Údarás
Náisiúnta Iompair
National **Transport** Authority

Rail Census 2012

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Report prepared for the National Transport Authority by

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1: Introduction & background to the Rail Census

1.1 Background to the Census

In 2012 the National Transport Authority commissioned Iarnród Éireann to conduct a National Census of Rail patronage which, for the first time, recorded information on boardings and alightings of passengers at every train station in the country on one day of the year. This Census provides a detailed and reliable snap-shot of rail usage across the network. The Census was undertaken on November 15th 2012 by means of headcounts, by enumerators, of numbers of individuals' boarding and alighting each train service at each station on that day[1]. Prior to 2012, the Census was carried out at stations in the Greater Dublin Area (GDA)[2] only.

1 *The Rail Census does not uniquely report where individual passengers board or alight, so journeys cannot be attributed to a discrete route*

2 *The Greater Dublin Area includes the counties of Dublin, Kildare, Meath and Wicklow.*

This report presents data from the 2012 National Rail Census, and in conjunction with information from other sources, discusses changes in rail usage over the ten year period to 2012. The purpose of this report is to provide an account of rail usage across geographical areas and by type of service which is intended to form an evidence base to support planning and investment decisions. This chapter of the report sets out the background to the Rail Census and provides an overview of the rail network and rail services in Ireland. Chapter 2 details trends over the past decade from the Census and compares this with other data sources on rail patronage over the period. It also examines trends in rail usage in Ireland relative to key economic indicators such as economic growth and employment. The characteristics of daily rail patronage from the 2012 Census are explored in Chapter 3, before a detailed examination of usage on individual lines is presented in Chapter 4. Chapter 5 then discusses patterns of passenger movement in and out of Dublin on a radial corridor basis.

It is important to bear in mind that the findings of the majority of this analysis are derived from the Rail Census as a snapshot of rail usage on a single day. Annual data on rail usage gives a balanced picture over the course of an entire year and therefore provide the best representation of systematic changes. The findings in this report must be interpreted in this context.

1.2 Operating conditions on the day of the Census

The operating conditions on the rail network on the day of the Census were generally good. There were no cancellations reported on any route[3] and the punctuality of services was reasonably high. In excess of 97 percent of services on Commuter and DART routes arrived on or within ten minutes of scheduled times. This figure varied from 87.5 percent to 100 percent for InterCity services. Some DART services were affected by points trouble at Howth Junction however this occurred at 19.30 in the evening and therefore is unlikely to have had a major impact on the numbers of passengers boarding and alighting services (compared to if it happened at the peak time). In summary, the Census was undertaken on a representative day.

1.3 Overview of rail network

The rail network in Ireland is comprised of approximately 2,400 km of railway track and includes 147 open stations and 372 platforms[4]. Services operating on the national rail network can be broken down into three distinct categories - DART, Commuter and InterCity which share lines at various locations along the network. For instance, the Dublin - Longford Commuter service shares the same line as the Dublin - Sligo InterCity service.

As a consequence, there may be some issues in categorising patronage into to these groupings. Where relevant this is detailed throughout the report. A description of the routes contained within these three categories, as defined by Iarnród Éireann, is provided in Table 1. Figures 1, 2 and 3 also illustrate InterCity, DART, Dublin and Cork routes.

Table 1 Routes and services in the Iarnród Éireann Network as defined by Iarnród Éireann

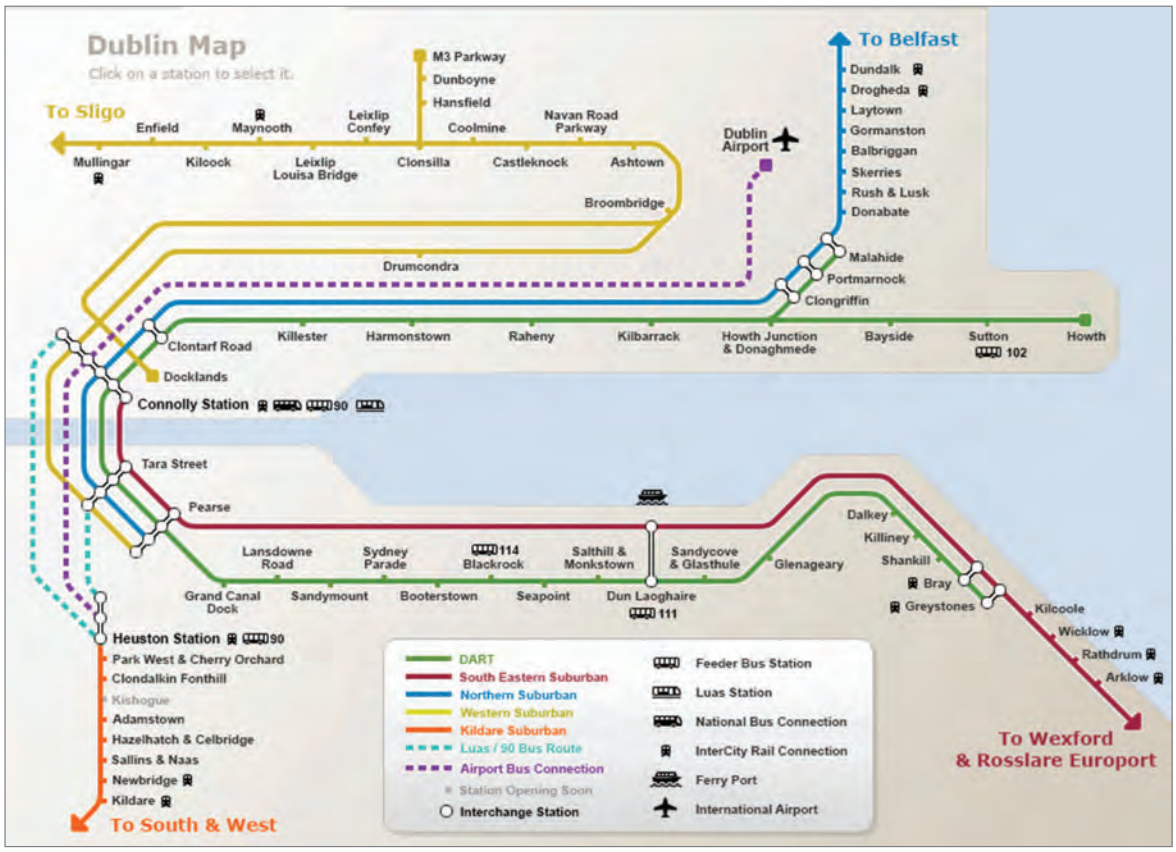
Route	Services on each route
InterCity	Dublin Connolly - Belfast Services
	Dublin Heuston - Sligo / Westport / Galway / Limerick / Cork / Tralee / Waterford and Rosslare services
Commuter routes	Dublin Northern Commuter service *Extends from Dublin's Pearse Station via Dublin Connolly Station to Dundalk.*
	Dublin - Portlaoise Commuter service *Extends west from Dublin's Heuston Station to stations as far as Portlaoise.*
	Dublin - Longford Commuter service *Extends from Dublin's Pearse Station via Dublin's Connolly Station to Longford.*
	Dublin - Dunboyne / M3 Parkway services *Extends from Dublin's Dockland/ Connolly Station via Clonsilla to Dunboyne/ M3 Parkway.*
	Dublin Southern Commuter service *Operates from Dublin's Connolly Station to Gorey Station.*
	Mallow - Cork - Cobh - Midleton Commuter services *Extends from Mallow to Cork, Cork to Cobh or Midleton.*
DART	Services that run from Malahide or Howth in north County Dublin southwards as far as Greystones, Co Wicklow.

3 *Although no passengers were reported on a number of trains.*
4 *"Infrastructure," Iarnród Éireann website http://www.irishrail.ie/index.jsp?p=115&n=126, accessed on 9 April 2012.*

Figure 1 Geographic distribution of InterCity Routes

Source: Iarnród Éireann

Figure 2 Overview of DART and routes originating from Dublin



Source: Iarnród Éireann. Note: Geographical distribution is indicative only.

Figure 3 Overview of Cork Commuter and InterCity routes

Source: Iarnród Éireann. Note: Geographical distribution is indicative only

Tables 2 to 4 detail service provision on InterCity routes, and on a sample of key Commuter and DART services including the fastest journey time and the number of services available per weekday in 2013. The main timetable changes in 2013 relative to 2012 are also described, as the Census itself was undertaken in 2012. For Commuter and DART services, where stated, all services originating and destined for intermediate locations on the route section are also included, not just services operating between the origin and destination specified in the route. For instance, the number of services from Cork to Mallow also includes trains operating from Tralee to Cork which serve Mallow. This reflects the shared nature of the train lines and provides a better insight into the level of service provision between such locations.

As can be seen from the tables, the most frequent services are Commuter and DART services, which tend to be shorter journeys. The most frequent InterCity service is between Dublin and Limerick, followed by Dublin to Cork.

