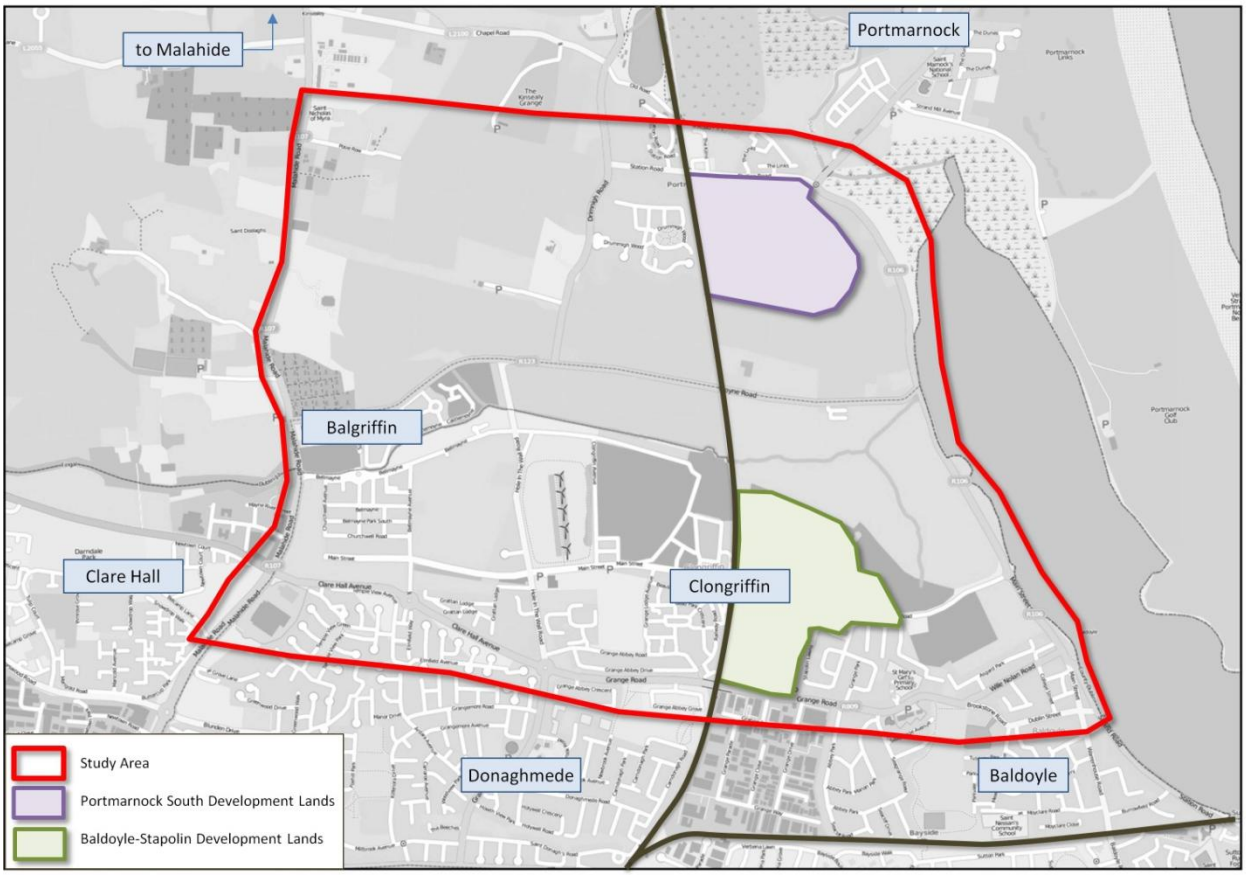
Technical Paper

Project:	**South Fingal Transport Study**	Job No:	**60212620**
Task:	*Transport Phasing Assessment: Portmarnock South and Baldoyle-Stapolin Local Area Plans.*	Date:	**05 Oct 2012**

1. Introduction

This note summarises an assessment of phasing options for transport infrastructure to support proposed development in the Local Area Plans (LAPs) for Portmarnock South and Baldoyle Stapolin. The Local Area Plans each comprise residential zoned development lands with associated open space and high amenity areas. The location of the residential development lands in each LAP area is shown in Figure 1.1, together with the extent of the study area for this assessment.

Figure 1.1: Study Area for Phasing Assessment



For details of transport assessment of the wider South Fingal area, please refer to the draft *'South Fingal Transport Study: Final Report',* May 2012 which proposes a transport strategy for the South Fingal area for a future year of 2025 consisting of recommended road and public transport network improvements.

This assessment addresses the proposed phasing of the road infrastructure proposals within the study area presented above for the interim period between 2012 and 2025.

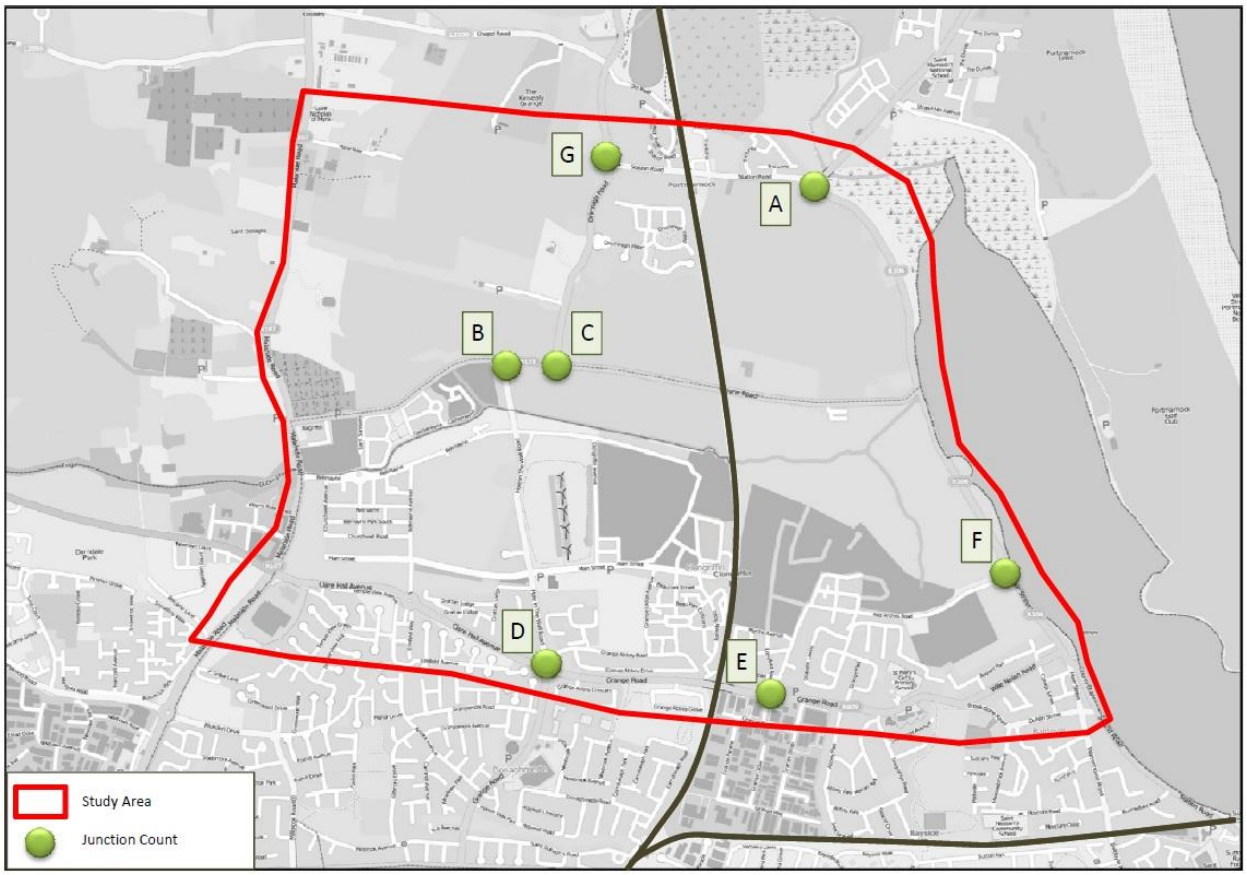
2. Traffic Model Development & Data Collection

The South Fingal Transport Model was used as the basis for this traffic capacity assessment. This is a strategic morning peak hour transport model for the South Fingal area for a base year of 2011 and a future year of 2025. The model includes land use projections for the area arising from the Regional Planning Guidelines, developed by the National Transport Authority (NTA) for the Greater Dublin Area (GDA) Model and refined by Fingal Planning Department.

The model was updated to a more refined level of detail in the study area, a number of traffic surveys were undertaken in May 2012 by AECOM. The location of these surveys are described below and presented in Figure 2.1:

A. R106 Strand Road / Station Road / R106 Coast Road
B. Hole in the Wall Road / R123 Moyne Road
C. R123 Moyne Road / R124 Drumnigh Road
D. Clare Hall Avenue / Hole in the Wall Road / Grange Road
E. Grange Road / Baldoyle Industrial Estate
F. Coast Road / Red Arches Road
G. Drumnigh Road / Station Road

Figure 2.1: Traffic Survey Locations



Updated traffic flow data and signal information was also obtained for the Clare Hall signalised junction from the Dublin City Council SCATS Urban Traffic Control system.

