a significant impact on connectivity and transport. It is the objective of the Dublin City Development Plan to support the provision of the following bridges within the Docklands Area:
- General Traffic, Public Transport, Pedestrian and Cycle Bridge.*
- Samuel Beckett Bridge (currently under construction);
- Public Transport, Pedestrian and Cycle Bridges.*
- Royal Canal Bridge from Mayor Street to Spencer Dock (currently under construction as part of the Luas Line C1 extension);
 - Dodder Bridge from Britain Quay to York Road (at design stage);
- Pedestrian Only Bridge.*
- Liffey Bridge from Forbes Street to North Wall Quay;
 - Liffey Bridge from Benson Street to Castleforbes Road; and
 - Dodder Bridge from Thorncastle Street to the Grand Canal Lock Gates.
- 16.3.10.15 The proposed infrastructure summarised above will provide potential benefits to the strategic road network. It will also improve north-south connections across the River Liffey for public transport, cyclists and pedestrians.

16.3.11 Docklands Quality Bus Corridor.

16.3.11.1 A quality bus corridor through the Docklands area is included in the Quality Bus Network Project Offices (QBNPO) list of proposed bus priority schemes. There is potential for developing bus priority in the North and South Docks area and the following schemes are being considered by Dublin City Council:

- North Docks: one lane of bus priority on North Wall Quay, providing bus priority for most of the length of the North Quays.
- South Docks: looped QBC providing continuous bus priority on Hanover Street, Hanover Quay, Britain Quay, Sir John Rogersons Quay and City Quay.

16.3.11.2 There is potential to extend the south docks QBC over the new Dodder Bridge, which would improve access to the Ringsend / Irishtown and Poolbeg Peninsula. Also, the south docks QBC could be designed to serve Bus Rapid Transit, which would offer higher quality bus based public transport. The expansion of the QBC network within the North and South docks will provide potential for greatly enhanced bus services in the area.

16.3.12 Future Road Improvements.

16.3.12.1 Road projects are scheduled to be completed within the short term, including:

- Samuel Beckett Bridge (Guild Street to Macken Street, this bridge is currently under construction and is anticipated to be completed during early 2010); and
- M50 Motorway Upgrade Scheme (currently under construction with an anticipated completion date of 2010).

16.3.12.2 A new road bridge across the Liffey between Macken Street and Guild Street was proposed within the Dublin City Development Plan and the Master Plan for the Dublin Docklands Area. The Samuel Beckett Bridge is currently under construction and is due to be completed in 2010. The bridge will cater for pedestrians, cyclists, motorised vehicles and public transport services and will give rise to significant changes in traffic patterns on the road network in the Docklands Area.

16.3.12.3 Samuel Beckett Bridge will support north south traffic flow and will support existing bridge links including the East Link Bridge, Talbot Memorial Bridge, Butt Bridge and O'Connell Bridge.

16.3.13 Policy Statement on Development Management and Access to National Roads

16.3.13.1 The National Roads Authority (NRA) Policy Statement on Development Management and Access to National Roads (2006) sets out the NRA's policy on the management of developments

impacting upon national roads. The policy indicates that the NRA can support practices aimed at concentrating development in established urban areas and states “Consolidation and, as appropriate, expansion of such locations might ideally be pursued within an integrated land use and transportation strategy informed by sustainable development considerations” (NRA, 2006, p.11).

- 16.3.13.2 The NRA policy also sets out the requirement for robust Traffic and Transport Assessments to assess the impact of proposed developments on the road network. This Transport Impact Assessment has had regard to the NRA policy statement through the preparation of the Transport Strategy for the Draft Planning Scheme and through the preparation of this assessment.

16.4 Relevant Characteristics of the Draft Planning Scheme

16.4.1 Proposed Pedestrian and Cycle Infrastructure

- 16.4.1.1 Direct and attractive cycle and pedestrian linkages are proposed along key desire lines within the Docklands. It is an objective of the Docklands Master Plan 2008 that major trip attractors, such as public transport nodes, locations of social and cultural infrastructure, open spaces and recreational areas will be interconnected by a comprehensive, permeable network of cycle and pedestrian routes that link these key nodes together.
- 16.4.1.2 The Draft Planning Scheme will substantially enhance and improve the existing pedestrian and cycle environment. Permeability of the area will improve the environment for pedestrians and cyclists. A network of routes will be implemented to improve connections to Ringsend, Sandymount, other parts of the Dublin Docklands, the City centre and wider area. Streets, public space and the public realm will be designed in a way that is accessible, convenient, attractive and safe for pedestrians and cyclists to use. The improvements in accessibility of Poolbeg for pedestrians and cyclists will encourage and allow for a significant number of trips to be made by these modes.
- 16.4.1.3 It is proposed that a number of linear pedestrian and cycle routes be developed that interlink to create a continuous network. These links will be incorporated into the urban design of the Draft Planning Scheme. The pedestrian and cycle environment along the links will be improved through the development of linear parks, the promotion of active frontages, the construction of new bridge crossings and the general provision of adequate pedestrian and cycle infrastructure. The main new links will be:

- Route 1: From Poolbeg to Ringsend comprising a linear park / urban space through Poolbeg and environmental enhancements on Seán Moore Road;
- Route 2: From Poolbeg to the heart of the Docklands comprising integrated links across the Dodder Bridge;
- Route 3: From Poolbeg to Sandymount comprising new pedestrian infrastructure within Poolbeg; and
- Route 4: A new network of links within Poolbeg that will include a continuous pedestrian and cycle route around the edge of the Peninsula enhancing access to the recreational amenity along the shoreline.

16.4.2 Cycle Parking Provision

- 16.4.2.1 As part of the Draft Planning Scheme the level of cycle parking provision and cycle facilities will be greatly enhanced. By facilitating and promoting cycling, the Draft Planning Scheme aims to reduce car dependency and ultimately car use.
- 16.4.2.2 Cycle parking facilities will be conveniently located, secure, easy to use and adequately lit. For security reasons, cycle parking should not be located in out of the way locations. Secure cycle parking facilities will be provided in new office blocks and apartment blocks. Covered cycle parking facilities will be provided within all residential apartment blocks. Weather protected facilities should be considered where appropriate for other locations.

16.4.3 Docklands Rapid Transit (DRT).

- 16.4.3.1 Docklands Rapid Transit (DRT) will be a bus based, high capacity public transport system. The provision of DRT services to Poolbeg is a key component of the Transport Strategy within the Draft Planning Scheme. The delivery of the DRT is incorporated into the phasing of development and, as such, will ensure that public transport is delivered in line with development.
- 16.4.3.2 The DRT will be a flexible system and this will allow it to be introduced on a phased basis as and when the area develops and infrastructure becomes available. Initially, the DRT could use existing roadspace and may even be integrated to a certain degree with existing bus services and road traffic. Ultimately, a permanent route for DRT will be required to derive the maximum benefit from the system by providing for efficient interchange with other public transport services. This route will take advantage of the Dodder Bridge once it is complete which will provide a more direct route in to the city centre.

- 16.4.3.3 Preliminary feasibility analysis of potential routes along the north and south quays has been undertaken. A number of route options are available, each of which has the potential to satisfy the requirements for DRT. Completion of the Samuel Beckett Bridge at Macken Street and the planned crossing of the Dodder at Ringsend are key influencing factors in the determination of the most appropriate DRT route.
- 16.4.3.4 An indicative route for DRT is contained within the Draft Planning Scheme for both Phase 1 and 2 of development. During Phase 1, the DRT will provide the primary means of public transport and it is anticipated that it will cater for approximately half of the peak hour public transport demand. It is envisaged that the DRT will cross the Sean Moore Road at a segregated crossing. This will provide priority access for the DRT. The DRT will then extend along South Bank Road within dedicated lanes and be routed towards the Urban Boulevard to the heart of the Phase 1 development. The DRT will be within the immediate catchment of the Commercial and Retail development areas which will generate the highest concentration of transport demand. Given the extensive pedestrian and cycle linkages within the Draft Planning Scheme, the DRT will be within easy walk of all development areas in Phase 1.
- 16.4.3.5 The DRT proposal will deliver a high level of service (in terms of quality of vehicle, journey time, and reliability, etc.), that is capable of achieving a high mode share. Although the DRT will bring about a significant improvement in the level of public transport provision it will not provide sufficient public transport capacity to sustain the full development potential of the Draft Planning Scheme Area. In the short term it will be beneficial to strengthen regular bus services in the area and in the longer term, a second high capacity public transport link will be required. This second link could be provided by an extension to Dublin's Luas network. This extension would not replace the DRT, but would complement it as part of an integrated public transport system.
- 16.4.4 Strengthening Bus Services.*
- 16.4.4.1 Bus services will play a significant role in delivering public transport accessibility from Poolbeg to areas to the south and north. Indicative bus connections are detailed within the Poolbeg Draft Planning Scheme. It is envisaged that bus services will be provided by Dublin Bus and private operators as necessary. The frequency and level of service provided by bus based public transport will be linked to the development phasing.
- 16.4.4.2 It is likely that strengthened bus services will be provided through a combination of improvements and extensions to existing bus services and the introduction of new services. A number of existing bus routes have been identified which could have the potential to be extended or modified to serve the new bus links. These include Dublin Bus routes number 1, 3,

18, 74/A and 77. A detailed bus service plan will need to be developed to ascertain the most appropriate means of providing the new links. Careful consideration will need to be given to the impact on existing bus services. Detail routing of bus services will need to be undertaken prior to implementation to ensure that buses are routed on appropriate roads. It is assumed that buses will be accommodated along existing bus corridors for the most part. The expansion of bus services will benefit existing communities as well as the population of the Draft Planning Scheme.