Table 2 InterCity journey times and service frequency[5]

InterCity services			
Route	Fastest journey time 2013	Number of services per weekday between locations	Changes in 2013 compared with 2012
Dublin - Cork	2:30	28	Journey time improvements of 5 - 20 minutes
			05.05 Cork - Dublin ceased
			19.20 Cork - Dublin added
Dublin - Belfast	2:00	16	
Dublin - Galway	2:10	18	Journey time improvements of 5 - 25 minutes
			Extra service in each direction every evening
Dublin - Westport	3:05	9	Journey time improvements of 5 - 20 minutes
			09.45 Westport - Dublin added
Dublin - Sligo	3:00	14	One service less in each direction.
Dublin - Tralee	3:35	15	Journey time improvements of 8 - 15 minutes
Dublin - Limerick	2:00	32	Journey time improvements of 17 minutes
			13.40 Dublin to Limerick ceased
Dublin - Waterford	1:50	14	Journey time improvements of 5 - 18 minutes
Dublin - Rosslare	2:45	8	

Source: InterCity timetables. Services on 20/01/2013, not reflective of service changes subsequent to this date

5 *Reflects fastest journey time for weekday journeys*

Table 3 Sample of key Commuter Services journey times and service frequency

Commuter services			
Route	Fastest journey time 2013	Number of services per weekday between locations	Changes in 2013 compared with 2012
Dublin - Portlaoise	0:40	58	One service less in each direction
Dublin - Maynooth[6]	0:30	78	
Dublin - Dundalk[7]	0:50	30	
Dublin - Drogheda[8]	0.45	64	
Cork - Mallow[9]	0:20	44	Two additional Mallow services added
Cork - Midleton	0:25	39	06.15 Midleton to Cork added
Cork - Cobh	0:25	45	

Source: Commuter timetables. Services on 20/01/2013, not reflective of service changes subsequent to this date

Table 4 DART journey times and service frequency

DART services			
Route	Fastest journey time 2013	Number of services per weekday between locations	Changes in 2013 compared with 2012
Malahide - Greystones	01:15	48	Unchanged, apart from minor departure and arrival time changes
Bray - Howth[10]	01:10	78	

Source: Iarnród Éireann DART timetable. Services on 20/01/2013, not reflective of service changes subsequent to this date

6 Includes services between Longford and Dublin serving Maynooth
7 Includes services between Bray and Belfast serving Dundalk
8 Includes services between Bray and Belfast serving Drogheda
9 Includes services from Tralee and to and from Heuston serving Mallow
10 Includes services between Howth and Greystones serving Bray

2: Trends in daily rail patronage over the 2003 to 2012 period

2.1 Summary of key events affecting the railway over last decade

The period from 2003 to 2012 was one of change for the railway in Ireland. In 2003, passenger demand was growing strongly, in line with the economy and as an alternative to relatively congested conditions on the road network. Investment was taking place to rehabilitate the railway and to increase capacity. The train fleet was significantly expanded from 2000 through to 2010, so that service levels on the InterCity, Commuter and DART services were approximately doubled. The DART Upgrade, completed in 2006, brought station improvements including longer platforms to accommodate longer, higher capacity, trains. Infrastructure investments included the reopening of the Cork - Midleton line in 2009, four-tracking of parts of the Kildare line and the development of services between Limerick and Galway, both in 2010.

Passenger demand peaked in 2007 reflecting expansion in both the supply of rail services and the demand for services. Patronage then substantially declined following the downturn in the economy compounded by increased competition from road transport as the interurban motorway network was gradually developed to completion in 2010.

Rail passenger numbers have stabilised since 2010.

2.2 Historic trends in rail census data for the GDA

Historically the Rail Census provides a snapshot of rail usage in the GDA from 2003 to 2012 across the following lines:

- DART line
- Longford - Dublin - Gorey line
- Dundalk - Gorey line
- Dublin - Carlow/Athlone/Portlaoise line

The Rail Census does not uniquely report where individual passengers board or alight, so journeys cannot be attributed to a discrete route e.g. Longford to Dublin. It merely measures the total number of individuals boarding and alighting at each station by service. Therefore in order to obtain an accurate picture of journeys taken along particular lines it is necessary to look at specfic sections of the network. This point is best illustrated through an example. The Longford - Dublin - Gorey line mostly facilitates trains and passengers travelling between Dublin and Longford. However the Bray - Maynooth train also runs along this line. Therefore in order to quantify the number of complete journeys it is necessary to look entirely at the Longford - Dublin - Gorey line rather than just the Longford - Dublin line. This explains the rail line classification used in the Rail Census.

Table 5 shows daily journeys by rail in the GDA from the Rail Census. Total journeys and journeys across the individual lines from 2003 to 2012 are detailed in the Table and are shown graphically in Chart 1. It can be seen that:

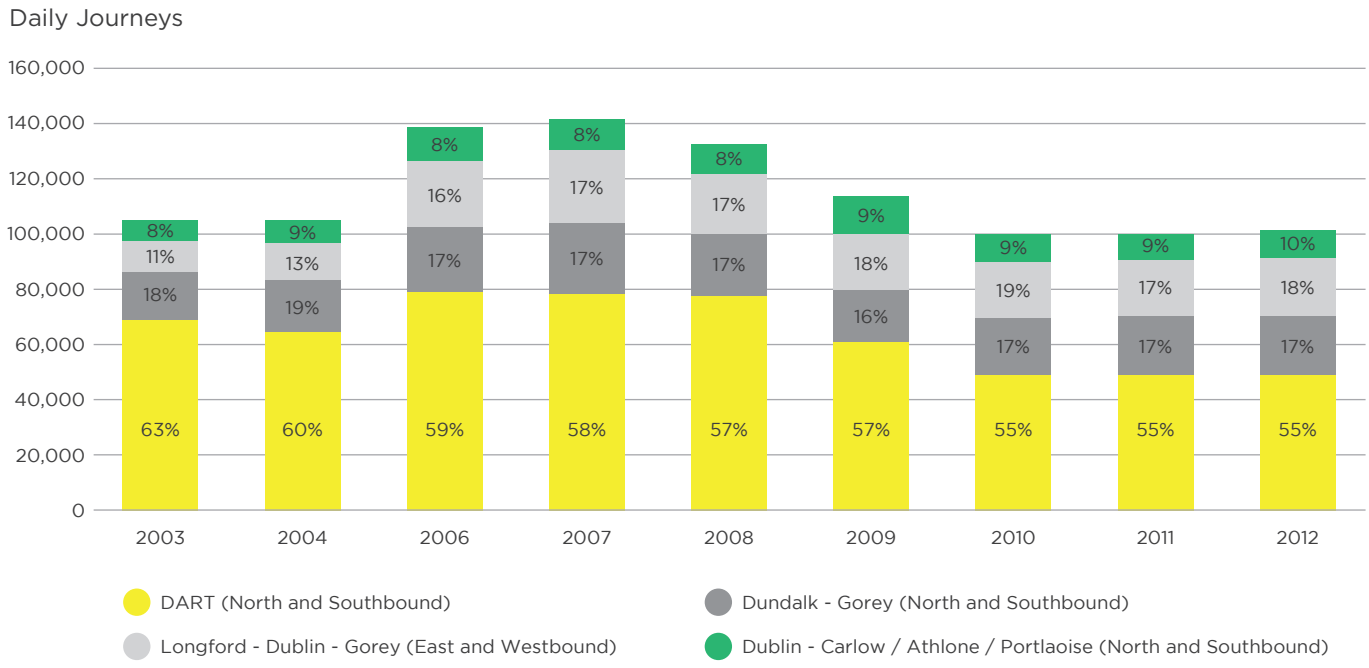
- The number of rail journeys in the GDA increased over the 2003 - 2007 period and declined in 2008 and 2009 before stabilising from 2010.
- DART journeys, as a proportion of total journeys, declined from 63 percent in 2003 to 55 percent in 2012.
- DART usage also fell in absolute terms though there was a slight increase in 2012.
- Similar to the DART line, journeys on the Dundalk to Gorey line declined overall between 2003 and 2011 (Journeys on this line increased between 2003 and 2007, declined in 2008 and 2009 and stablised from 2010).
- The Longford - Dublin - Gorey line (also known as the Maynooth lines) experienced growth over the 2003 to 2012 period.
- The number of journeys on the Dublin - Carlow/Athlone/Portlaoise lines (also known as the Kildare lines) also increased overall between 2003 and 2012.

Table 5 Daily passenger journeys by line 2003 - 2012[11]

Year	DART	Dundalk - Gorey	Longford - Dublin - Gorey	Dublin - Carlow / Athlone / Portlaoise	Total
2003	68,152	19,446	11,642	8,246	107,486
2004	64,435	20,419	13,614	9,219	107,687
2006	81,560	23,305	21,966	11,349	138,180
2007	83,618	24,624	23,836	11,722	143,800
2008	75,753	22,191	22,678	11,145	131,767
2009	63,559	18,037	19,992	9,760	111,348
2010	55,929	17,446	18,770	9,042	101,187
2011	55,629	17,611	18,531	9,455	101,226
2012	56,835	17,895	17,915	9,808	102,453

Source: Iarnród Éireann Census 2003 - 2012

Chart 1 Composition of daily rail patronage, 2003 - 2012[12]



Source: Iarnród Éireann Census 2003 - 2012

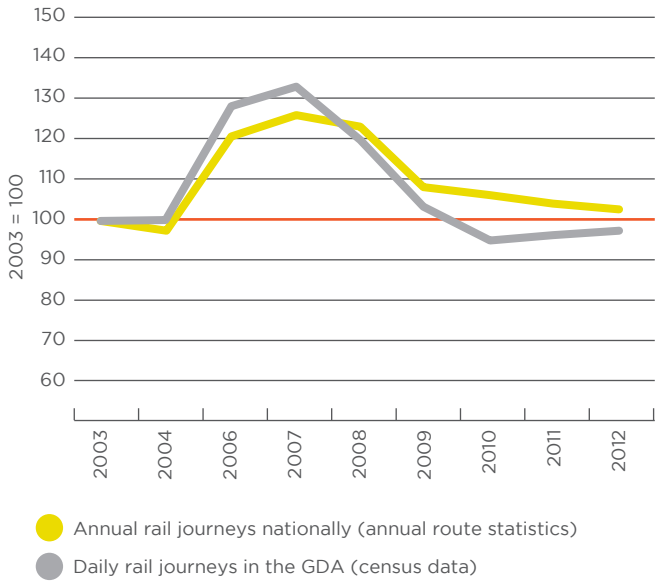
11 In order to allow for comparisons with previous years, only Dublin and Suburban area journeys have been included in the 2012 figures
12 In order to allow for comparisons with previous years, only the Greater Dublin Area journeys have been included in the 2012 figures

2.3 Comparison of daily train patronage in the GDA and annual national patronage

Iarnród Éireann also produces statistics on the number of journeys taken nationally on the rail network on an annual basis. Chart 2 compares the daily rail journeys taken in GDA (from the Rail Census) with the number of annual journeys nationally, using 2003 as a relative baseline.

A number of interesting characteristics emerge from the comparison of census and annual statistics.

Chart 2 Daily rail journeys relative to annual rail journeys 2003 - 2012 (2003 = 100)[13]



Source: Iarnród Éireann Census 2003 - 2012, Iarnród Éireann, Annual Route statistics 2003 - 2012

- Over the 2003-2012 period the trend direction for both daily rail journeys in the GDA and annual rail journeys nationally was broadly similar. However, variations in daily rail journeys in the GDA tended to be more pronounced that variations in national annual journeys as illustrated by the following:
- From 2004 to 2007, daily rail journeys in the Greater Dublin Area increased at a faster pace than national annual journeys relative to their 2003 levels.
- When the number of annual rail journeys decreased from 2008 to 2010, daily rail journeys in the GDA experienced a more marked decline.