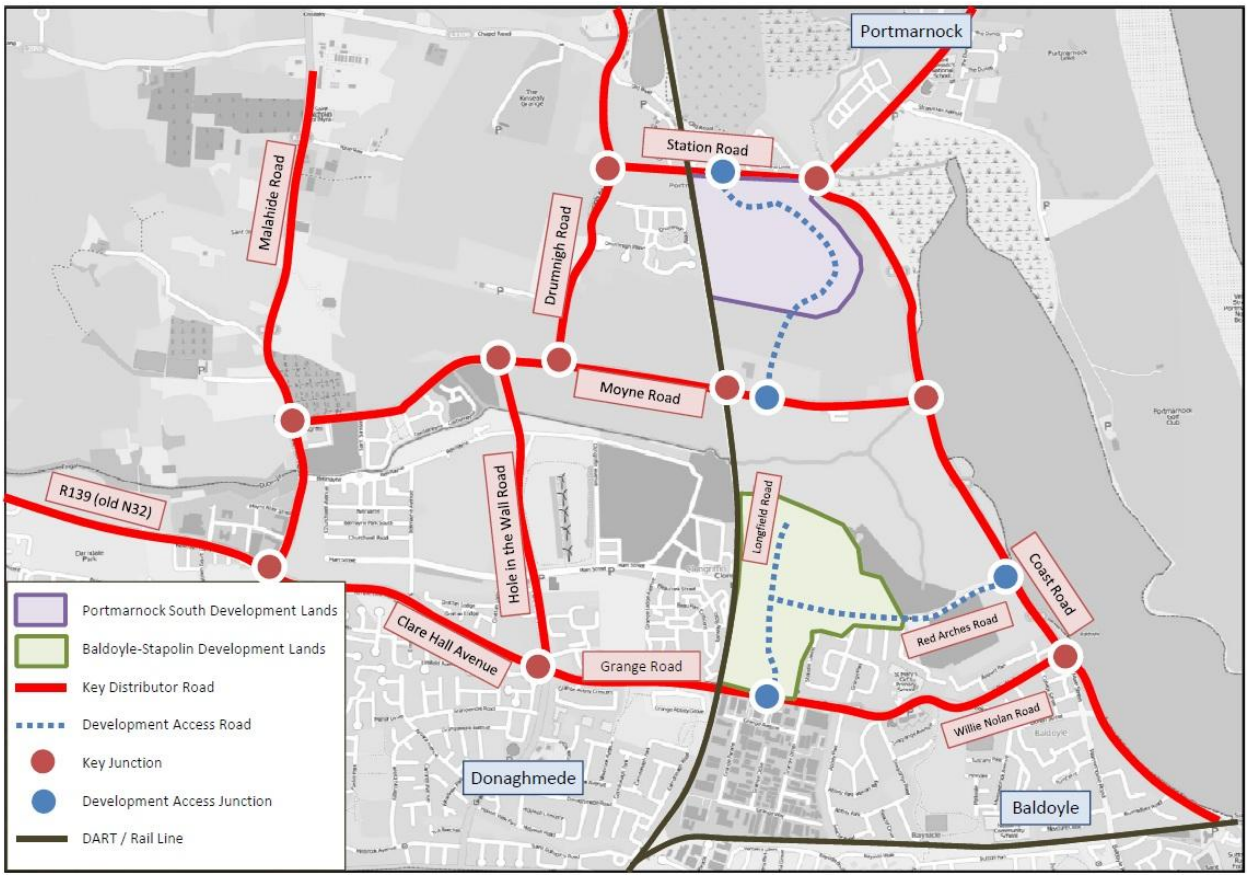
3. Existing Conditions

The Baldoyle-Stapolin development lands are situated immediately to the east of the Dublin-Belfast rail line, to the north of Grange Road. The main development access roads have been constructed as part of the initial phases of development in the lands at Clongriffin. Red Arches Road provides east-west connectivity between the lands and the R106 Coast Road and Longfield Road provides north-south connectivity between the lands and Grange Road.

The Portmarnock South development lands are also located immediately east of the rail line and south of Station Road. The proposed main development access route is proposed to run on a north-south alignment with access junctions to the north at Station Road and the south on the R123 Moyne Road.

The location of the development lands in the context of the main elements of the local transport network is shown in Figure 3.1.

Figure 3.1: Location of Development Lands and major elements of existing transport network.

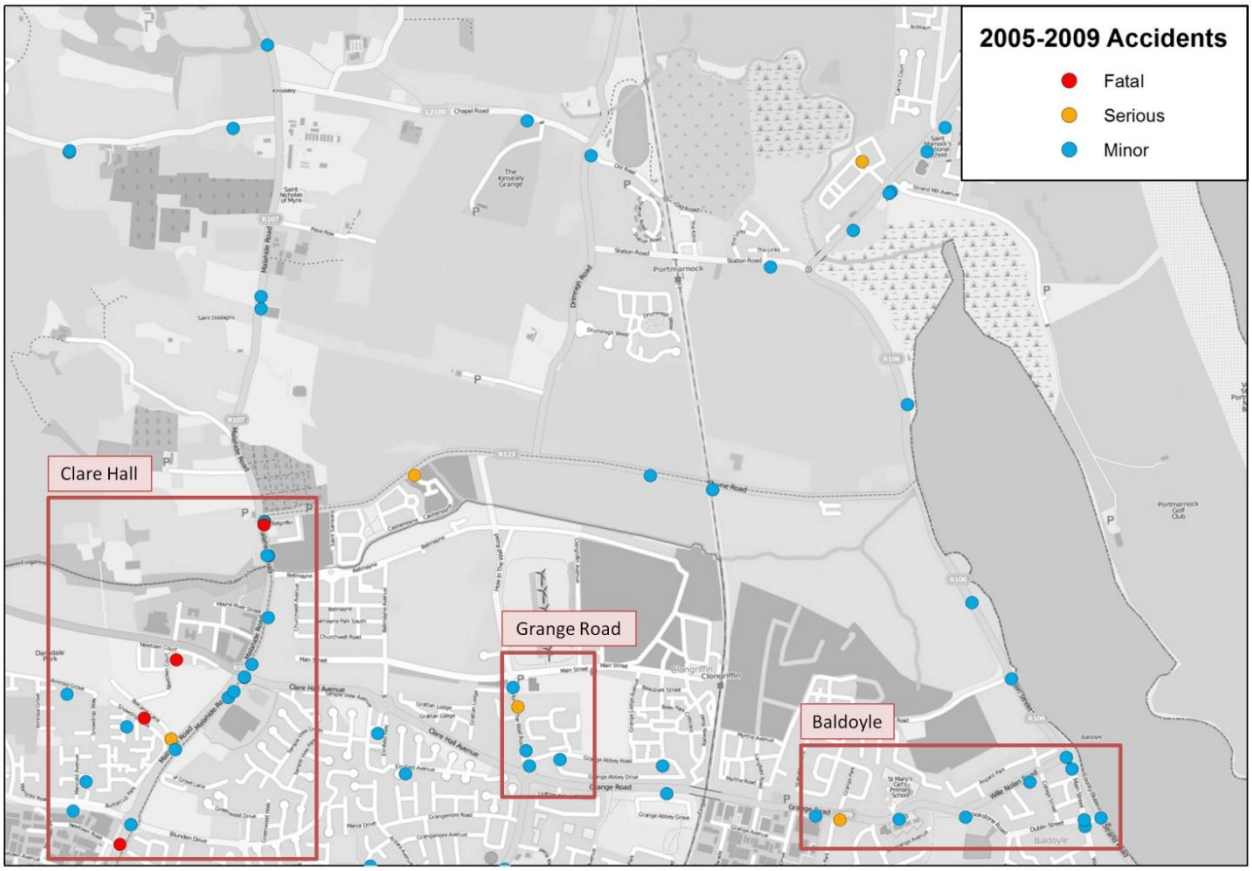


The following issues were observed by AECOM on the local transport network in May 2012:

- There are high traffic volumes on all approaches to the Clare Hall signals in the morning peak hour. Eastbound traffic on Clare Hall Avenue / Grange Road queues back from this junction and impacts on the operation of the roundabout junction at the Hole in the Wall Road.
- Some congestion also occurs on the approaches from the Hole in the Wall Road and R124 Drumnigh Road to the R123 Moyne Road. In addition, there is poor sight visibility from the minor arm approaches (Hole in the Wall Road and Drumnigh Road) to the Moyne Road.
- Some minor congestion occurs at the Drumnigh Road / Station Road junction, in particular on the minor arm of the junction (Station Road) during the AM peak. However, the delays at the junction are infrequent, while any queues that form disperse quickly. There is poor visibility from the minor road (Station Road) to the left on the Drumnigh Road.
- The Moyne Road underpass of the Irish Rail Bridge is a shuttle system with excellent intervisibility between the yield lines. With low traffic volumes and good visibility it is possible to operate without signals.
- The remaining key junctions of were observed to operate within capacity with no major issues in the morning peak hour.

An analysis of the Road Collision Statistics from 2005-2009 has also been undertaken to identify any locations in the study area where there is a high concentration of collisions. A plot of such locations is shown in Figure 3.2.