16.4.4.3 New bus facilities will be developed as part of the Draft Planning Scheme. Bus stops will be located at regular intervals throughout the Draft Planning Scheme Area.

16.4.5 Extension of Luas to Poolbeg.

16.4.5.1 The provision of a second high capacity public transport link is essential to satisfy the public transport requirements for Phase 2 of the Poolbeg Draft Planning Scheme. A second high quality public transport link would have two main benefits. Firstly, the passenger carrying capacity to and from Poolbeg would be significantly increased, but also importantly, public transport accessibility to the area would be greatly improved. The delivery of two public transport links would connect Poolbeg with the City both north and south of the Liffey, enhancing the catchment for public transport and maximising integration with the existing and future public transport network envisaged in Transport 21.

16.4.5.2 The extension of Luas or equivalent services to Poolbeg is an objective of the Dublin Docklands Master Plan 2008. The possibility of extending Luas services to Poolbeg is considered within the Draft Planning Scheme.

16.4.5.3 In order to progress proposals for a Luas extension to Poolbeg, various route options will have to be examined in order to assess their feasibility and viability. One such option that was examined as part of the Draft Planning Scheme was an extension of the Luas Line C1 is proposed from the Point Village to Poolbeg. This new extension could cross the Liffey via a new bridge and proceed adjacent to the East Link Road towards Poolbeg.

16.4.5.4 The routing of the Luas is subject to detailed feasibility study and design. It is not possible to assess the impact of the construction and operation of Luas at this stage. The Luas will require a separate EIS if and when the scheme is progressed. As the phasing of the development within the Draft Planning Scheme is linked to the delivery of Luas (or equivalent), it has been taken into consideration within this traffic and transport assessment.

16.4.6 *Road Infrastructure Proposals.*

- 16.4.6.1 The primary objective of the road network improvements evolving under the Poolbeg Draft Planning Scheme will be to provide a logical local hierarchical road network catering for local access requirements and retaining capacity for regional through traffic. Furthermore the road infrastructure proposals must be conducive to the public transport, walking and cycling requirements of the Draft Planning Scheme.
- 16.4.6.2 Within the Draft Planning Scheme Area a new network of local connecting distributor roads and connecting streets will be developed. Long-stay car parking for new development will be located off-street (underground) with some limited on-street short-stay parking provided for local services.
- 16.4.6.3 Sean Moore Road linking from East Link Road to Beach Road forms part of the Regional R131 road artery and will play a key role in accessing the Poolbeg Peninsula into the future. This road will therefore need to function at a number of different levels including retaining existing capacity for regional traffic, providing local access and facilitating envisaged high volumes of pedestrians and cyclists crossing it.

16.4.7 *Car Parking Standards.*

- 16.4.7.1 By facilitating and prioritising public transport, walking and cycling, the Draft Planning Scheme aims to reduce car dependency and ultimately reduce car use particularly during peak periods. For these reasons, the car parking standards have been designed to limit car parking availability.
- 16.4.7.2 The parking standards have been structured to support the full development of the planning scheme area and to support the sustainability of the development in terms of transport and, in particular, public transport use. The car parking standards contained within the Draft Planning Scheme are reproduced in Table 16.4.7.1

Table 16.4.7.1 Car Parking Spaces Standards for Various Land Uses

Land Use	Phase	Car Spaces
Office	1	1 per 300sqm GFA (Gross Floor Area)
	2	1 per 400sqm GFA (Gross Floor Area)
Residential	1 & 2	1 per dwelling (two or more bedrooms)
		1 per 2 dwellings (one bedroom)
Retail Supermarkets	1 & 2	1 per 30sqm GFA

Other Retail and Financial Offices (e.g. banks)	1 & 2	1 per 75sqm GFA
Hotels and Guest Houses	1 & 2	1 per 3 rooms
Clinics and Group Medical Practices	1 & 2	1 per consulting room
Schools	1 & 2	1 per 2 classrooms
Restaurants, Cafés and Take Aways	1 & 2	None
Public House	1 & 2	None
Other Cultural and Recreational Buildings or Leisure Use	1 & 2	Dependent on location and nature of use