13 *No rail passenger data available for 2005. In order to allow for comparisons with previous years, only Dublin and suburban area journeys have been included in the 2012 Rail Census figures*

- In 2011 and 2012, daily rail journeys in the GDA began to recover at a faster pace than national annual journeys.

Therefore, as the chart illustrates, although the number of daily journeys in GDA, as recorded by the Rail Census, has grown steadily since 2011, it still remains below 2003 levels. In contrast, the number of annual rail journeys taken nationally, remains above 2003 levels, despite experiencing decline since 2008.

There could be a number of reasons for these trends. Dublin is Ireland's centre of economic, political and business interests. As a result of this, when Ireland's economy grows (as was the case over the 2004 - 2007 and 2011 - 2012 periods), Dublin tends to experience higher than national average growth which is reflected in demand for travel. Consequently, the number of rail journeys taken over these growth periods would have increased at a faster pace in Dublin than experienced nationally. The reverse is true during periods of economic downturn (2008-2010). The decrease in journeys in the GDA during this period did not result from changes in service levels in the area (DART services during the peak time increased in 2012 relative to 2006). Decline in usage was therefore the result of a broader range of factors. Lower levels of road congestion in the Dublin area, combined with the completion of the M50 Upgrade in 2010 would also have made travelling by car more attractive and may have led to the transfer of some rail passengers to road.

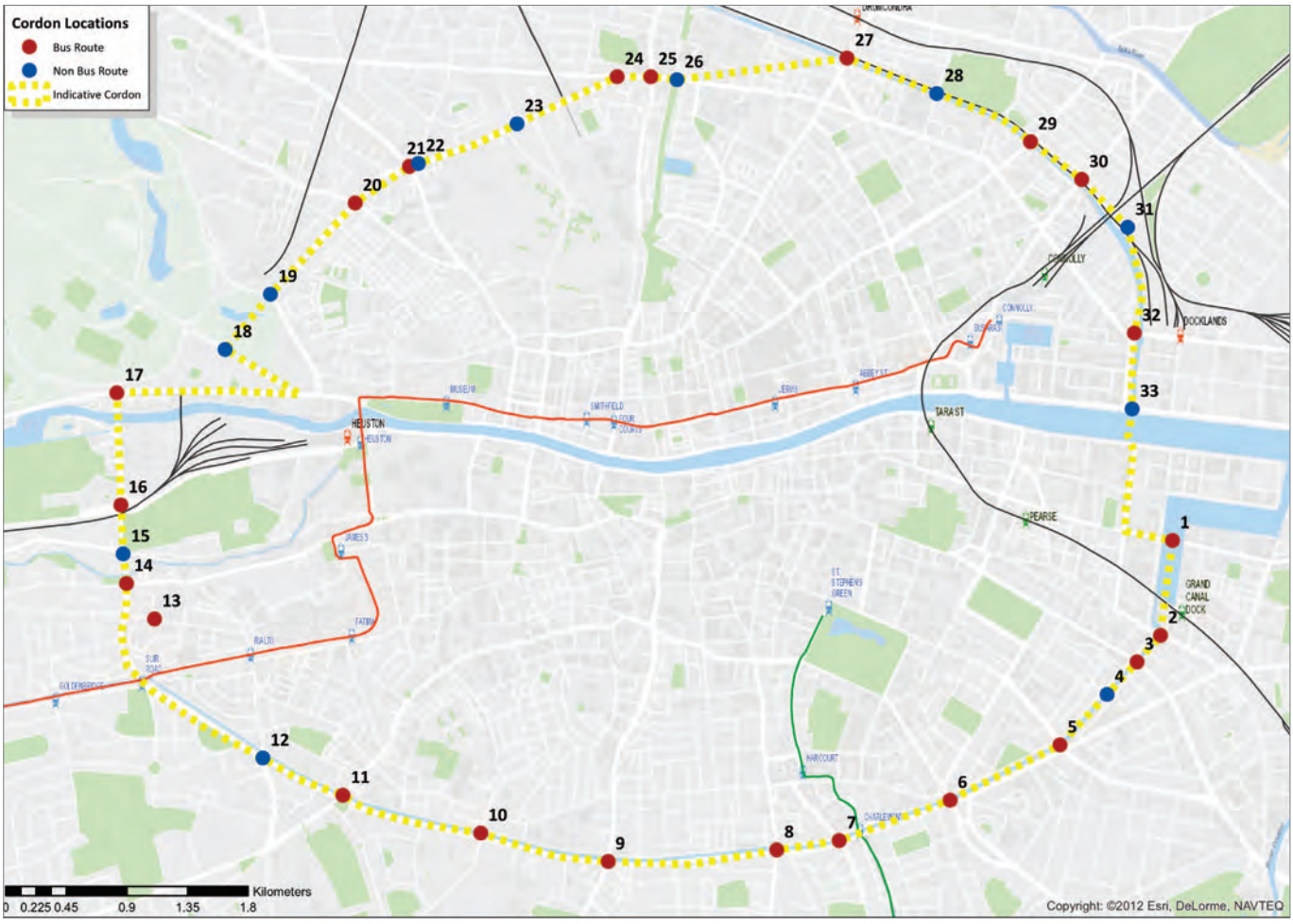
The steeper decline in rail journeys in the GDA over the 2008 - 2010 period may also be explained by increased capacity in the rail network outside of the Dublin area which occurred predominantly from 2007 onwards. The introduction of an hourly service between Dublin and Cork in 2007, the opening of the Cork - Midleton line in 2009 and the steady arrival of new InterCity railcars across the InterCity and longer distance Commuter market all contributed to a significant increase in capacity outside of the GDA.

2.4 Comparison of daily rail journeys in GDA and City Centre, 2003 – 2012

The 'Canal Cordon Count' is an annual count of people crossing the Canal Cordon (i.e. a perimeter around Dublin city centre formed by the Royal and Grand Canals) in the morning peak between 7:00 and 10:00[14] on a specific day in November each year. Figure 4 illustrates the location of the Canal Cordon and the 33 points on the Cordon where information on the movement of people is collated.

This count provides data on numbers of people entering Dublin city by all modes of transport including rail, bus, taxi, cycling, walking, and car or goods vehicle and allows for annual trends to be identified. The rail patronage data from the canal cordon dataset is derived from the Rail Census.

Figure 4 Canal Cordon with the 33 count locations included



Source: National Transport Authority

14 The counts refer to movements of people in one direction only (i.e. inbound into the city centre) across the various cordon points.

Table 6 details the number of people entering the canal cordon by train in 2012 and 2011. In total nearly 24,000 people entered the city centre by train on the day of the 2012 Canal Cordon count, an increase of 4.65 percent relative to 2011.

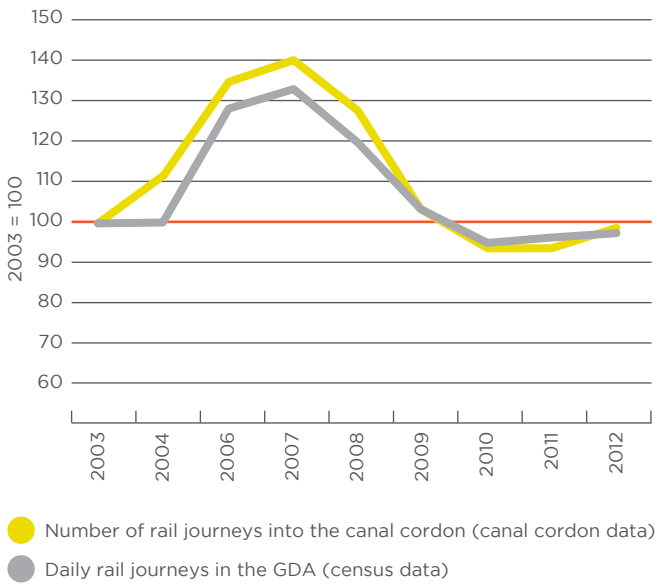
Table 6 Number of rail passengers crossing the canal cordon in 2012

	2011	2012
Number of rail passengers	22,932	23,999

Source: National Transport Authority, Canal Cordon Counts

Chart 3 compares the level of rail usage across the canal cordon (number of rail journeys into the city centre) with daily rail journeys taken in the GDA region as a whole (as measured by the census) for the 2003 - 2012 period. In order to provide meaningful comparison both figures have been indexed to their 2003 levels.

Chart 3 Rail journeys into city centre relative to rail journeys in the GDA, 2003 - 2012 (2003=100)[15]



Source: National Transport Authority, Canal Cordon Counts; Iarnród Éireann, Iarnród Éireann Census 2003 - 2012

A comparison of rail journeys into the city centre by train (canal cordon) and rail journeys in the GDA allows for the identification of further characteristics about rail usage in the Dublin area in general. Patterns in rail patronage into Dublin City Centre and in the broader Greater Dublin Area are broadly similar relative to 2003 levels; increasing over the 2003 - 2007 period, and declining thereafter. However, the rate at which change occurred varied between these two areas.

15 *No rail passenger data available for 2005. In order to allow for comparisons with previous years, only Dublin and suburban area journeys have been included in the 2012 Rail Census figures.*

It is useful to compare the findings of this analysis with that undertaken in Section 2.3 which showed that variations in rail patronage in the GDA were considerably more marked that national level changes. Dublin city centre rail usage in comparison grew at a faster rate than the GDA during the 2003 - 2007 period but growth rates have since converged.

Taken together, these trends suggest that while Dublin city centre and the GDA tended to benefit more from an increase in rail patronage over the boom period relative to national figures, since the downturn they have also experienced larger declines in rail usage. National rail usage in contrast, while not benefiting as much over the boom period as the Dublin area, has proven to be more resilient since 2008 compared to Dublin.

There is no clear explanation for this. It could be due to a number of factors such as the larger availability and greater ease of switching to other modes in the Dublin area that across the country. Data from the Canal Cordon Count shows evidence of substitution of travel modes since 2007. The number of individuals entering the city centre by bus, train, motorcycle, private car and commercial vehicle has declined while the number entering by Luas, taxi and bicycle has increased.

Interestingly, at canal cordon points close to train stations there has been a notable increase in the number of people cycling into the city centre, albeit coming from a low base. At such locations, the numbers of individuals cycling into the city centre increased from approximately 1,800 to nearly 2,900 in the three years to 2012 - an increase of approximately 60 percent. Initiatives such as the Bike to Work Scheme and improvements to the cycle network are likely to have contributed to the rise in popularity in cycling.