Figure 3.2: Road Collision Statistics (2005-2009 Road Safety Authority)

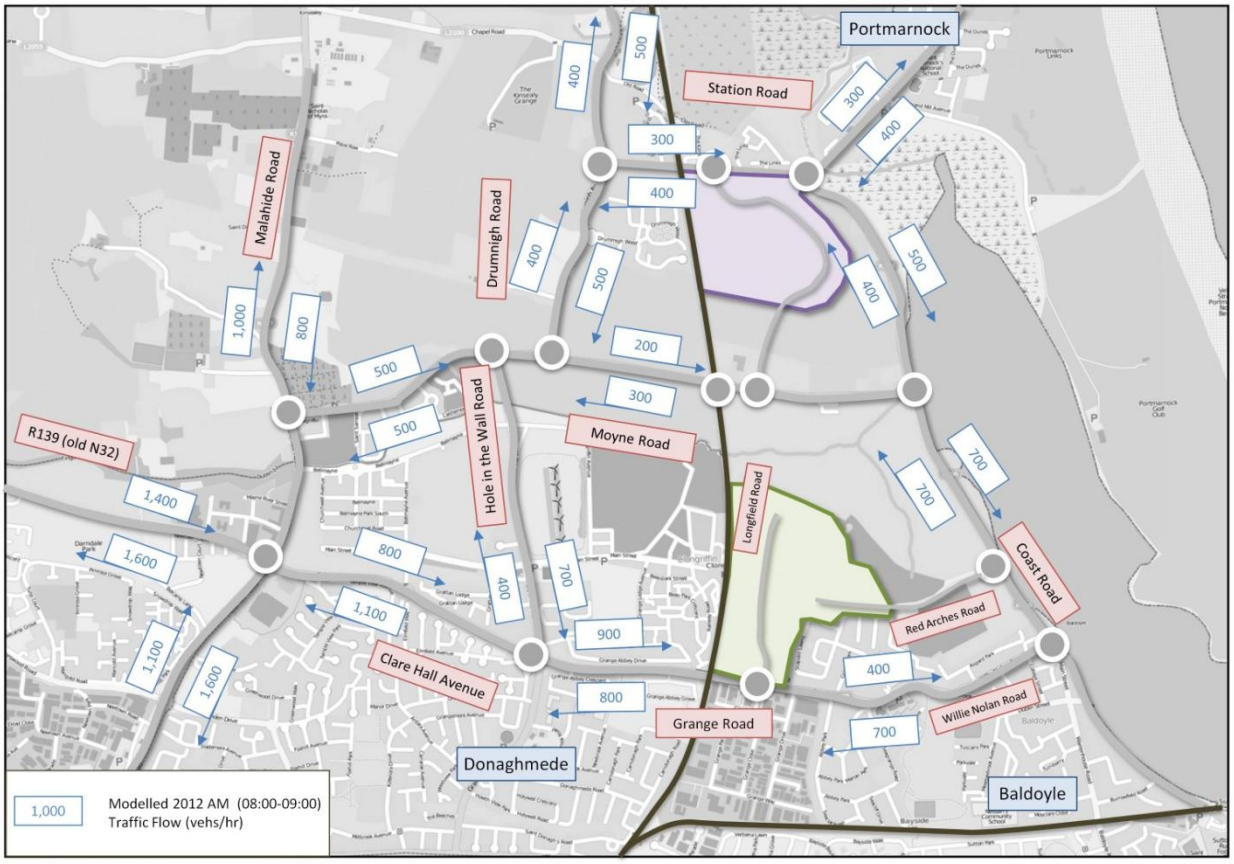


The accident analysis shows a cluster of accidents on the Malahide Road in the vicinity of the Clare Hall. A small number of accidents have taken place on the Hole in the Wall Road on the approach to Grange Road. Other accidents are dispersed around the local road network with small clusters on Strand Road to the north-east of the Portmarnock South lands and on the Coast Road to the south of Willie Nolan Road.

4. Base Year Scenario

Using the 2012 survey data outlined in Section 2, the 2011 Base Year South Fingal LAM was refined to better reflect the detail of traffic movements in the Baldoyle – Portmarnock study area. The 2012 base year traffic flows on the network are shown on Figure 4.1.

Figure 4.1: Base Year Traffic Flows



The above figure reflects the hierarchy of the local road network in terms of traffic volumes. The Malahide Road and Coast Road act as the major north-south distributor roads between the area and the city centre while the R139 (old N32) carries significant volumes to the M50 and M1 to the west. Grange Road is the main local east-west route with the Moyne Road carrying relatively low volumes.

An assessment of base year traffic capacity at the key junctions was undertaken using junction analysis software. Roundabouts and priority junctions were analysed using the TRL software programs Arcady and Picady respectively. Traffic signals were assessed using Linsig V3. The results of the base year assessments are summarised on Figure 4.2 and Table 4.1, showing maximum degree of saturation (volume/capacity expressed as a percentage) at each junction.

The traffic capacity beneath the railway bridge on the Moyne Road has been calculated as a minimum of 900 vehicles per hour (two-way) for the purposes of this excercise.

Figure 4.2: Existing Maximum Degree of Saturation at Key Junctions

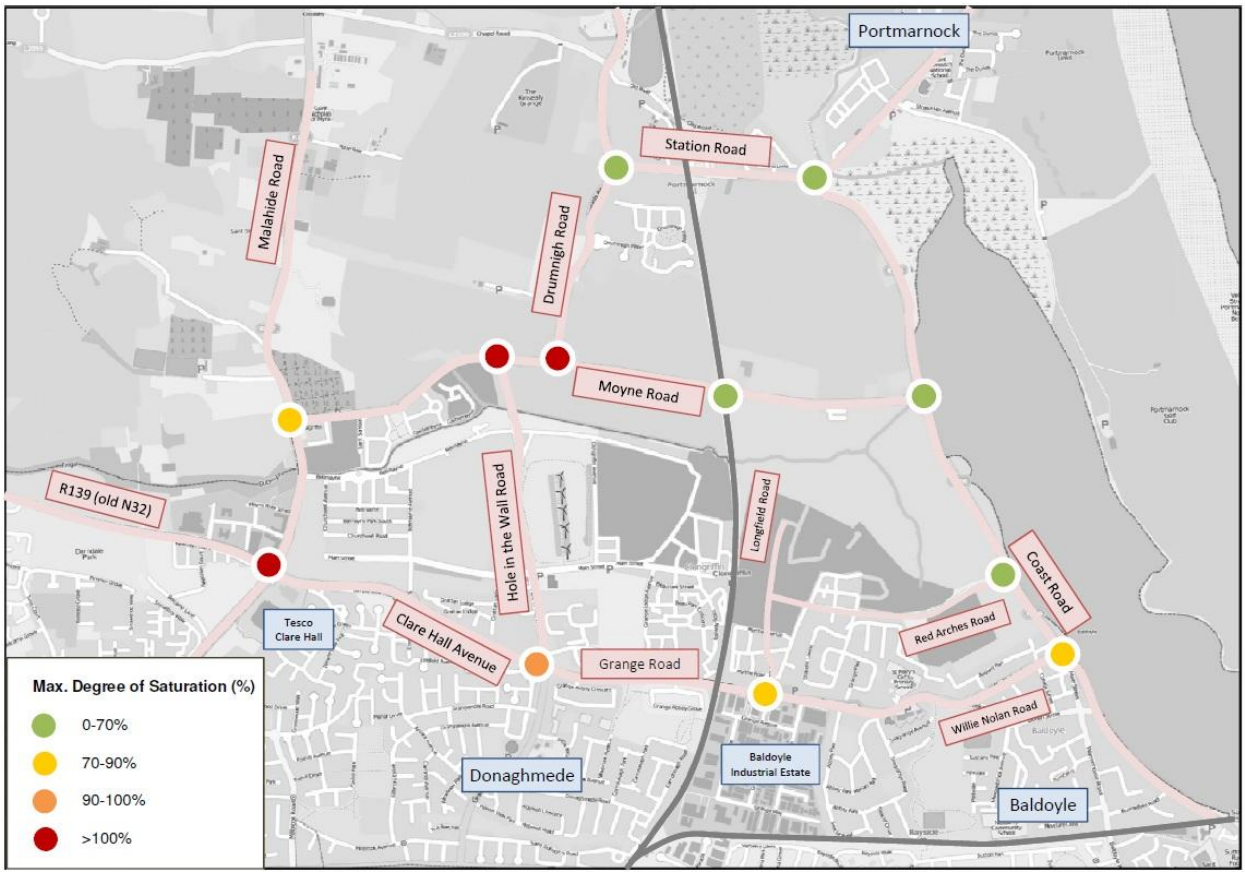


Table 4.1: Existing Maximum Degree of Saturation at Key Junctions

Junction	Max Degree of Saturation (%)
Clare Hall Signals	159.0%
Hole in the Wall Road / Grange Road	>90.0%*
Grange Road / Baldoyle Industrial Estate	84.4%
Malahide Road / Balgriffin Road	84.0%
Moyne Road / Hole in the Wall Road	108.0%
Moyne Road / Drumnigh Road	165.1%
Drumnigh Road / Station Road	61.3%
Coast Road / Red Arches Road	41.6%
Coast Road / Moyne Road	57.4%
Coast Road / Station Road / Strand Road	67.0%
Willie Nolan Road / Baldoyle Main Street	70.3%
Moyne Road underpass of Railway	53.2%

* *operation of junction restricted by congestion at Clare Hall*

From the analysis undertaken on the AM base year network, the following congestion points have been verified:

- The Clare Hall traffic signals (operating at a degree of saturation of 100%)
- The roundabout junction at Clare Hall Avenue / Hole in the Wall Road / Grange Road (operating at a degree of saturation of 100% due to the AM queuing back from the Clare Hall signals)
- The staggered priority junction at Moyne Road / Hole in the Wall Road / Drumnigh Road (operating at a degree of saturation of 100%)

5. Future Year Development Proposals

The Local Area Plans (LAPs) for Baldoyle-Stapolin and Portmarnock South comprise residential lands for development as follows:

- Baldoyle-Stapolin – 35 Hectares and;
- Portmarnock – 41 Hectares.

The remaining lands in Baldoyle-Stapolin consist of a high amenity area and in Portmarnock South the remaining lands comprise open space & recreational amenities and high amenity areas.

The South Fingal Transport Model includes development projections for 2025, based on the NTA GDA model. To coincide with the horizon of the LAP's for Baldoyle-Stapolin and Portmarnock South, a 2018 interim year has been identified for the current analysis. In addition, to analyse an initial phase of development in both LAP lands, an opening year of 2014 have also been examined. The projections for 2014 and 2018 are based on linear interpolation of growth between 2011 and 2025. The development projections for the Baldoyle-Stapolin LAP and the Portmarnock LAP are presented in Tables 5.1 and 5.2 respectively.