16.4.8 Car Parking Provision

- 16.4.8.1 The Poolbeg Peninsula is located in close proximity to Dublin's City Centre. As part of the planning scheme the level of public transport provision serving the Poolbeg Peninsula and the surrounding area will be enhanced. In addition, it is an objective of the Planning Scheme to promote sustainable living. By facilitating and prioritising public transport, walking and cycling, the Draft Planning Scheme aims to reduce car dependency and ultimately reduce car use. For these reasons, the car parking standards have been designed to limit car parking availability.
- 16.4.8.2 Car parking will be required to provide facilities for residents and to provide limited car parking for the working population to facilitate access. Car parking will also be required to cater for trips that cannot be catered for by public transport or walking or cycling. The Draft Planning Scheme will include a district centre which will comprise a retail supermarket. Car parking will need to be provided to allow people to transport their shopping. If insufficient car parking is provided for the retail supermarket, it could possibly lead to traffic congestion as people seek somewhere to park. Therefore, it is important that the retail supermarket has adequate parking to cater for customer needs.
- 16.4.8.3 Restrictions in car parking provision may lead to increased demand for available parking within the areas surrounding the Draft Planning Scheme. The impact of parking demand on local areas will need to be monitored. The Authority will seek to engage with local residents to assess potential issues and subsequently liaise with Dublin City Council to develop measures to address those issues.

- 16.4.8.4 The Car Parking Standards set out in the Draft Planning Scheme are maximum standards. Therefore, it will be possible that the level of car parking actually provided by applicants will be less. Details of car and cycle parking provision should be included within the Transport Impact Assessment which is required to support Applications for Certification.
- 16.4.8.5 This traffic impact assessment considers a ‘worst case’ in terms of traffic generation and it is assumed that the maximum levels of car parking will be provided. The number of car parking spaces provided is dependent on the land use mix. As there is a degree of flexibility in relation to land use mix within the Draft Planning Scheme, the precise number of car parking spaces cannot be determined at this stage. However, an assessment has been made of the potential maximum number of car parking spaces has been derived on the basis policies of the Poolbeg Draft Planning Scheme.
- 16.4.8.6 Table 16.4.8.1, below, shows the indicative provision of parking spaces in phases 1 and 2 of the Poolbeg Peninsula Draft Planning Scheme development.

Table 16.4.8.1 Car Parking Spaces Standards for Various Land Uses

Phase	Residential Units	Commercial Office	Retail	Total
Phase 1	~ 1,890	~ 580	~ 470	2,940
Phase 2	~ 1,750	~ 150	~ 65	1,965
Total	3,640	730	535	4,905

16.4.9 Demand Management

- 16.4.9.1 A number of transport demand management measures will be implemented as part of the Draft Planning Scheme. These include:
- the adoption of Mobility Management Plans;
 - the enforcement of bespoke Car Parking Standards; and
 - the enforcement of Cycle Parking Standards.

Mobility Management Plans.

- 16.4.9.2 The Draft Planning Scheme requires a Mobility Management Plan (MMP) for any proposed commercial development under the Draft Planning Scheme which exhibits the potential to

generate more than 500 vehicle trips per day and/or more than 100 trips in the peak period. Similarly, where the potential total employment in the development exceeds or will exceed 300 workers, a MMP will be required.

- 16.4.9.3 A MMP consists of a package of measures put in place by one organisation or group of organisations (e.g. within an office building/site) to encourage and support more sustainable travel patterns among staff, visitors and customers. Any proposed commercial development within the Poolbeg Draft Planning Scheme which is required to prepare a MMP must do so in accordance with the guidelines for Mobility Management Plans outlined in the Draft Planning Scheme.

16.5 Likely Impacts of the Draft Planning Scheme.

16.5.1 Construction Phase.

- 16.5.1.2 The traffic impacts associated with the construction of the Draft Planning Scheme will differ from those arising during the operational phase, and despite the impacts being temporary in nature they need to be taken into consideration. Given the nature of the development, it is unlikely that the construction impact on traffic will be more significant than the operation impact.
- 16.5.1.3 At the Draft Planning Scheme stage there are a number of unknowns which inhibit the assessment of the construction impact on traffic and transportation, including the following:
- method of construction; and
 - duration of construction.
- 16.5.1.4 The Draft Planning Scheme requires that a site specific Transport Impact Assessment be prepared in support of Applications for Certification. The TIA will include an assessment the volume of construction traffic, construction method and materials that will be used along with the origin and type of transport vehicle to be determined to ensure that there will be no unacceptable impact on transport and traffic.
- 16.5.1.5 There are three primary sources of impact on traffic and transportation during the construction phase, namely:
- trips generated by the delivery of construction plant, materials and equipment to the site and removal of surplus materials from the site;
 - trips generated by construction workers arriving and leaving the site(s); and
 - alterations to the existing road network to accommodate construction.