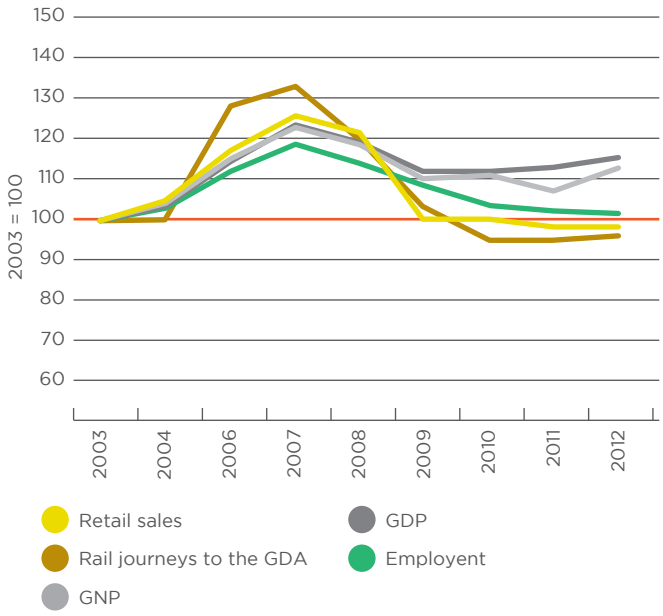
On the North side of the city, there was also a strong increase (22 percent) in the number of individuals walking into the city centre (between Summerhill and North Wall Quay, canal cordon points 29 - 33 in Figure 4). In absolute terms this represented an increase of nearly 600 individuals choosing to walk into the city. Reduced incomes may also have influenced the shift to walking and cycling as people seek to reduce their travel costs.

While a shift in transport mode can therefore partially explain the decrease in the use of rail in the Dublin area, it is unlikely to be the sole reason. The number of journeys taken on the DART alone declined by over 25,000 during the 2007 - 2012 period. A switch in mode share alone is unlikely to account for a decline of this scale. Alternatively, these differing trends could be due to sampling factors: while the Rail Census and canal cordon data measure rail usage on a single day, annual figures capture the total rail patronage for the entire year. As a result, annual figures give a more balanced picture over the course of the entire year and therefore provide the best representation of systematic changes.

2.5 Rail usage in the GDA relative to overarching economic trends

Using 2003 as a base year, it is possible to compare the evolution of rail patronage in the GDA with key economic trends as shown in Chart 4. This may assist in anticipating or preempting trends in rail usage, from broader economic data sets and could help to inform service planning.

Chart 4 Rail journeys in GDA relative to key economic trends, (2003=100)16



Source: Iarnród Éireann Census, 2003 - 2012, CSO Quarterly National Household Survey, CSO, National Accounts, CSO Retail Sales Index

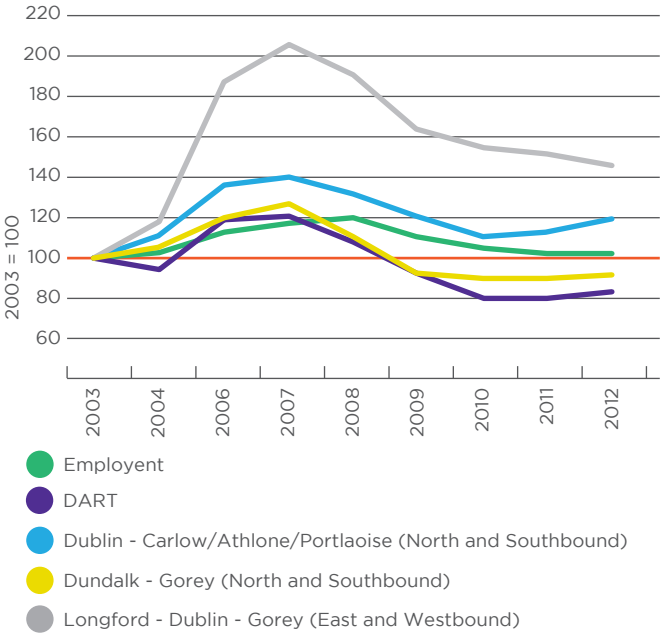
Two interesting characteristics can be noted from this comparison. Firstly, as depicted in Chart 4, rail patronage has tended to be more volatile than other economic statistics experiencing a much more pronounced decline than employment and economic growth in the period since 2003. This tendency may be explained by the way in which road traffic congestion often decreases in recessionary periods, drawing rail passengers back to road travel, notably the car. Additionally, people working in employment sectors particularly badly affected by the recession, such as hospitality, may have been heavier users of the public transport system.

Secondly, rail patronage - similar to employment and retail sales - tends to lag economic growth. Retail sales appear to be most closely correlated with rail usage.

16 *GNP and GDP at constant prices, annual employment is quarterly average for the year in question. In order to allow for comparisons with previous years, only Dublin and Suburban area journeys have been included in the 2012 figures.*

Chart 5 illustrates the rail journeys on individual lines relative to employment, again indexing these metrics to their 2003 levels. Patronage on the DART and Dundalk - Gorey lines fell at a rate greater than that of employment, whereas patronage on the Longford - Dublin - Gorey line and Dublin - Carlow/Athlone/Portlaoise lines fell to a lesser extent than employment numbers. This is likely to be reflective of, on the one hand, the impact of substitution effects on the Dundalk-Gorey line with passengers shifting to car and Luas on the completion of the M50 and the extension of the Luas Green line to Cherrywood in 2010 and, on the other hand, the significant increase in capacity and supply of services on other lines which could have eased the decline.

Chart 5 Rail journeys on various lines relative to employment, (2003 =100)



Source: Iarnród Éireann Census, 2003 - 2012, CSO Quarterly National Household Survey

3: Key Characteristics in rail patronage, Rail Census 2012

3.1 National and Greater Dublin Area

The total patronage on the rail network on Census day was 124,000, involving almost 670 rail services. The following tables illustrate some key characteristics of rail usage from the Census data. The concentration of journeys in the Greater Dublin Area (GDA) is particularly striking, accounting for approximately 83 percent of the total journeys taken. Furthermore, the number of individuals boarding trains within the GDA was almost equal to the number alighting trains in the GDA, indicating that most journeys originating in the GDA were destined for other locations within this region (see Table 7).

Table 7 Boardings and alightings in and outside the Greater Dublin Area

	Greater Dublin Area	Outside Greater Dublin Area
Boardings	103,909	20,382
Alightings	103,400	20,815

Source: Iarnród Éireann Census 2012

3.2 Rail usage according to service categories

Further evidence of the concentration of patronage in the Greater Dublin Area is reflected in the breakdown of journeys by service category. DART services accounted for the largest number of journeys taken on the day at almost 48% of the total while the largest number of services delivered during the day was Commuter services, representing more than half of the total rail services operated (see Table 8).

Table 8 Number of services and journeys taken

	Number of services	Journeys taken
DART	157	56,835
Commuter[17]	367	40,509
InterCity[18]	145	26,938

Source: Iarnród Éireann Census 2012

17 *Tralee/Mallow and Cork, Limerick/Limerick Junction, and Limerick/Ballybrophy services are also included in this category.*

18 *Galway/Limerick, and Waterford /Limerick Junction services are included in this category also.*

3.3 Rail usage on individual lines

Table 9 shows the number of journeys on each of the lines on Rail Census day 2012. All of the Commuter lines into Dublin had similar levels of usage, at about 20,000 journeys; slightly less in the case of the Longford line. There were fewer journeys taken on the regional lines

Table 9 Journeys by direction and by line

Line	Journeys	Description of route
DART Northbound	28,425	Greystones/Bray - Howth / Malahide
DART Southbound	28,410	Malahide/Howth - Greystones/Bray
Connolly Commuter - Northbound	10,219	Rosslare - Dundalk
Connolly Commuter - Southbound	9,836	Dundalk - Rosslare
Connolly Commuter - Eastbound	9,703	Sligo - Longford - Bray
Connolly Commuter - Westbound	9,697	Bray - Longford - Sligo
Heuston Commuter - Northbound	10,143	Kildare/Newbridge/ Athlone/Carlow/Portlaoise/ Cork/Limerick/Galway/ Wesport/Waterford/Tralee to Heuston
Heuston Commuter - Southbound	10,659	Heuston to Kildare/ Newbridge/Athlone/ Carlow/ Portlaoise/Cork/ Limerick/Galway/Wesport/ Waterford/Tralee
Cork Regional Northbound	2,200	Cobh - Cork - Mallow, or Cork - Mallow - Tralee
Cork Regional - Southbound	2,433	Cork to Cobh and from Tralee - Mallow - Cork
Regional Northbound	1,172	Limerick to Galway/ Ballybrophy/Limerick junction, Waterford to Limerick junction
Regional Southbound	1,326	Galway/Ballybrophy/ Limerick junction to Limerick, Limerick junction to Waterford

Source: Iarnród Éireann Census 2012

3.4 Busiest stations

Mirroring overall trends in rail usage, nine out of the ten busiest stations for boardings and alightings in the country were located in Dublin (Table 10). Kent station, in Cork city, was the only station outside of Dublin to feature in the top ten in terms of passenger movements.

The top ten stations represent a significant proportion of overall daily patronage on the rail network accounting for 46 percent of total boardings in the country and 53 percent of total alightings.

A number of the top ten stations cater for different types of services, for instance Connolly caters for all types of train services - DART, Commuter and InterCity services; Pearse and Tara accommodate DART and Commuter services and Heuston facilitates both InterCity and Commuter services. In addition, stations located in significant areas of employment e.g. Grand Canal Dock and Lansdowne Road feature in the top ten, as do Bray and Dun Laoghaire which are both locations with significant populations, a mix of economic activity and rail stations that are accessible not only by walking and cycling but also by feeder buses.

It is interesting to note that numbers boarding and alighting services at individual stations are not perfectly matched. This may indicate a proportion of one-way trips, for example, when passengers did not make a return journey on the same day or made their return trip by a different mode of travel.