Table 5.1: Development Projections for Baldoyle-Stapolin LAP

Year	Population	Equivalent Households*	Employment
2011	2,393	997	158
2014	2,857	1,190	188
2018	3,476	1,448	229
2025	4,559	1,900	300

* *Assumed long-term rate of 2.4 persons per household*

Table 5.2: Development Projections for Portmarnock South LAP

Year	Population	Equivalent Households*	Employment
2011	46	19	2
2014	765	319	16
2018	1,723	718	36
2025	3,400	1,417	70

* *Assumed long-term rate of 2.4 persons per household*

Trip rates developed for the South Fingal Transport Study have been applied to the development projections to calculate the associated demand for travel by car in the morning peak hour associated with the two LAP lands. The trip rates have been developed based on a Public Transport Accessibility Level (PTAL) assessment which relates vehicular trip rates to the distance to and quality of public transport services based on survey data and Census POWCAR data. Further details of the PTAL assessment and development of trip rates are contained in the draft *'South Fingal Transport Study: Final Report',* May 2012.

For residential trips, further surveys were undertaken to establish trip rates for 'The Coast' development which comprises an initial phase of the Baldoyle-Stapolin LAP. The details of this survey and the resultant trip rates observed are presented in Table 5.3.

Table 5.3: Trip Rate Survey for 'The Coast' Development, Baldoyle

Residential Units	Trips Arriving (08:00-09:00)	Trips Departing (08:00-09:00)	Arrival Trip Rate per unit	Departing Trip Rate per unit	Two-way Trip Rate per unit
363	16	103	0.04	0.28	0.32

As the majority of both LAP lands are within 500m of a DART station ('Advanced' public transport quality), a PTAL score of 4 was assigned to other development trips. This results in the forecast mode splits and morning peak car trip generation rates outlined in Table 5.4. Trip rates for employment are presented as trip rates per employee and trip rates for education are presented as trip rates per pupil.

Table 5.4: Morning Peak Hour Trip Rates and Mode Splits assumed for new development

Use	2-wayTrip Rates	Mode Split				
	AM	*Car Driver*	*Car Pass.*	*PT*	*Walk/Cycle*	*Other*
Employment	0.19 per employee	59%	3%	22%	13%	4%
Education*	0.37 per student	*0%*	*42%*	*18%*	*39%*	*1%*

* *Mode Share data taken from 2006 GDA Travel to Education Survey, NTA (Average of Primary & Secondary Schools)*

The resulting morning peak hour forecast car trips for the Baldoyle-Stapolin LAP lands are detailed in Table 5.5 while the data for the Portmarnock LAP lands is shown in Table 5.6.

Table 5.5: Additional growth & associated car trip generation for Baldoyle-Stapolin LAP

Year	Additional Growth from 2011			AM Peak Trips
	Population	Employment	Students	
2014	464	30	11	72
2018	1,083	71	27	168
2025	2,166	142	53	335

Table 5.6: Additional growth & associated car trip generation for Portmarnock LAP

Year	Additional Growth from 2011			AM Peak Trips
	Population	Employment	Pupils	
2014	719	15	6	101
2018	1,677	34	14	235
2025	3,354	68	28	470

All assessments undertaken include the development growth projections for the surrounding lands in both Fingal County Council and Dublin City Council/

6. Current Road Proposals

As part of the South Fingal Transport Study, a number of road infrastructure schemes are proposed in the study area which will play a key role in facilitating future traffic associated with the Baldoyle-Stapolin and Portmarnock South LAP lands. These schemes all form part of the 2025 South Fingal Transport

Strategy and, as part of this assessment, the proposed phasing of delivery of the road schemes will be analysed. The proposed road schemes are outlined below and shown on Figure 6.1.

Hole in the Wall Road Upgrade: A proposed realignment of the northern end of the Hole in the Wall Road to tie in at the R123 Moyne Road at a four arm crossroads junction. This will address the existing deficient visibility at the existing junctions on the Moyne Road with the Hole in the Wall Road and the Drumnigh Road.

Baldoyle Public Transport Bridge: An extension of Red Arches Road and bridge over the rail line at Clongriffin DART station and connection with the east-west link of Clongriffin Main Street to accommodate buses, pedestrians and cyclists.

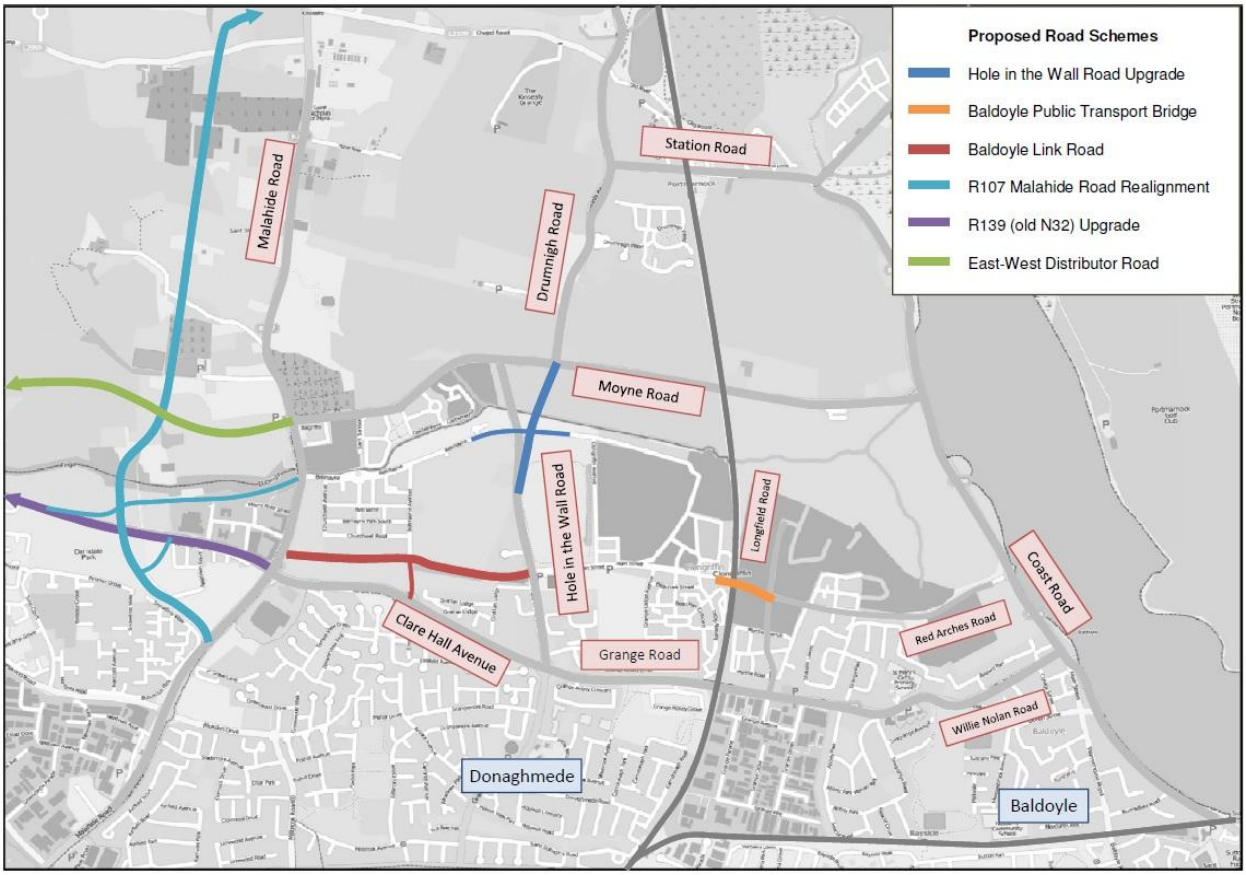
Baldoyle Link Road: An extension of Clongriffin Main Street to the west of Hole in the Wall Road and connecting to the R107 Malahide Road to the north of the existing Clare Hall traffic signals.

R107 Malahide Road Realignment: A significant realignment of the existing Malahide Road from Belcamp Lane to north of Chapel Road. The proposed new link is a dual-carriageway with a new grade separated junction with the R139 (old N32).

R139 (old N32) Upgrade: Upgrade of the R139 (old N32) to dual-carraigeway from the existing Malahide Road to Clonshaugh Road.

East-West Distributor Road: A new link road from the existing Malahide Road at Balgriffin Road to the R132 Swords Road at Collinstown Cross, incorporating a bridge over the M1 and facilitating access to new development lands at Belcamp and Clonshaugh.

Figure 6.1: Proposed Road Schemes



7. Impact Assessment

This section outlines the traffic capacity analysis undertaken for the interim years of 2014 and 2018 in order to inform the phasing of roads infrastructure schemes in line with development growth in Baldoyle-Stapolin, Portmarnock South and surrounding lands. Capacity assessments have been undertaken at the key junctions in order to identify pressure points on the local network that emerge with development growth.

It has been assumed that the development access junctions for Portmarnock South will be constructed with adequate capacity to accommodate forecast traffic levels. The access junctions for Baldoyle-Stapolin have been included in the assessment as they are constructed and in operation at present.

7.1. Analysis for 2014 Design Year

Do Nothing Capacity Analysis

A capacity assessment of the key junctions has been undertaken to determine the congestion points on the local road network in 2014. The 2014 'Do-Nothing' scenario assumes that no upgrades to the existing road network are constructed before 2014 and that background traffic growth arises as a result of population and employment growth throughout South Fingal. The results are presented in Figure 7.1 and Table 7.1 which shows the maximum Degree of Saturation at each junction.