- 16.5.1.6 The level of impact of each of the sources will need to be evaluated as part of the Transport Impact Assessment in support of Applications for Certification and the combined impact determined.

Construction Traffic

- 16.5.1.7 Access for construction traffic can be provided by the existing road infrastructure. It is not envisaged that the construction phase will require significant road infrastructure improvements to accommodate construction traffic accessing the Draft Planning Scheme Area.

- 16.5.1.8 Within reason, the number of external trips generated by the construction of the development should be minimised.

- 16.5.1.9 For external construction vehicle movements, the Authority will encourage the use of the Dublin Port Tunnel as a route for construction vehicles where appropriate. The tunnel is designed to cater for HGV movements and there is a good level of access between the Draft Planning Scheme Area and the tunnel. This measure will reduce the impact of construction HGV movement on the local road network and the existing populations in the surrounding area. Furthermore, it is assumed that the Dublin City Council HGV Management Strategy will apply to HGV movements on the wider road network.

16.5.2 Operational Phase

2020 Do Something Scenario

- 16.5.2.1 For the purposes of comparison, an assessment was undertaken of the likely future traffic conditions should the Poolbeg Draft Planning Scheme not proceed. Traffic conditions vary over time and even if the planning scheme was not delivered, there would be changes to traffic flows. Alterations to the traffic and transport network will happen over time, such as the delivery of Transport 21, which will have an impact on traffic conditions. It is not possible, therefore, to assess a do-nothing situation for traffic. Consequently, for the purposes of the EIS, a do-minimum future traffic situation is assessed for the future base year of 2020.

- 16.5.2.2 The 'do minimum' scenario includes committed developments in the local vicinity but assumes the Draft Planning Scheme, including the road network upgrades, has not been implemented. The DTO multi-modal transportation model for the 'do minimum' scenario considers the level of background traffic on the surrounding highway network as a result of committed development in the vicinity of Poolbeg Peninsula. Also considered is the impact of Transport 21 projects on mode share. This information was obtained from the DTO multi-modal transportation model. The predicted vehicular flows from the committed developments were added to the future base year traffic flows to provide a 'do minimum' scenario for 2020.

16.5.2.3 The 'do minimum' scenario would not benefit from any of the road infrastructure improvements or public transport enhancements which form part of the Draft Planning Scheme proposals. The following enhancements would not be delivered in the 'do minimum' scenario:

- Provision of enhanced pedestrian environment associated with the Draft Planning Scheme;
- Improved cycle facilities and integrated cycle network associated with the Draft Planning Scheme;
- Delivery of enhanced public transport services including DRT and Luas; and
- Road infrastructure improvements on Sean Moore Road.

16.5.2.4 Traffic flows have also been assessed for the 'do minimum' scenario. Table 16.5.2.1 below shows the predicted link flows for the 2020 'do minimum' scenario, without Poolbeg Draft Planning Scheme development.

Table 16.5.2.1 Estimated Link Flows Summary Table (PCUs) – AM Peak (08:00-09:00) – 2007 Base Flows compared to 2020 'Do Nothing'

Network Link	Direction	2007 Base Flows	2020 Do Nothing (1)	Absolute Change	% Change
Beach Road (South of Sean Moore Road)	NB	859	858	-1	0.0%
	SB	1,089	1,110	21	1.9%
	Total	1,948	1,968	20	1.0%
Sean Moore Road (South of Bremen Road)	NB	825	984	159	19.3%
	SB	1,283	1,325	42	3.3%
	Total	2,108	2,309	201	9.5%
South Bank Road (West of Whitebank Rd)	EB	197	296	99	50.2%
	WB	224	308	84	37.5%
	Total	421	604	183	43.5%
East Link Road	WB	1,052	1,195	143	13.6%
	EB	1,519	1,561	42	2.8%

Network Link	Direction	2007 Base Flows	2020 Do Nothing (1)	Absolute Change	% Change
	Total	2,571	2,756	185	7.2%
Bridge Street	WB	883	935	52	5.9%
	EB	558	681	123	22.0%
	Total	1,441	1,616	175	12.1%
Londonbridge Road (west of Sandymount Road)	WB	208	210	2	1.0%
	EB	242	285	43	17.8%
	Total	450	495	45	10.0%
North Wall Quay (west of East Wall Rd)	EB	802	802	0	0%
	WB	553	602	49	8.9%
	Total	1,355	1,404	49	3.6%