Table 10 Top ten stations by the number of boardings and alightings

Boardings		Alightings	
Connolly	13,477	Connolly	14,128
Pearse	11,312	Pearse	11,271
Heuston	8,650	Heuston	8,098
Tara Street	6,556	Tara Street	7,971
Dún Laoghaire	3,359	Dún Laoghaire	3,278
Cork (Kent)	3,112	Cork (Kent)	3,239
Bray	3,029	Lansdowne Road	2,906
Grand Canal Dock	2,825	Bray	2,867
Lansdowne Road	2,490	Grand Canal Dock	2,833
Blackrock	2,399	Blackrock	2,353

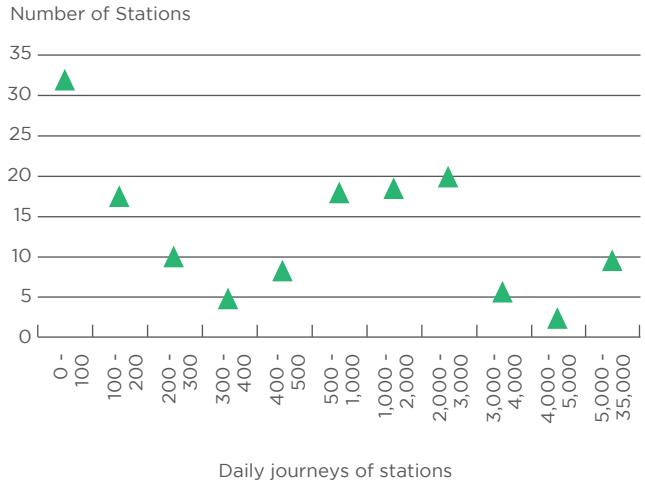
Source: Iarnród Éireann Census 2012

3.5 Variation in station usage across the network

Adding the number of boardings and alightings at each station to provide a measurement of daily journeys to each station provides an insight into the variation in station usage across the rail network. As can be seen from Chart 6, a notable number of stations experienced relatively low levels of use: 31 stations in the country generated less than 100 journeys on Census day, and a further 17 generated between 100 and 200 journeys.

At the opposite end of the scale 9 stations generated in excess of 5,000 journeys (the busiest stations referred to in Section 3.4 with the exception of Blackrock). Connolly station received the highest number of journeys at almost 28,000. This indicates that there is significant variation in station usage and the volume of journeys generated to/from individual stations across the rail network.

Chart 6 Number of stations experiencing different levels of daily journeys



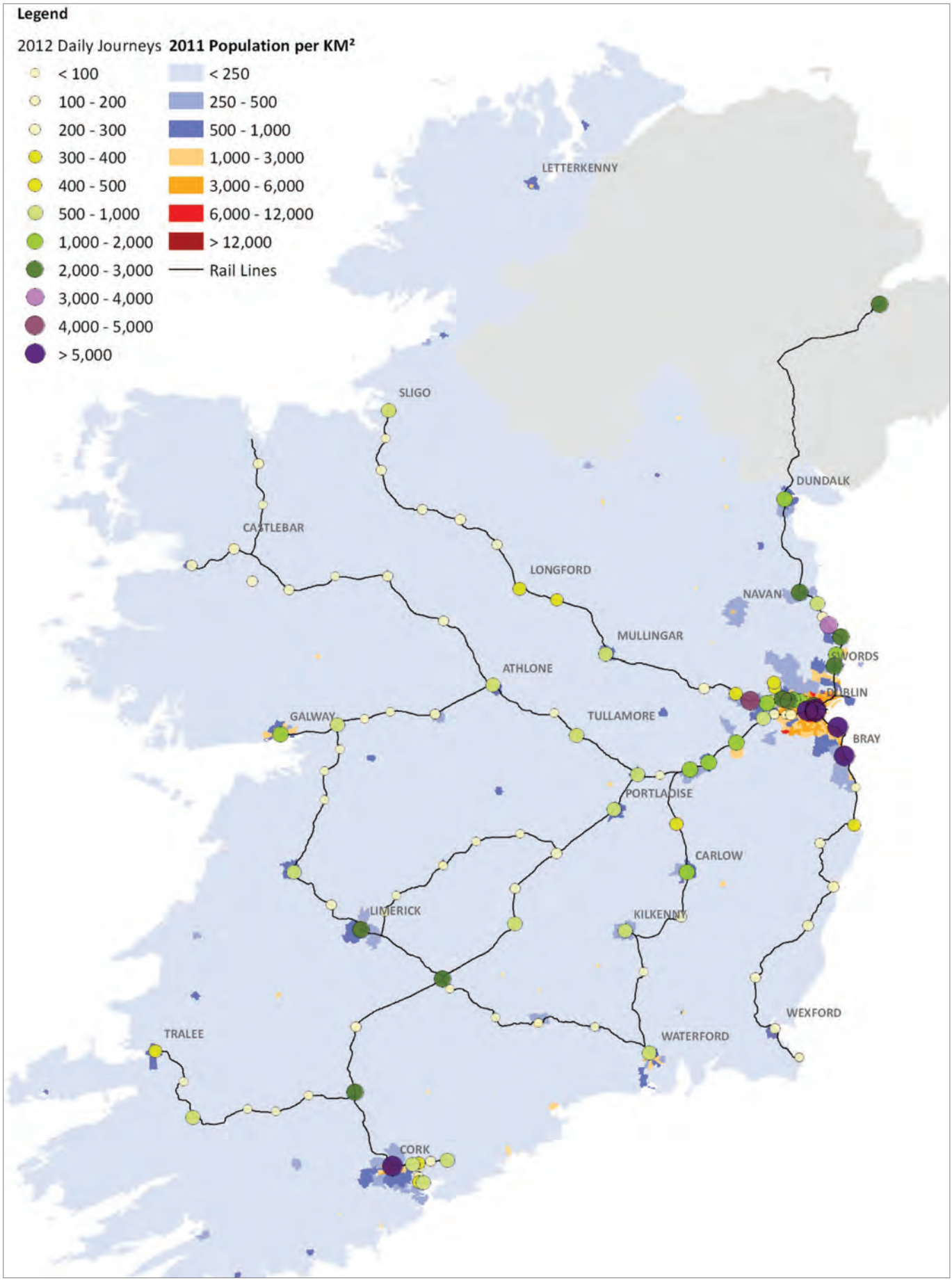
Source: Iarnród Éireann Census 2012

3.6 Patronage relative to population

Figure 5 and 6 illustrate the level of daily journeys in 2012 for each station in the country and in the GDA relative to population density.

As seen in Figure 5, in general, higher levels of daily journeys are most often attributed to more densely populated urban areas; while rural locations tend to experience the lowest levels of journeys. There are a number of exceptions to this. Sligo, which has a relatively low population density, experienced nearly 1,000 daily journeys suggesting that passengers utilising Sligo station come from a wider geographical area. On the other hand, Wexford town has low number of daily journeys relative to other locations with a similar population density. This indicates that the population in Wexford is more inclined to choose alternative modes of transport to rail. This may, at least in part, be due to the relative attractiveness of travel by road as opposed to rail, particularly in terms of journey times, between Wexford and other destinations on the rail network (i.e. Dublin).

Figure 5 Level of daily journeys to stations relative to population density

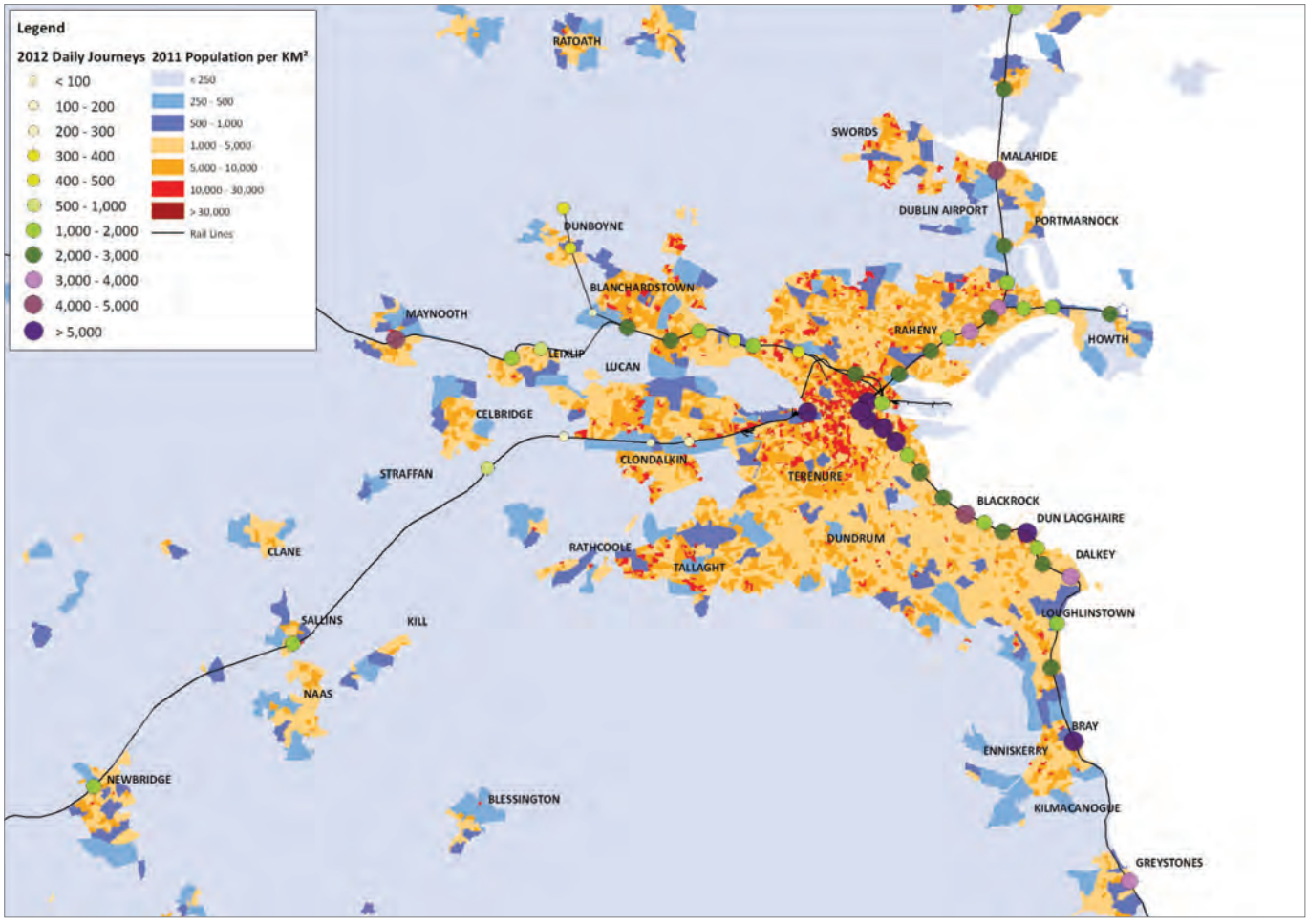


Source: National Transport Authority based on data from the Iarnród Éireann Census 2012

Figure 6 illustrates the level of daily journeys in the GDA with corresponding population density. The GDA has the highest population density in the country and unsurprisingly stations within this area exhibited high levels of daily journeys.