Figure 7.1: 2014 AM 'Do-Nothing' Forecast Maximum Degree of Saturation at Key Junctions

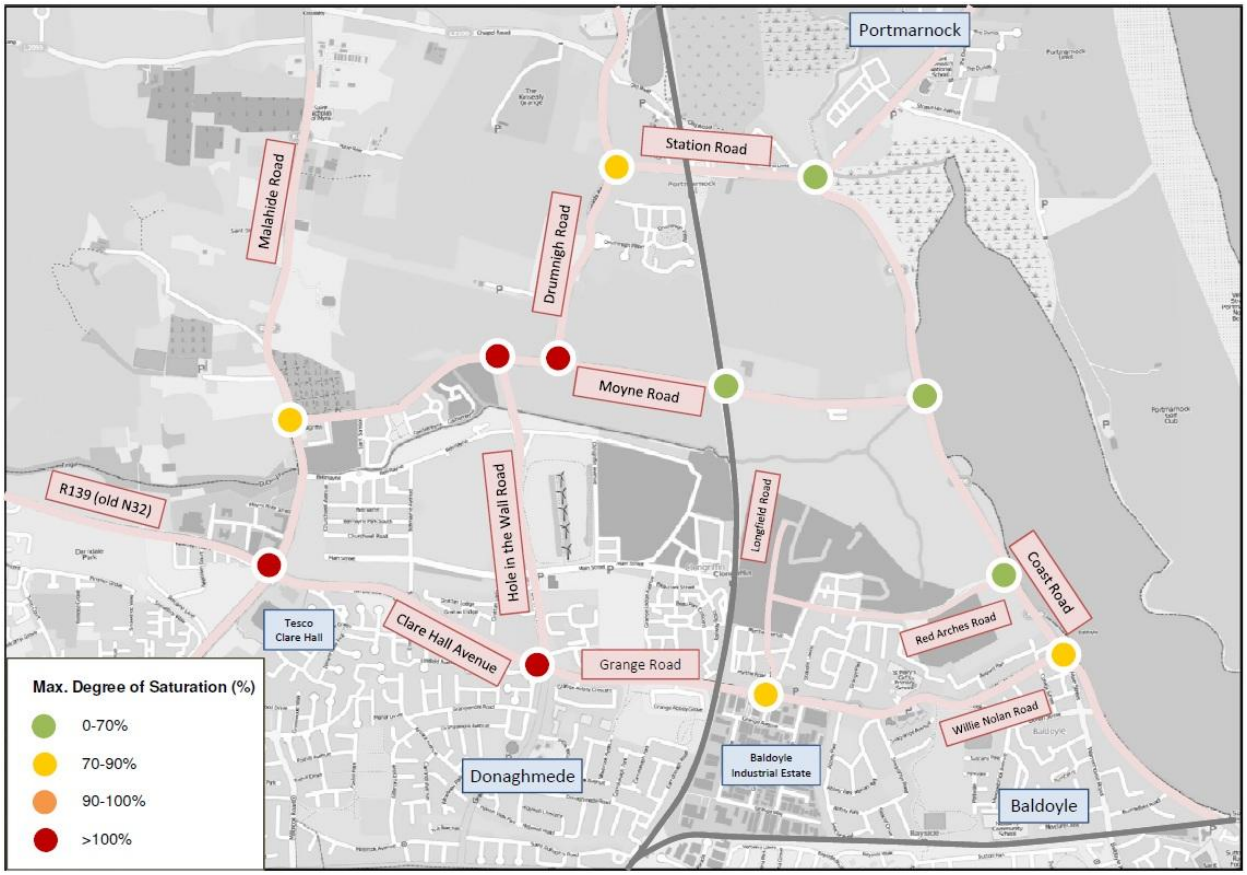


Table 7.1: 2014 AM 'Do-Nothing' Forecast Maximum Degree of Saturation at Key Junctions

Junction	Max Degree of Saturation (%)
Clare Hall Signals	170.0%
Hole in the Wall Road / Grange Road	>100.0%*
Grange Road / Baldoyle Industrial Estate	77.1%
Malahide Road / Balgriffin Road	80.8%
Moyne Road / Hole in the Wall Road	132.9%
Moyne Road / Drumnigh Road	174.0%
Drumnigh Road / Station Road	83.4%
Coast Road / Red Arches Road	43.3%
Coast Road / Moyne Road	59.8%
Coast Road / Station Road / Strand Road	65.4%
Willie Nolan Road / Baldoyle Main Street	78.1%
Moyne Road underpass of Railway	53.6%

* *capacity of junction restricted by congestion at Clare Hall*

It is clear from the analysis that there will be significant traffic congestion at the Clare Hall signals, which impacts on the operation of the Grange Road / Hole in the Wall roundabout. The staggered priority junctions on the Moyne Road will operate at capacity, resulting in congestion on approaches from the Hole in the Wall Road and the Drumnigh Road.

It is noted that some maximum degree of saturation values reduce slightly in the 2014 AM Do Nothing when compared to the 2012 Base Year analysis on Table 4.1 such as at the Grange Road / Baldoyle Industrial Estate junction. These minor changes are a result of the signal optimisation feature in VISUM which allocates green time on the basis of arrival flows. In general the capacity of these junctions remains at similar levels between the base year and the 2014 Do Nothing scenario.

Proposed Upgrades

In order to address the network congestion points identified above and accommodate the initial phases of development in Baldoyle-Stapolin and Portmarnock South, a number of upgrades are proposed. This note addresses the capacity impacts of these upgrades while the ultimate feasibility of the proposals is subject to further design analysis.

Hole in the Wall Road Upgrade

This scheme is required to address the capacity and safety issues at the priority junctions on the Moyne Road with the Hole in the Wall Road and the Drumnigh Road. The northern end of the Hole in the Wall Road will be realigned to form a crossroads junction with the Moyne Road. It has been assumed that the existing northern portion of the Hole in the Wall Road will remain open for local access only and all traffic will divert to the new junction.

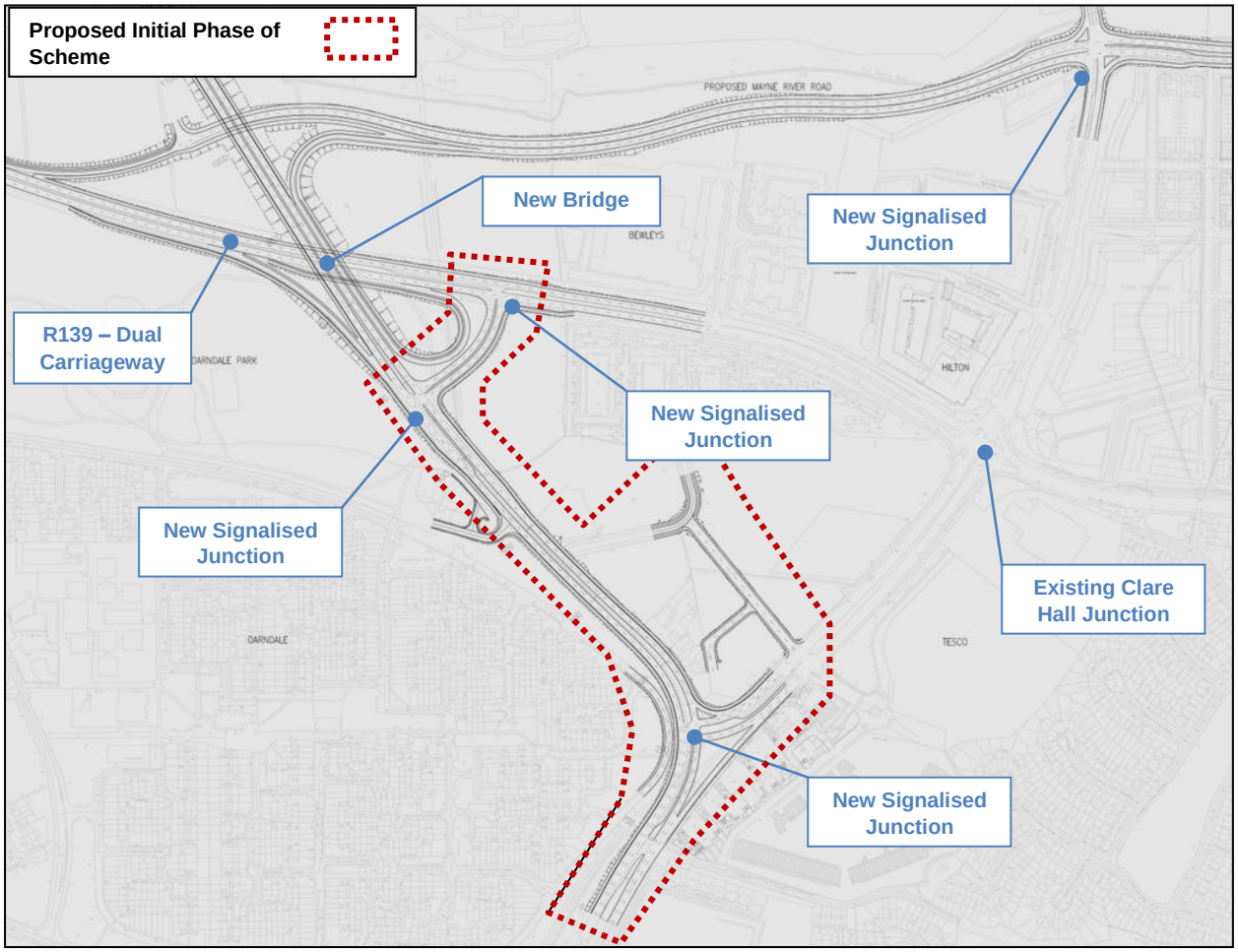
It is recommended that the new crossroads junction is controlled by traffic signals with provision for shared left and ahead through lanes and right turn lanes on all arms. The proposed junction should also incorporate pelican crossing facilities for pedestrians.

Clare Hall Junction Upgrade

It is recognised that the ultimate requirement to relieve congestion and facilitate additional development in the South Fringe area of FCC is provision of the R107 Malahide Road Realignment scheme and the R139 upgrade. The proposed scheme, within the vicinity of the Clare Hall signals, is shown on Figure 7.2 overleaf.