- 16.5.2.5 The results indicate that without the scheme in place, increases in traffic flow would occur, compared to the 'do something' scenario. The 'do minimum' scenario is likely to lead to increasingly significant pressure on the existing road network around Poolbeg peninsula.
- 16.5.2.6 As shown in Table 16.5.2.1, the 'do minimum' scenario has highest percentage increase in flow of 50% on South Bank Road, in an eastbound direction. Without Poolbeg Peninsula development, this link would experience an increase of 99PCU's during the 08:00 to 09:00 hour. This reflects the increase in traffic levels that will arise as a result of anticipated development within the Poolbeg Peninsula, including the Waste to Energy facility, that will occur in the absence of the implementation of the Draft Planning Scheme. In absolute terms, an increase of 183 PCUs per hour to just over 600 PCUs is not especially high. An increase of approximately 9.5% (201 PCUs) is anticipated on Sean Moore Road and an increase of 7.2% (185) on East Link Road. These increases are partly due to the growth in traffic within the Poolbeg Peninsula.
- 16.5.2.7 A PCU (Passenger Car Units) is a standard unit for measurement of traffic levels. Each unit represents the level of traffic generated by a standard car. HGVs, which are longer and generally slower moving than cars are equal to approximately three passenger car units.

2020 'Do Something' Scenario

Trip Generation

- 16.5.2.8 The trip generation for the three hour morning peak (07:00-10:00) has been calculated using information from the development schedule and trip rates per 100m² based on the Trip Attraction / Generation Model (TAGM), which is a sub model of the DTO multi-modal transportation model. TAGM takes into account land use and demographic forecasts for an area and calculates the resultant changes in the demand for travel.
- 16.5.2.9 As outlined in the methodology, the impact assessment considers a 'worst case' scenario. As commercial uses generate the highest concentration of trips and, thus, places the highest demand on the transport network, the maximum quantum of commercial floorspace permitted under the Draft Planning Scheme has been assumed.
- 16.5.2.10 On completion, the Poolbeg Draft Planning Scheme Area will comprise a total of approximately 752,000m² of development. Given the maximum flexibility for commercial land uses, the development could potentially comprise a residential / commercial land use mix of 58:42. This will provide approximately 434,000m² for residential uses and 318,000m² commercial space.
- 16.5.2.11 It is estimated that the total development could generate up to approximately 19,040 person trips both internally and to and from the Peninsula in the morning peak period (07:00-10:00). Base trip rates by transport mode for inbound and outbound trips in the morning peak have been calculated for residential, commercial and leisure and amenity uses. The resulting number of inbound and outbound trips with the completion of all phases is shown in Table 16.4.2.2.

Table 16.5.2.2 AM Peak (07:00-10:00) Trip Generation – Forecast Trips for 752,000m² development (Phases 1 & 2 combined)

Use	Floor Area (sqm)	Inbound Trip Rate (per 100sqm)	Person Trips In	Outbound Trip Rate (per 100sqm)	Person Trips Out	Total Trips
Residential	382,000	0.15	570	1.82	6,950	7,520
Commercial	266,400	3.77	10,000	0.28	750	10,750
Leisure/Amenity	103,600	0.38	400	0.36	370	770
Total	752,000	-	10,970	-	8,070	19,040

- 16.5.2.12 Table 16.5.2.2 shows that a total of approximately 19,040 trips are forecast in the three hour morning peak period (07.00 – 10.00), with almost 11,000 inbound trips and around 8,000 outbound trips. As is to be expected, in the morning peak outbound residential trips will be higher than inbound residential trips, while inbound commercial trips will be higher than outbound commercial trips.

Mode Split

- 16.5.2.13 The provision of transport infrastructure will determine the phasing of development and the achievable mode share in the Poolbeg Peninsula. It is anticipated that the improvements to public transport infrastructure serving the Poolbeg area, combined with the promotion of travel by sustainable modes of transport, will lead to a significant increase in sustainable transport by people living and working in the area.
- 16.5.2.14 Base trip rates by transport mode have also been calculated for the morning peak based on the transport improvements within Dublin and the Poolbeg Draft Planning Scheme Area. Table 16.5.2.3 presents the modal split of trips in the three hour morning peak for the scheme development. The Mode Share has been derived from the analysis of traffic modelling results and Census 2006 data. The Mode Share takes car parking availability into account, particularly for trips to commercial office developments for which levels of car parking are restricted.