Stations with the highest level of daily journeys (as shown by the dark purple circles) were located in areas with high population density (shown by the concentration of red areas). Bray, by exception exhibited a high level of daily journeys relative to its population density, meaning that the passengers alighting or boarding at Bray originated from a wider geographic area. Maynooth also experienced a high incidence of daily journeys in the Rail Census relative to its population density - this is likely to be at least partially explained by the location of a university in the town generating trip demand from a wider geographical area.

Figure 6 Level of daily journeys to stations in the GDA relative to population density



Source: National Transport Authority based on data from the Iarnród Éireann Census 2012

4: Daily rail patronage by Line

4.1 DART

According to the Rail Census the number of total daily journeys on the DART line was almost 57,000. These journeys were almost evenly distributed between the DART Northbound and Southbound, providing evidence that the vast majority of passengers use these services for a round daily trip, as shown in Table 11.

Table 11 Total daily patronage on DART lines, 2012

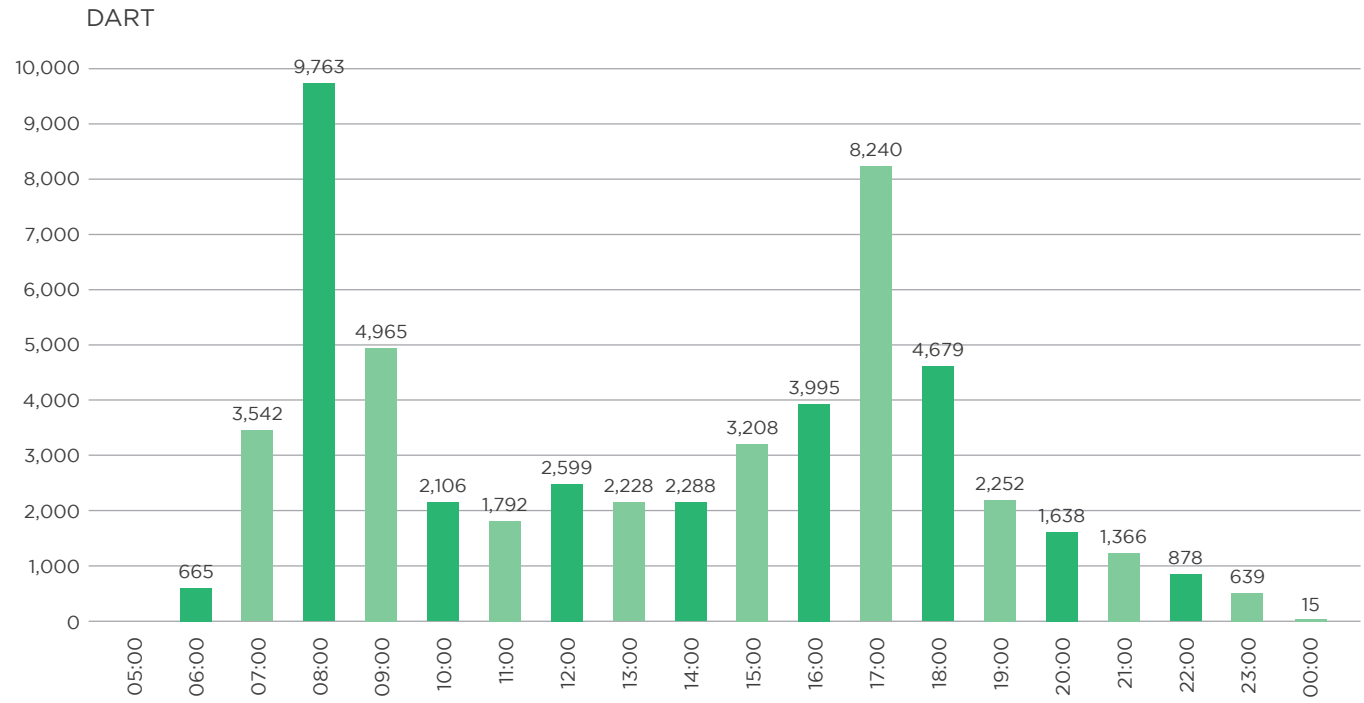
Line	Journeys
DART Northbound	28,425
DART Southbound	28,410

Source: Iarnród Éireann Census 2012

4.1.1 Hourly profile of demand

Chart 7 shows variations in demand over the course on the day on the DART line, based on numbers of passengers boarding services. The busiest hour was between 08:00 and 09:00 when a total of over 9,700 passengers boarded services over the length of the line. The evening peak hour which occurred between 17:00 and 18:00 was less busy that the morning peak with around 8,200 boardings. The "shoulder" peak periods (either side of the peak hours) were the next busiest hours, but were significantly less busy than the peak. This indicates limited "peak spreading" - a phenomenon experienced on congested railways by which people shift their travel times to ensure that they get a place on the train.

Chart 7 Hourly profile of demand on DART line, 2012

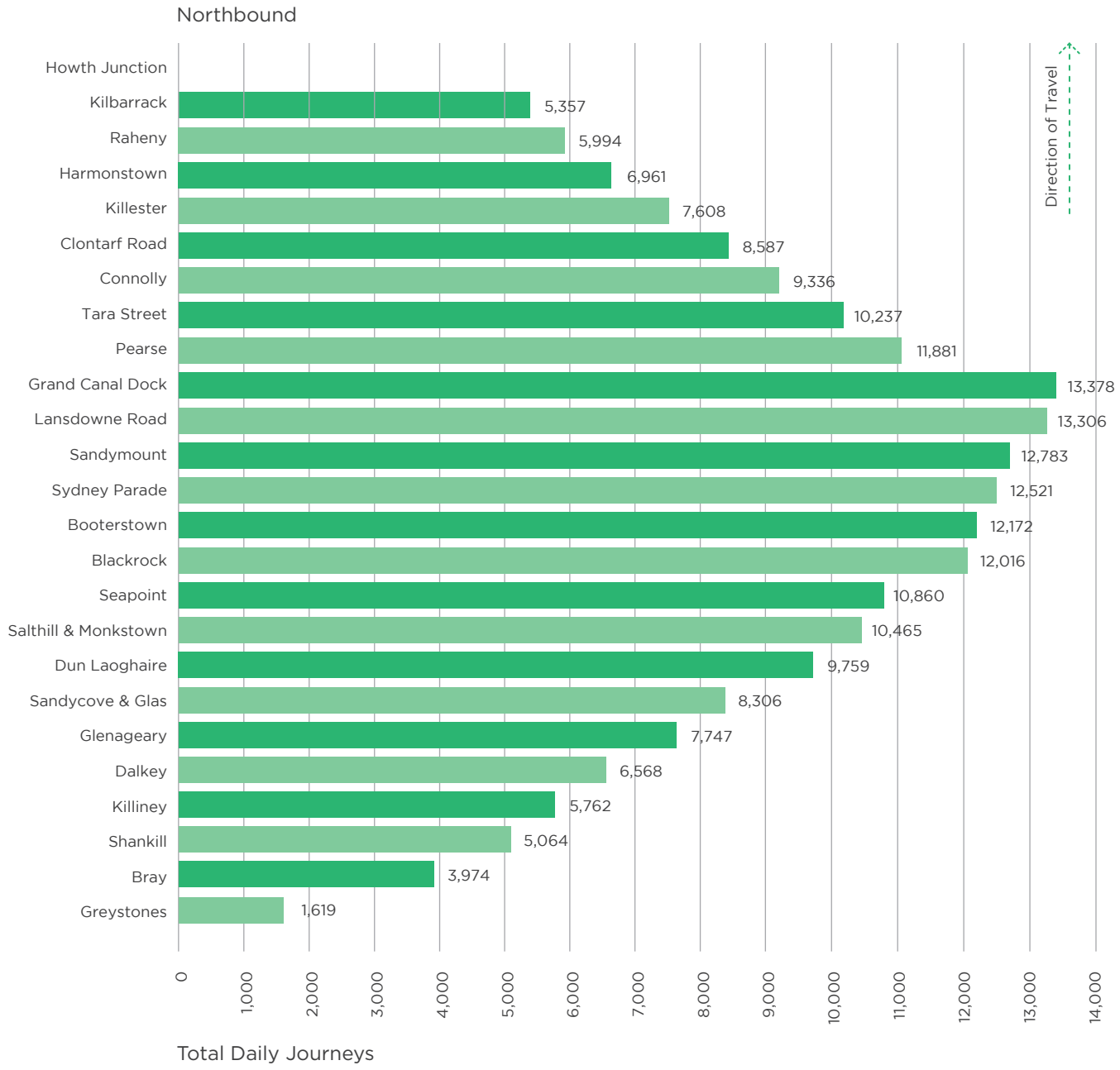


Source: Iarnród Éireann Census 2012

4.1.2 Station by station profile of demand

Chart 8 illustrates the daily build-up of passengers along the route of the DART Northbound line from Greystones to Howth Junction, where the line then splits into the Howth and Malahide branches. The change in the cumulative number of passengers on board at each station is the net impact of the number of passengers alighting and boarding trains.