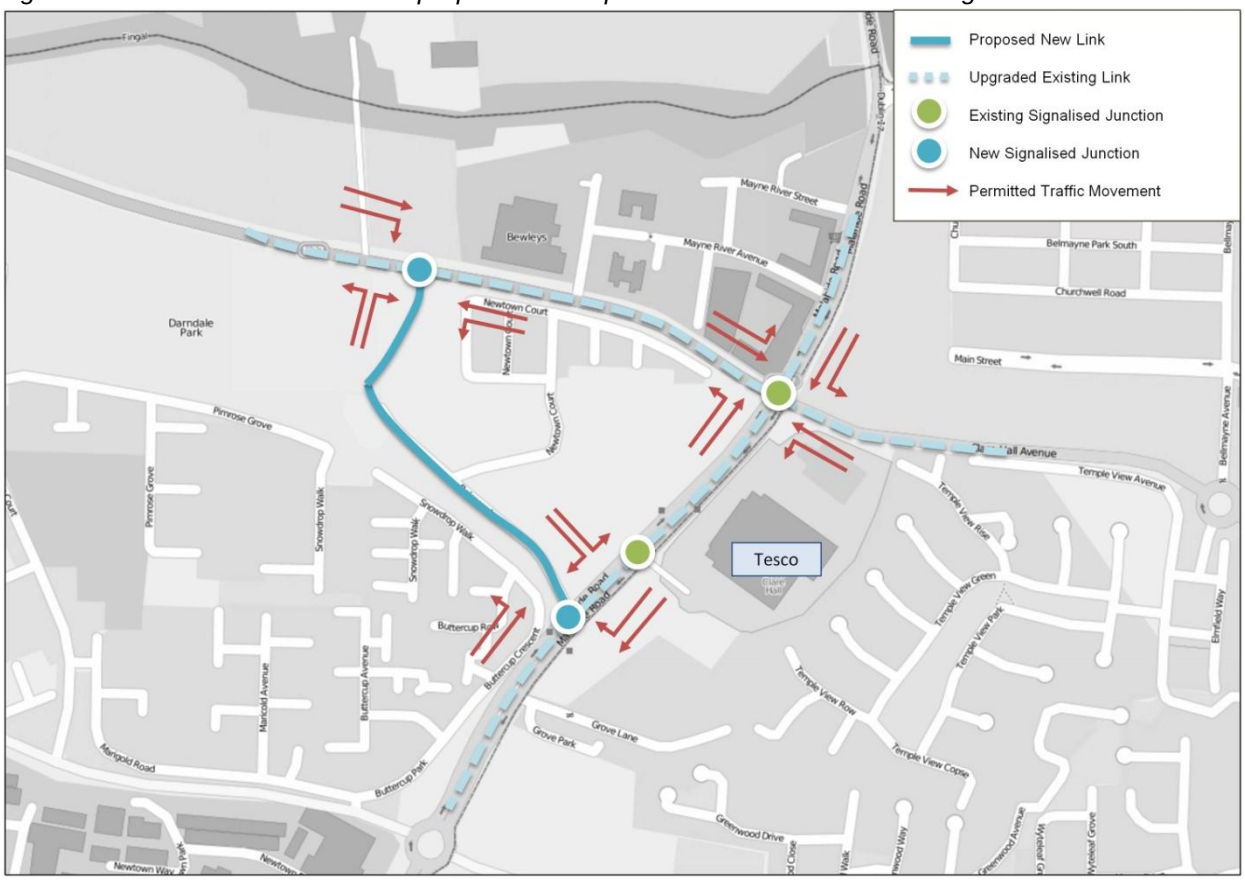
It is proposed that this scheme be developed in phases associated with the phased development of surrounding lands including Baldoyle-Stapolin and Portmarnock South. An initial phase of the scheme would be to provide additional capacity at the R139 / Malahide Road / Clare Hall Avenue traffic signals by constructing the southern portion of the proposed realignment as shown below.

Figure 7.2: Proposed elements of R107 Malahide Road Realignment at Clare Hall



This upgrade would provide a new signalised junction on the Malahide Road to the south of the Clare Hall signals and a new signalised junction on the R139 to the west of the Clare Hall signals. It is not proposed to include the new bridge as part of the initial phase of the upgrade. The initial phase of the realignment scheme would redistribute traffic movements between the existing junction and two new signalised junctions as shown in Figure 7.3

Figure 7.3: Schematic elements of proposed initial phase of Malahide Road Realignment



As shown above, it is proposed that the right turn movements be restricted at the existing Clare Hall signals and redistributed via the new junctions to the south and west. This will increase capacity for the remaining movements at the existing Clare Hall signals by allocating additional green time to them that is currently allocated to right turning movements.

The initial phase of the scheme should also incorporate upgrades to the existing Malahide Road and R139 to provide the necessary traffic lane layouts. The scheme should be constructed as close as possible to the final design solution at these junctions, in order for a sensible phased construction of the overall Malahide Road Realignment scheme. The deliverability of the upgrade of the Malahide Road in this manner is subject to further design review.

Part of the proposed upgrade will be a co-ordination of the traffic signal timings and offsets at the 4 no. junctions which will ensure that the local network operates and internal queuing is managed to avoid blocking back between junctions. This is critical between the new junction on the Malahide Road and the existing Tesco Clare Hall junction.

Do-Something Capacity Analysis

An assessment of 2014 traffic capacity at the key junctions, incorporating the proposed upgrades outlined above, was undertaken using single junction analysis software. The results of the assessments are summarised on Figure 7.4 and Table 7.4, showing maximum flow to Degree of Saturation at each junction.

Figure 7.4: 2014 AM 'Do-Something' Forecast Maximum Degree of Saturation at Key Junctions

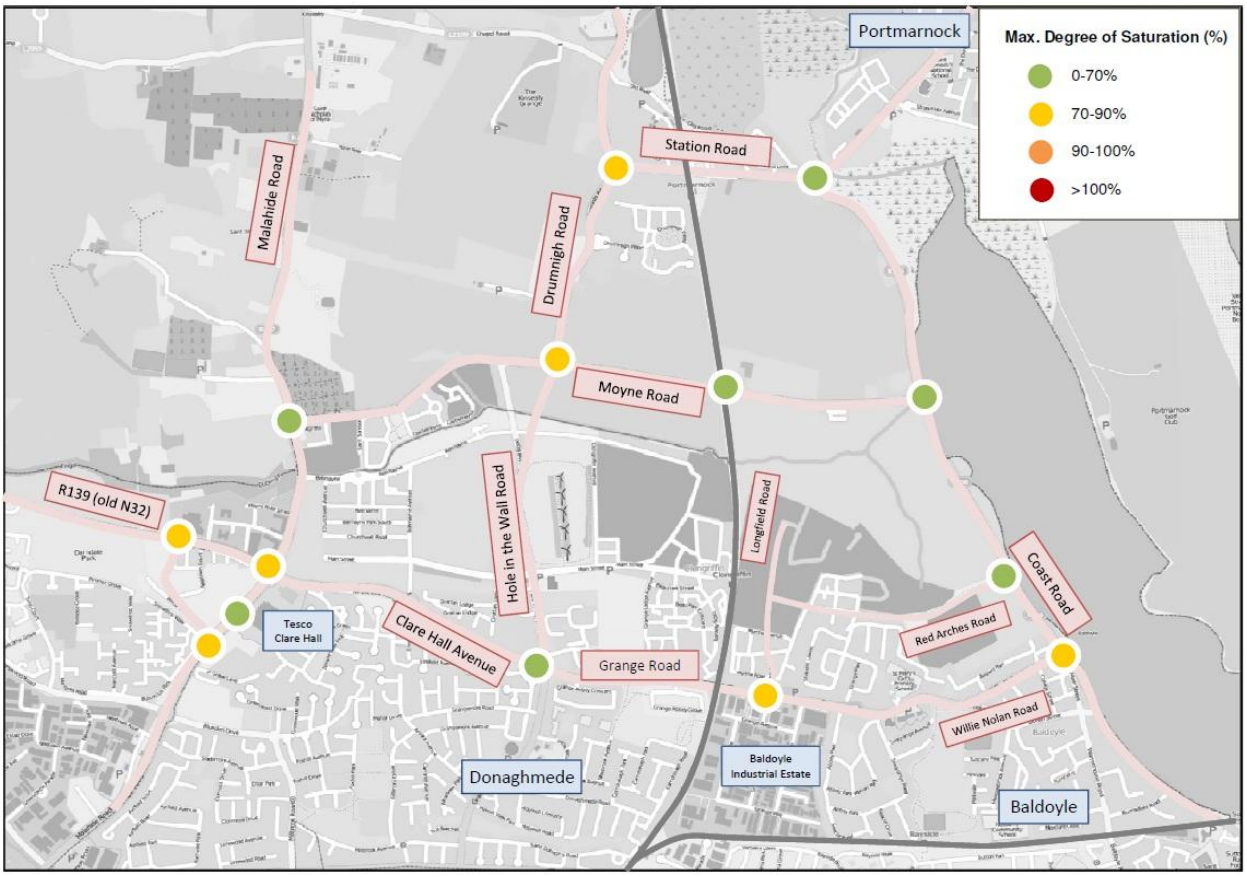


Table 7.4: 2014 AM 'Do-Something' Forecast Maximum Degree of Saturation at Key Junctions

Junction	Max Degree of Saturation (%)
Clare Hall Signals	84.1%
Hole in the Wall Road / Grange Road	58.7%
Grange Road / Baldoyle Industrial Estate	80.6%
Malahide Road / Balgriffin Road	67.5%
Moyne Road / Hole in the Wall Road / Drumnigh Road	73.7%
Drumnigh Road / Station Road	81.0%
Coast Road / Red Arches Road	41.0%
Coast Road / Moyne Road	55.9%
Coast Road / Station Road / Strand Road	61.5%
Willie Nolan Road / Baldoyle Main Street	84.9%
Moyne Road underpass of Railway	53.5%

Based on the analysis undertaken on the 2014 'Do-Something' network, the following points are noted:

- The proposed initial phase of the R107 Malahide Road Realignment is forecast to significantly relieve congestion at the existing Clare Hall signals and the proposed new signalised junctions will accommodate redistributed traffic movements.

- The upgrade of the Clare Hall signals is forecast to relieve congestion on Clare Hall Avenue and allow the roundabout at the junction with Hole in the Wall Road / Grange Road to operation within capacity.
- The realignment of the northern section of the Hole in the Wall Road and the proposed signalised crossroads junction with the Moyne Road and Drumnigh Road is forecast to operate within capacity.
- Improved capacity can be achieved by optimisation of the traffic signals at the Malahide Road / Balgriffin Road junction and the Grange Road / Longfield Road / Baldoyle Industrial Estate junction.