Table 16.5.2.3 AM Peak (07:00-10:00) – Forecast Mode Split 752,000m2 development (Phases 1 & 2 combined)

Mode	Inbound Mode Share	Person Trips In	Outbound Mode Share	Person Trips Out	Total Trips Mode Share	Total Person Trips
Walk	18%	1,960	28%	2,250	22%	4,210
Cycle	8%	900	6%	500	7%	1,400
Public Transport (DRT, Luas, Bus, DART, Water Bus)	53%	5,720	33%	2,740	45%	8,460
Car	12%	1,340	19%	1,550	15%	2,890

Mode	Inbound Mode Share	Person Trips In	Outbound Mode Share	Person Trips Out	Total Trips Mode Share	Total Person Trips
Internal Trips	9%	1,050	13%	1,030	11%	2,080
Total	100%	10,970	100%	8,070	100%	19,040

16.5.2.15 Within the Draft Planning Scheme, a range of mode splits are outlined for the full development. Table 16.5.2.3 illustrates that the mode share assumptions calculated as part of this assessment are in keeping with the mode share targets set out in the Planning Scheme. At 15%, the mode share for car trips is at the upper limit of the maximum mode share for car outlined in the Planning Scheme and this reflects the reasonable ‘worst case’ scenario.

16.5.2.16 Under the assumptions used in the assessment (maximum car parking and maximum commercial office space), the full implementation of the transport strategy will provide for around 53% of all inbound trips during the AM peak period to be delivered by public transport.

16.5.2.17 The improvements in accessibility of Poolbeg for pedestrians and cyclists will allow for a significant number of trips. Approximately a third of all trips to and from Poolbeg will be by walking and cycling. This is consistent with the existing level of walking and cycling activity within the Docklands area. In general, walking and cycle movement in the Poolbeg area will be improved as part of the scheme. It is anticipated that a higher mode share could be achieved by cycling. The 7% mode share assumption is relatively conservative and could increase significantly as more cycling initiatives and infrastructure is provided throughout the Dublin area and in close proximity to Poolbeg.

Traffic Flow

16.5.2.18 As per Table 16.5.2.3, it is anticipated that the traffic generated by the proposed development within the Draft Planning Scheme will be approximately 1,340 person trips by car inbound and 1,550 person trips by car outbound over the three hour peak period. Traffic patterns within the DTO multi-modal transportation model were analysed to determine the relationship between the peak hour and the three hour peak period. It was determined that just under 54% of outbound three hour peak traffic will leave in the 08:00 to 09:00 peak hour. Similarly, around 47% of inbound three hour peak traffic will arrive in the 08:00 to 09:00 period. Therefore, it is assumed that roughly 635 persons will arrive by car between 08:00 and 09:00 and 835 will depart by car between 08:00 and 09:00. The average car occupancy rate in Dublin is 1.35. Using this factor, it

is anticipated that the Poolbeg Draft Planning Scheme development will generate 470 car trips inbound and 620 car trips outbound. This is summarised in Table 16.5.2.4.

Table 16.5.2.4 Peak Hour Car Trips

	3-hour person trips by car	Peak hour person trips by car	Peak Hour Car Trips (assuming average occupancy of 1.35)
Inbound	1,340	635	470
Outbound	1,550	835	620

16.5.2.19 To quantify the likely impact of the scheme on traffic in the area, a comparison of traffic flows as a result of the development, compared to the 2020 'do minimum', has been undertaken. Table 16.5.2.5 summarises the comparison of flows and it shows the actual change and percentage change.

Table 16.5.2.5 Estimated Link Flows Summary Table (PCUs) – AM Peak (08:00-09:00)

Network Link	Direction	2020 Do Nothing	2020 Do Something	Absolute Change	% Change
Beach Road (South of Sean Moore Road)	NB	858	871	13	1.5%
	SB	1,110	1,347	237	21.3%
	Total	1,968	2,218	250	12.7%
Sean Moore Road (South of Bremen Road)	NB	984	1,335	351	35.7%
	SB	1,325	1,688	363	27.4%
	Total	2,309	3,023	714	30.9%
South Bank Road (West of Whitebank Rd)	EB	296	438	142	48.0%
	WB	308	537	229	74.4%
	Total	604	975	371	61.4%
East Link Road	WB	1,195	1,256	61	5.1%
	EB	1,561	1,578	17	1.1%

Network Link	Direction	2020 Do Nothing	2020 Do Something	Absolute Change	% Change
	Total	2,756	2,834	78	2.8%
Bridge Street	WB	935	977	42	4.5%
	EB	681	723	42	6.2%
	Total	1616	1,700	84	5.2%
Londonbridge Road (west of Sandymount Road)	WB	210	252	42	20.0%
	EB	285	290	5	1.8%
	Total	495	542	47	9.5%
North Wall Quay (west of East Wall Rd)	EB	802	811	9	1.1%
	WB	602	628	26	4.3%
	Total	1,404	1,439	35	2.5%

16.5.2.20 Under the weekday morning peak ‘do something’ conditions the maximum peak two-way flow on any link is 3,023 passenger car units (PCUs), which occurs on Sean Moore Road. This represents a net increase of 714 (+30.9%) PCUs. Under the ‘do something’ scenario road infrastructure improvements will be undertaken on Sean Moore Road, including the widening of the road. Infrastructure improvements on this link will increase its capacity which will be able accommodate the change in traffic flows. It can therefore be concluded that increased traffic flows on Sean Moore Road will have a moderate impact, which will be mitigated through the provision of the proposed road improvements.