Chart 8 Station by station profile of demand, DART Northbound, 2012



Source: Iarnród Éireann Census 2012

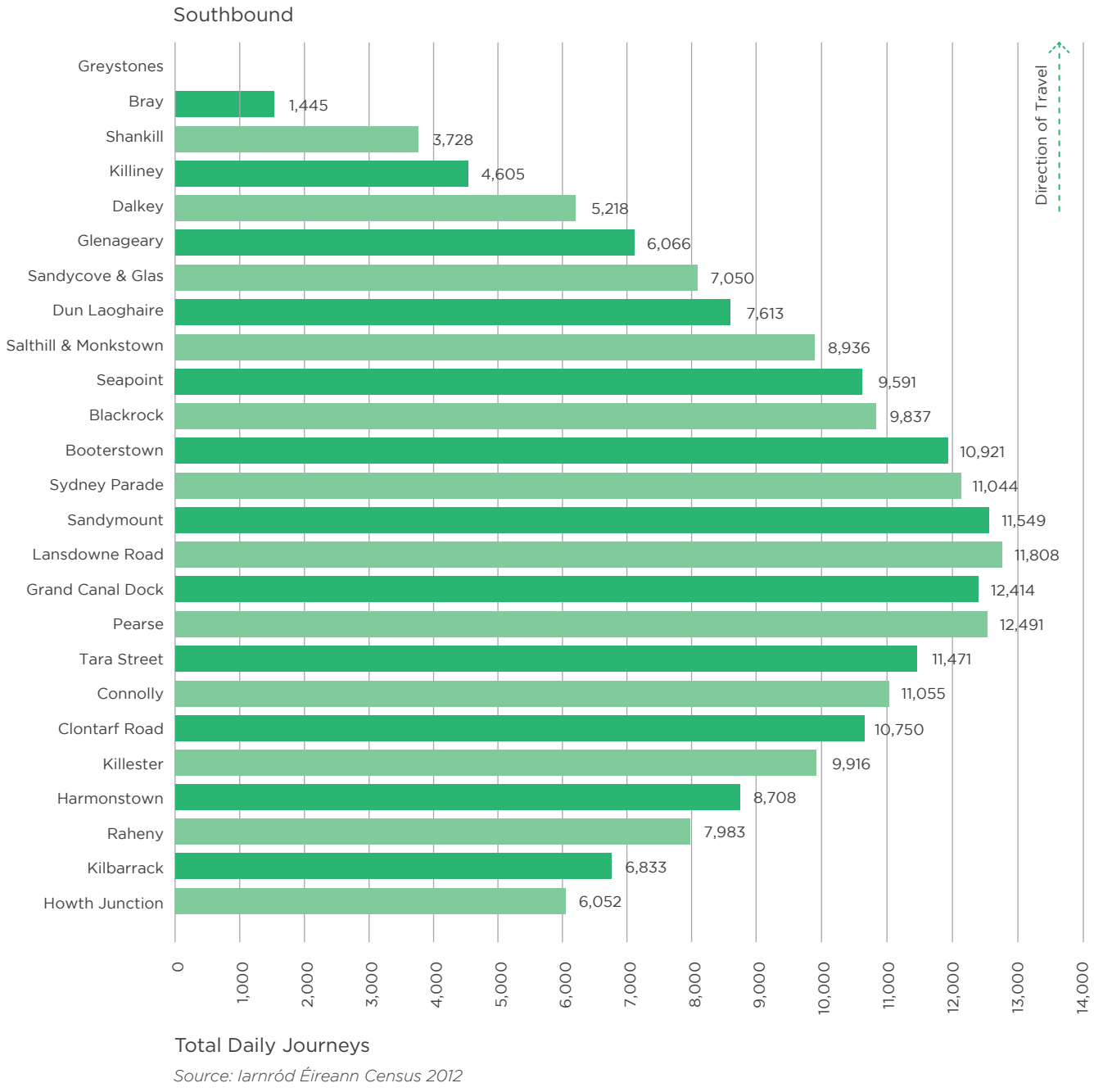
Looking at the pattern of build-up on the DART Northbound service, it is evident that there was a steady build-up of passengers on the southern end of the service (i.e. from Greystones to Booterstown), with notable increases in the numbers of passengers on board at Dún Laoghaire and Blackrock stations. Dún Laoghaire and Blackrock are hosts to a variety of commercial, education and residential activities, and have feeder buses extending the station catchments, which can explain the heightened level of daily patronage present at these stations.

There was relatively little change in the total number of passengers on board between Blackrock and Sandymount or between Lansdowne Road and Grand Canal Dock indicating a balanced flow of both passengers alighting and boarding at these stations.

The demand profile was much steeper on the northern portion of the line. This is likely to be because this section generates less intermediate travel as there is no major employment or education centre located along it, in contrast to the southern portion of the line. As a result the passengers on the northern section completed more journeys to/from the city centre.

Chart 9 shows the profile of demand in the southbound direction which, as would be expected, mirrored the northbound profile.

Chart 9 Station by station profile of demand, DART Southbound, 2012



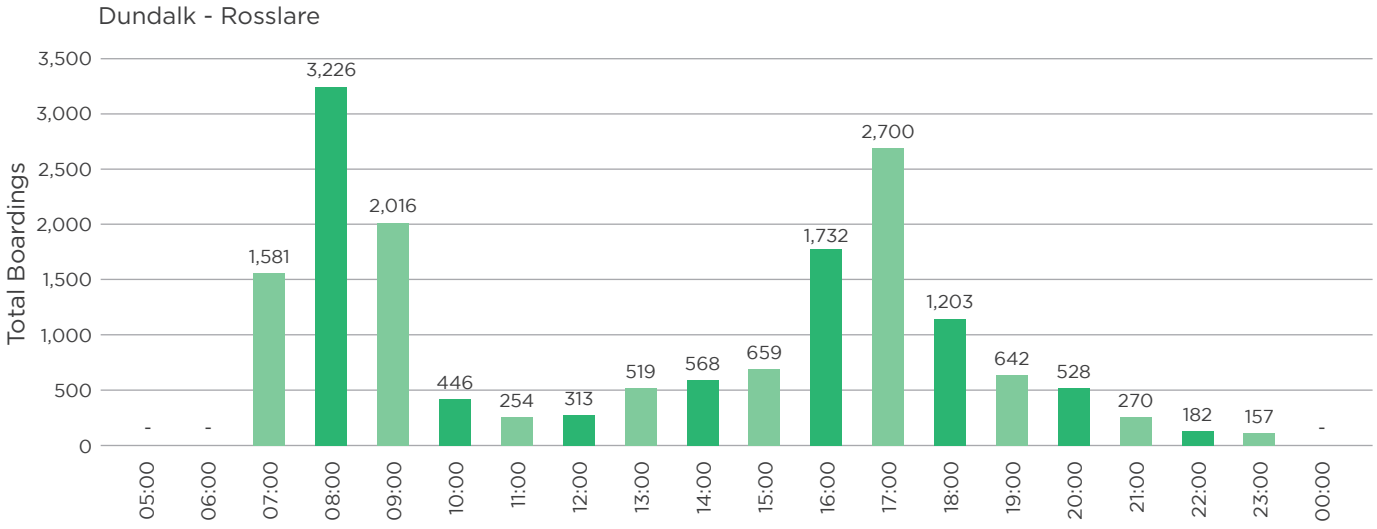
Source: Iarnród Éireann Census 2012

4.2 Dundalk - Rosslare line

4.2.1 Hourly profile of demand

As with the DART, the peak hours on this line also occurred at 08:00 - 09:00 and 17:00 - 18:00. The peak 'shoulders' also carried a large percentage of passengers. Outside of these times the number of hourly boardings on the line were relatively small (see Chart 10), indicating a more peaked profile for this Commuter line than for the DART. This would be expected as the DART is likely to be used for a greater variety of trip purposes more broadly spread throughout the day.