7.2. Analysis for 2018 Design Year

Do Nothing Capacity Analysis

The 2018 'Do-Nothing' network is assumed to consist of the 2014 'Do-Something' network which includes the upgraded Hole in the Wall Road and the initial phase of the R107 Malahide Road Realignment. An assessment of 2018 AM Do-Nothing traffic capacity at the key junctions is presented on Figure 7.5 and Table 7.5, showing maximum Degree of Saturation at each junction.

Figure 7.5: 2018 AM 'Do-Nothing' Forecast Maximum Degree of Saturation at Key Junctions

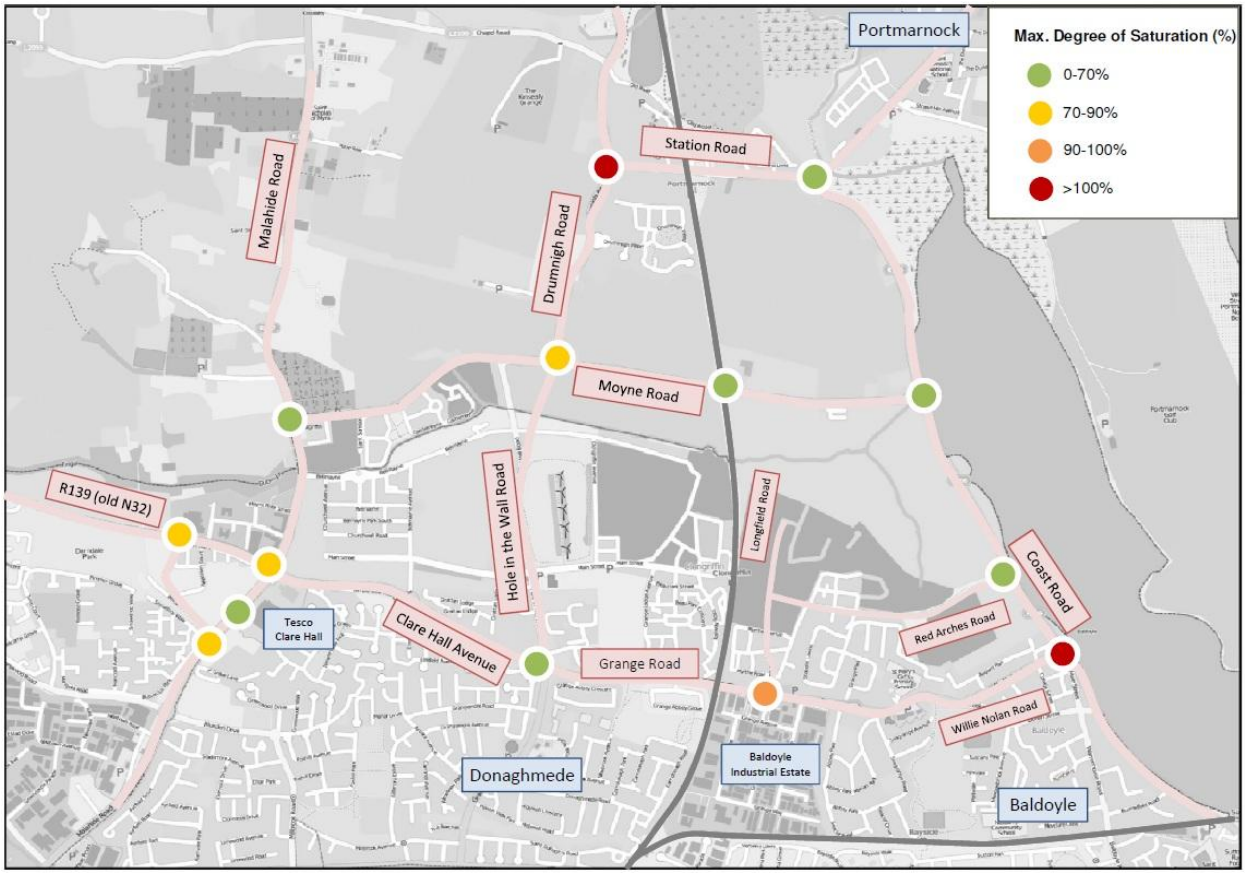


Table 7.5: 2018 AM 'Do-Nothing' Forecast Maximum Degree of Saturation at Key Junctions

Junction	Max Degree of Saturation (%)
Clare Hall Signals	85.5%
Hole in the Wall Road / Grange Road	63.9%
Grange Road / Baldoyle Industrial Estate	87.0%
Malahide Road / Balgriffin Road	70.1%
Moyne Road / Hole in the Wall Road / Drumnigh Road	77.6%
Drumnigh Road / Station Road	104.5%
Coast Road / Red Arches Road	46.5%
Coast Road / Moyne Road	61.5%
Coast Road / Station Road / Strand Road	62.5%
Willie Nolan Road / Baldoyle Main Street	95.1%
Moyne Road underpass of Railway	59.3%

The main elements of the analysis of the 2018 'Do-Nothing' Scenario can be summarised as follows:

- The majority of the key junctions can potentially accommodate 2018 AM peak forecast traffic volumes.
- With updated and optimised traffic signal timings and offsets, the network of signals at Clare Hall is forecast to accommodate 2018 traffic flows
- The priority junction at Drumnigh Road / Station Road is forecast to operate at a maximum degree of saturation of 100%, with congestion on Station Road.
- The junction of the Baldoyle Industrial Estate and Longfield Road (the southern access to the Baldoyle-Stapolin lands) is forecast to operate with a maximum degree of saturation approaching 90% which results in congestion on Grange Road.
- The junction of Willie Nolan Road with Baldoyle Main Street is forecast to operate at capacity in 2018 with a degree of saturation of 95.1%.

Proposed Upgrades

In order to address the network congestion points identified above, it is recommended that the upgrades outlined below delivered by the interim year of 2018.

Grange Road / Baldoyle Industrial Estate Junction Upgrade

The analysis undertaken indicates that the capacity issues at the junction are primarily due to the volume of right turning vehicles from Grange Road (west) to the Baldoyle Industrial Estate in the AM Peak. Despite a substantial allocation of green time to this movement, a single right turn traffic lane cannot cater for this forecast volume of right turning vehicles.

Therefore it is recommended that an upgrade to the junction be explored which comprises the addition of a second right turn lane from Grange Road (west) and an additional southbound traffic lane on Grange Avenue into the Industrial Estate. This will significantly increase capacity for the right turn movement and will also improve the capacity for other movements at the junction by reallocating available signal green time.

The provision of such an improvement is likely to require land acquisition and is subject to a full design review.

Willie Nolan Road / Baldoyle Main Street Junction Upgrade

This is a signalised junction with single lane approaches on all three arms, with a right turn pocket for traffic movements from Main Street (north) to Willie Nolan Road. The analysis shows that there is insufficient capacity in the junction to accommodate forecast 2018 AM peak flows. In order to accommodate these forecast volumes it is proposed to upgrade the junction by providing a dedicated right turn lane on Main Street (north) and a dedicated left turn lane on Main Street (south).

The provision of the additional traffic lanes on Main Street will involve the loss of some on-street parking within the vicinity of the junction. In addition the turning radius of the left turn from Main Street (south) to Willie Nolan Road is tight and will require careful consideration at design stage. The ultimate feasibility of the proposal is subject to a full design review and a study of parking demand and supply on Baldoyle Main Street.

Drumnigh Road / Station Road

The analysis undertaken indicates that the capacity issues at the junction are primarily due to the volume of right turning vehicles from the Station Road in the AM Peak. Furthermore, the poor visibility from the minor road (Station Road) to the left on the Drumnigh Road is a safety concern.

Therefore it is recommended that an upgrade to the junction be explored which comprises converting the junction to a signal controlled junction. Land acquisition may be required from the residential lands which border the junction, in order to provide two lane approaches from each direction. These improvements will significantly increase capacity of the junction and will remove the congestion and delays at the Station Road arm of the junction.

Do-Something Capacity Analysis

An assessment of 2018 traffic capacity at the key junctions, incorporating the proposed upgrades outlined above, was undertaken using single junction analysis software. The results of the assessments are summarised on Figure 7.6 and Table 7.6, showing maximum Degree of Saturation at each junction.

Figure 7.6: 2018 AM 'Do-Something' Forecast Maximum Degree of Saturation at Key Junctions