16.5.2.21 South Bank Road reflects the internal traffic within the Poolbeg Draft Planning Scheme development. It is one of two proposed vehicular access points to the Draft Planning Scheme Area in conjunction with a new road to be provided further south on Sean Moore Road. As is to be expected, it is predicted that traffic flows on this corridor will increase as a result of the development of the Draft Planning Scheme Area. The internal road network will be upgraded considerably as part of the planning scheme. The net increase in eastbound and westbound flows on this link is moderate (+142 and +229 PCUs respectively), with an overall net increase of 61%. It can therefore be concluded that increased traffic flows on South Bank Road will have a moderate impact, which will be mitigated through the provision of the proposed road improvements.

- 16.5.2.22 Two-way flows on Beach Road will experience an overall increase of 12.7% over the ‘do-minimum’ situation (+250 PCUs). The majority of the increase in traffic will be in the southbound direction. This will result in a 21.3% increase in traffic during the AM peak hour southbound on Beach Road as compared to the ‘do-minimum’ situation, which will result in a moderate impact. Traffic movements on Beach Road are likely to benefit from the traffic management improvements on Sean Moore Road as there is a strong north south movement along this corridor. Additional capacity on Sean Moore Road will accommodate increases in traffic volumes and improve general traffic movements on the surrounding road network.
- 16.5.2.23 There will be lesser impact on the remaining roads in the surrounding area for which one-way traffic flows will increase by less than 61 PCU’s per hour. This level of increase will result in a slight impact on East Link Road, Bridge Street, Londonbridge Road and North Wall Quay.
- 16.5.2.24 This assessment demonstrates that overall the impact of the changing traffic volumes associated with the development would result in a moderate impact on South Bank Road, Sean Moore Road and Beach Road. The increase in traffic flows on the network can be accommodated due to the road infrastructure improvements proposed, including the following enhancements:
- Sean Moore Road upgrade;
 - New signalised junction access into Poolbeg, off Sean Moore Road; and
 - Upgrading of Sean Moore Road roundabout to signalised junction.

16.6 Mitigation Measures

- 16.6.1 There are a number of inherent measures in the Draft Planning Scheme which will mitigate the potential negative impact of the development on traffic and transportation. These inherent measures include:
- pedestrian and cycle infrastructure improvements;
 - public transport improvements;
 - car parking restrictions;
 - localised road junction improvements; and
 - additional demand management tools (e.g. requirements for mobility management plans)
- 16.6.2 As a result of the inherent mitigation measures within the Draft Planning Scheme, the impact of the development on traffic and transportation will be reduced to minimal levels. The phasing

and delivery of the Draft Planning Scheme is directly linked to the delivery of these transportation improvements. The accessibility of the area will be greatly enhanced as a result of the proposals contained in the Draft Planning Scheme, particularly with respect to accessibility by sustainable modes.

16.6.3 The Draft Planning Scheme requires the preparation of a site specific Transport Impact Assessments as part of the application process. Subsequent to detailed design, specific mitigation measures will be identified, if required, to reduce the impact of the construction and/or operational phase of the development on transportation.

16.6.4 *Summary*

16.6.4.1 The Draft Planning Scheme includes provision for transport infrastructure improvements to support the development. In particular, the transport strategy supports sustainable transport modes and, therefore, reduces the environmental impact of the scheme. The overall accessibility of the area will be greatly enhanced as a result of the proposals contained in the Draft Planning Scheme, particularly with respect to accessibility by sustainable modes.

16.6.4.2 The transport infrastructure improvements will not only benefit the future population of the Draft Planning Scheme Area, but also the existing population in the surrounding catchment. As a result of the Draft Planning Scheme there will be improvements in the level of pedestrian and cycle infrastructure. Furthermore, the expansion of bus services, the introduction of Docklands Rapid Transit and the extension of the Luas or equivalent will address the current public transport deficit resulting in a significant beneficial impact for existing communities.

16.6.4.3 Despite the extensive mitigation measures inherent in the Draft Planning Scheme and the positive benefits for sustainable transport patterns as a whole, there will be a slight to moderate residual impact on traffic as a result of the development compared to the do-minimum situation.

16.7 **References.**

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The UK Department of Transports ‘Design Manual for Roads and Bridges’ (DRMB Volume 11) which offers comprehensive advice for the staged assessment of major road schemes.