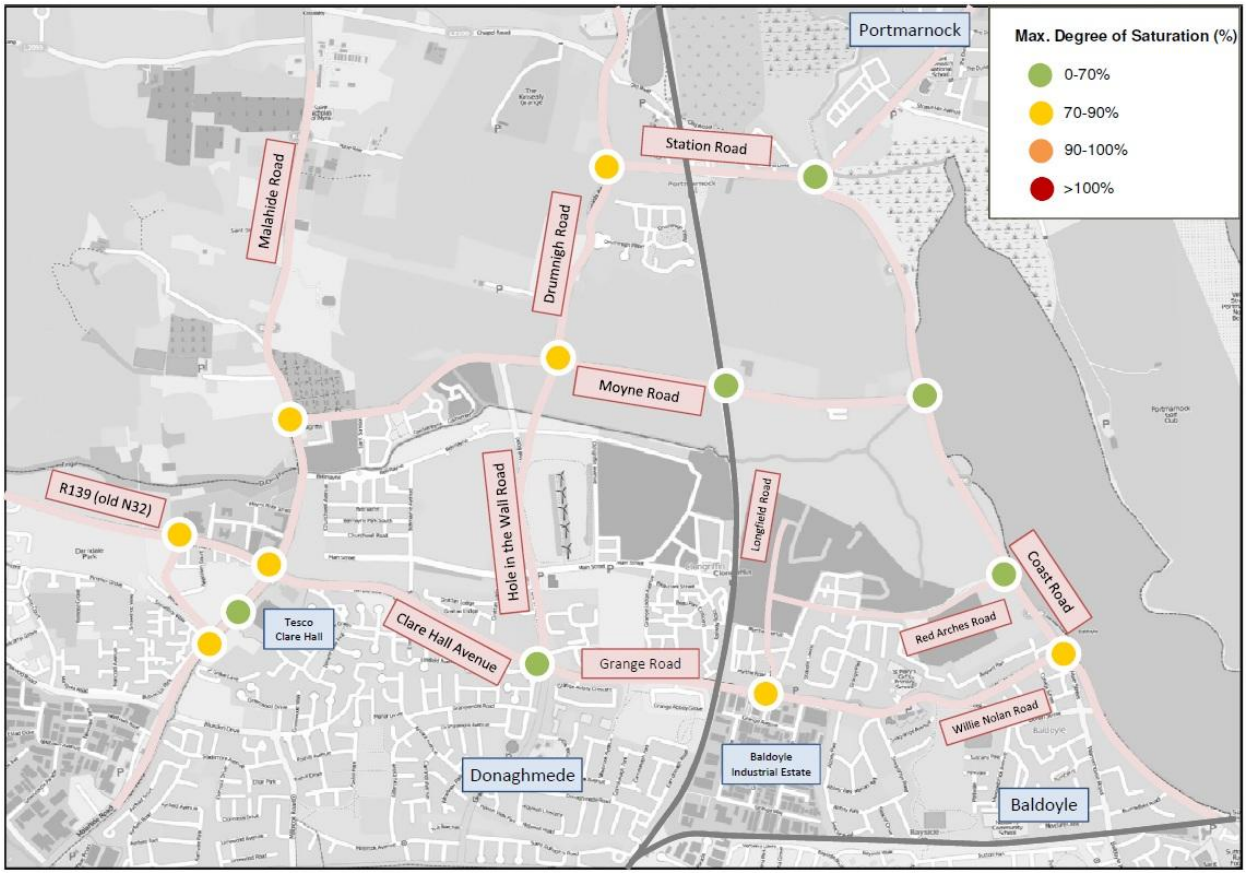


Table 7.6: 2018 AM 'Do-Something' Forecast Maximum Degree of Saturation at Key Junctions

Junction	Max Degree of Saturation (%)
Clare Hall Signals	89.9%
Hole in the Wall Road / Grange Road	62.4%
Grange Road / Baldoyle Industrial Estate	63.2%
Malahide Road / Balgriffin Road	69.2%
Moyne Road / Hole in the Wall Road / Drumnigh Road	80.9%
Drumnigh Road / Station Road	71.7%
Coast Road / Red Arches Road	53.5%
Coast Road / Moyne Road	59.7%
Coast Road / Station Road / Strand Road	64.8%
Willie Nolan Road / Baldoyle Main Street	78.0%
Moyne Road underpass of Railway	56.4%

Based on the analysis undertaken on the 2014 'Do-Something' network, the following points are noted:

- The upgrade of the Grange Road / Baldoyle Industrial Estate junction is forecast to provide adequate capacity for the junction to operate with a maximum degree of saturation of 68.7% in the 2018 AM peak scenario.
- The upgrade of the Drumnigh Road / Station Road junction is forecast to provide adequate capacity for the junction to operate with a maximum degree of saturation of 71.7% in the 2018 AM peak scenario.
- The upgrade of the Willie Nolan Road / Baldoyle Main Street junction is forecast to provide adequate capacity for the junction to operate with a maximum degree of saturation of 78.0% in the 2018 AM peak scenario. The traffic signal cycle time has been minimised in the analysis to reflect the urban location of the junction with high demand for pedestrian crossing movements. Note that further traffic capacity improvements can be gained at the junction by increasing the signal cycle time.

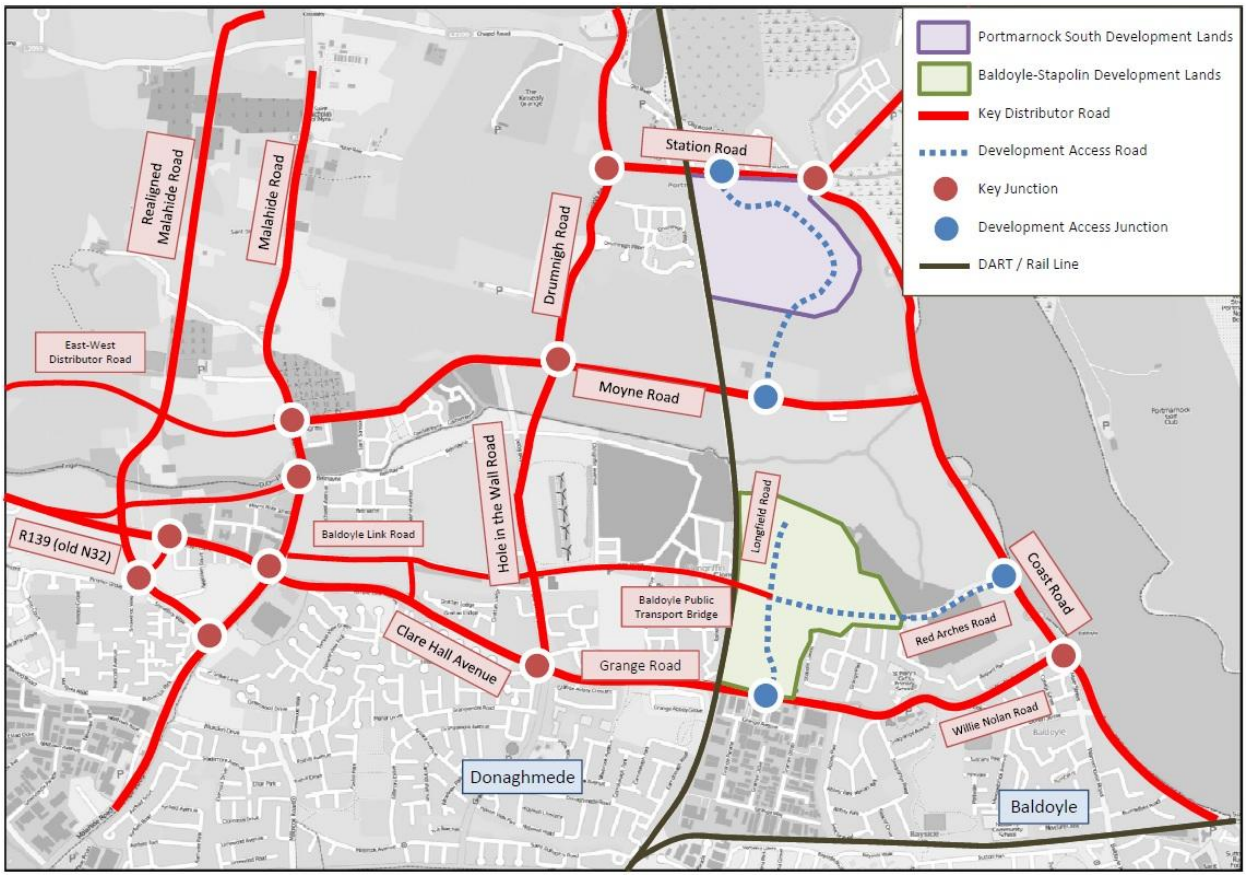
The opening of the proposed internal road through the Baldoyle-Stapolin LAP lands has been included in the 2018 Do-Something Assessment. The results of the VISUM modelling analysis suggest that there will be minimal through traffic along the internal road with approximately 60 veh/hour (two-way) using the road as an east-west alternative to Grange Road and the Coast Road.

7.3. Analysis of 2025 Design Year

As part of the South Fingal Transport Study, the 2025 South Fingal LAM was used to test the future year transport demand with all proposed road infrastructure improvements outlined in Section 6 of this note. The results of the assessments indicate that the provision of the major elements of road upgrades such as the full R107 Malahide Road Realignment, the R139 Upgrade, and the East-West Distributor Road would be required to accommodate development levels of up to 2025 in the South Fingal area. Please refer to Chapters 5 and 6 of the draft *'South Fingal Transport Study: Final Report',* May 2012 for further details on the capacity assessments undertaken.

The recommended 2025 future year road network is presented below in Figure 7.7.

Figure 7.7: Recommended 2025 Future Year Road Network



8. Phasing of Infrastructure.

Based on the assessments undertaken of the development growth forecast scenarios of 2014, 2018 and 2025, a recommended phasing strategy for road infrastructure is outlined in Table 8.1.

Table 8.1: Recommended phasing of road infrastructure for Baldoyle-Stapolin & Portmarnock South

Approx. Period	Assumed Development Growth		Roads Infrastructure Requirements
	Baldoyle-Stapolin	Portmarnock South	
2012-2014	Pop. 464 Empl. 30	Pop. 719 Empl. 15	Hole in the Wall Road Upgrade R107 Malahide Road Realignment Phase 1 (Clare Hall Junction Upgrade)
2014-2018	Pop. 1,083 Empl. 71	Pop. 1,677 Empl. 34	Grange Road / Baldoyle Industrial Estate Junction Upgrade Willie Nolan Road / Baldoyle Main Street Junction Upgrade Drumnigh Road / Station Road Junction Improvements
2018-2025	Pop. 2,166 Empl. 142	Pop. 3,354 Empl. 68	Full R107 Malahide Road Realignment Baldoyle Link Road East-West Distributor Road Baldoyle Public Transport Bridge

The recommended phasing of roads infrastructure can be used to inform the overall phasing of development in the Baldoyle-Stapolin and Portmarnock South LAP lands. It is recognised that other factors such as funding availability, land ownership, market conditions and infrastructural constraints will also have a heavy influence on the ultimate phasing of the lands. However the above phasing recommendations provide a useful outline of the timing of investment in key transport upgrades required on the local network in the short, medium and long term horizons.