Chart 10 Hourly profile of demand, Dundalk - Rosslare line, 2012



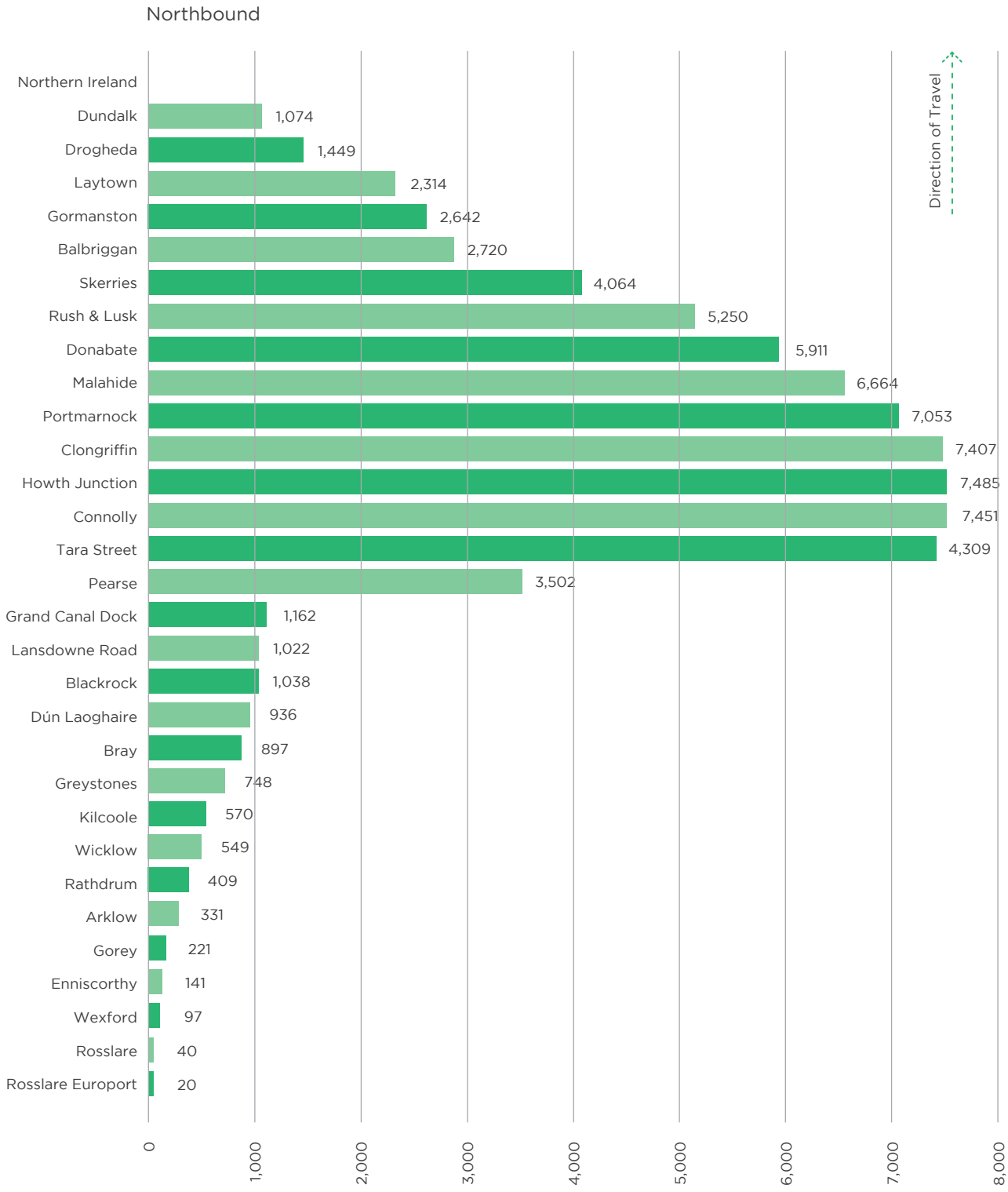
Source: Iarnród Éireann Census 2012

4.2.2 Station by station profile of demand

The Northbound line stretches from Rosslare Europort to Dundalk and on to Northern Ireland. Few services operate over the full length of the line and the patronage build-up along the line must be interpreted in this context. There are significantly more Commuter services operating on the northern part of the line, from Dundalk/ Drogheda to Dublin city centre, than on the southern part of the line between Gorey and the city centre. This is reflective of the population catchments that they serve. The InterCity service between Connolly and Belfast is also more frequent than the service to Wexford/Rosslare. This service pattern is reflected in the demand profile shown in Charts 11 and 12 - there are around seven times more passengers on the northern portion of this corridor. Indeed, the southernmost part of the line is very lightly used with only 20 daily boardings at Rosslare Europort and a further 20 at Rosslare Station.

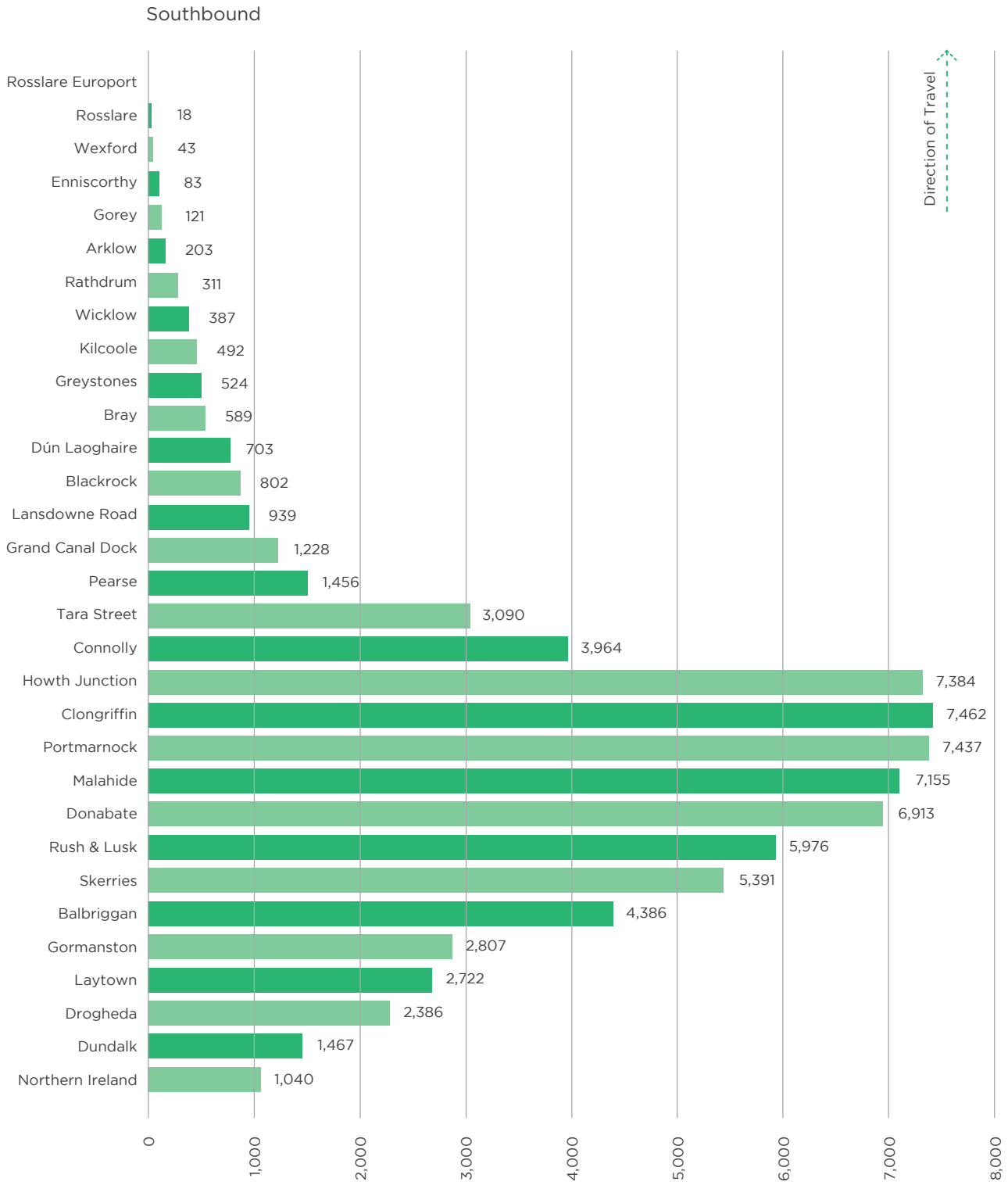
Some of the services on the northbound portion originate/terminate at Connolly, others at Pearse and others further south, which explains why boarding numbers build up from Connolly northwards. Not all services stop at Howth Junction, Clongriffin and Portmarnock, explaining the flat profile on that portion of the route. Large residential populations account for the increase in patronage between Balbriggan and Skerries, and again from Skerries to Rush & Lusk and Rusk & Lusk to Donabate.

Chart 11 Station by station profile of demand, Dundalk - Rosslare line (Northbound), 2012



Source: Iarnród Éireann Census 2012

Chart 12 Station by station profile of demand, Dundalk - Rosslare line (Southbound)



Source: Iarnród Éireann Census 2012

4.3 Dublin - Belfast line

For the first time the Rail Census in 2012 captured the total number of passengers on services operating between Northern Ireland and the Republic of Ireland. Boarding and alighting numbers on these services are similar, indicating that the vast majority of passengers travelling on this route used the train for round trips - possibly mostly day trips. There were approximately one thousand daily journeys taken on this route.

Table 12 Number of boardings and alightings on the Northern Ireland services originating/destined for the Republic of Ireland

Northern Ireland	Passengers
Boardings	1,040
Alightings	1,074

Source: Iarnród Éireann Census 2012

4.4 Sligo-Longford-Bray line

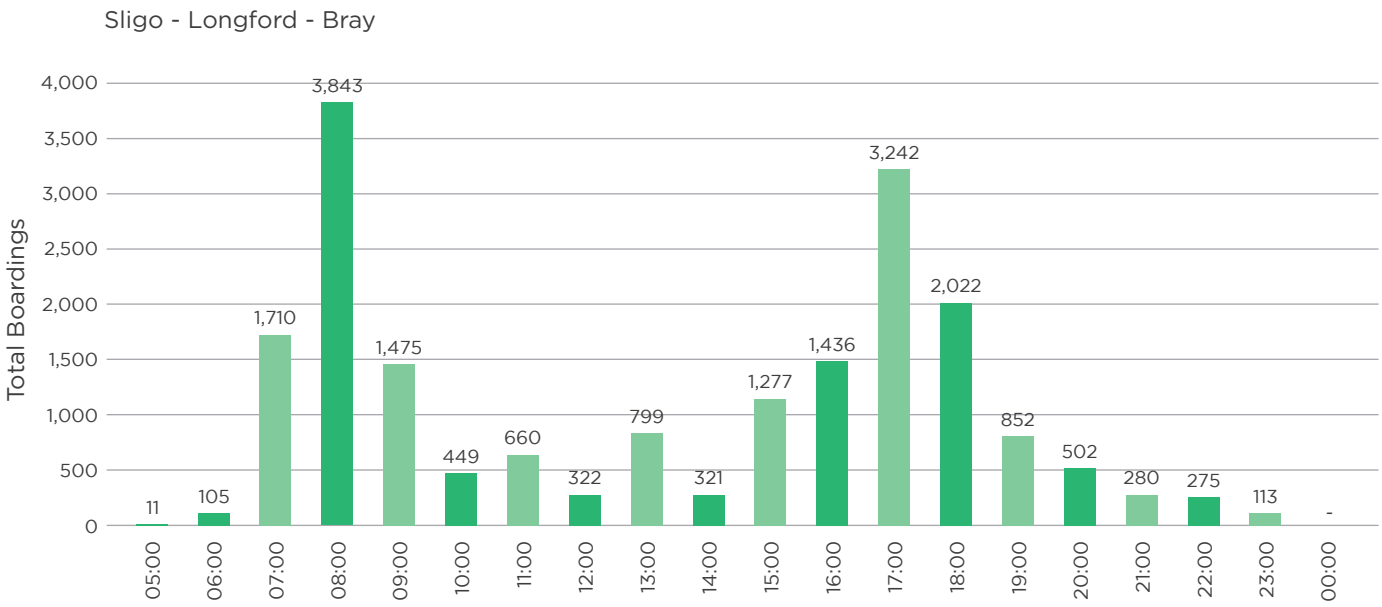
4.4.1 Hourly profile of demand

This line encompasses both InterCity and Commuter services which stretch from Bray to Dublin city centre and on to Longford and Sligo. As with the Dundalk - Rosslare line, the vast majority of services operate to and from the city centre with few through services to Bray.

M3 Parkway services join/leave the line at Clonsilla and again at Broombridge where they use a separate line to the Docklands. These arrangements are illustrated in Figure 2.

As illustrated in Chart 13, the morning peak hour (08.00 to 09.00) accounted for the largest number of hourly boardings on this line, with the number of boardings decreasing substantially between 10:00 and 14:00. From 15:00 the number of boardings began to increase again in the run up to the evening peak hour (17.00 to 18.00). The peak shoulder in the evening was important for this line also.

Chart 13 Hourly profile of demand, Sligo - Longford - Bray line, 2012

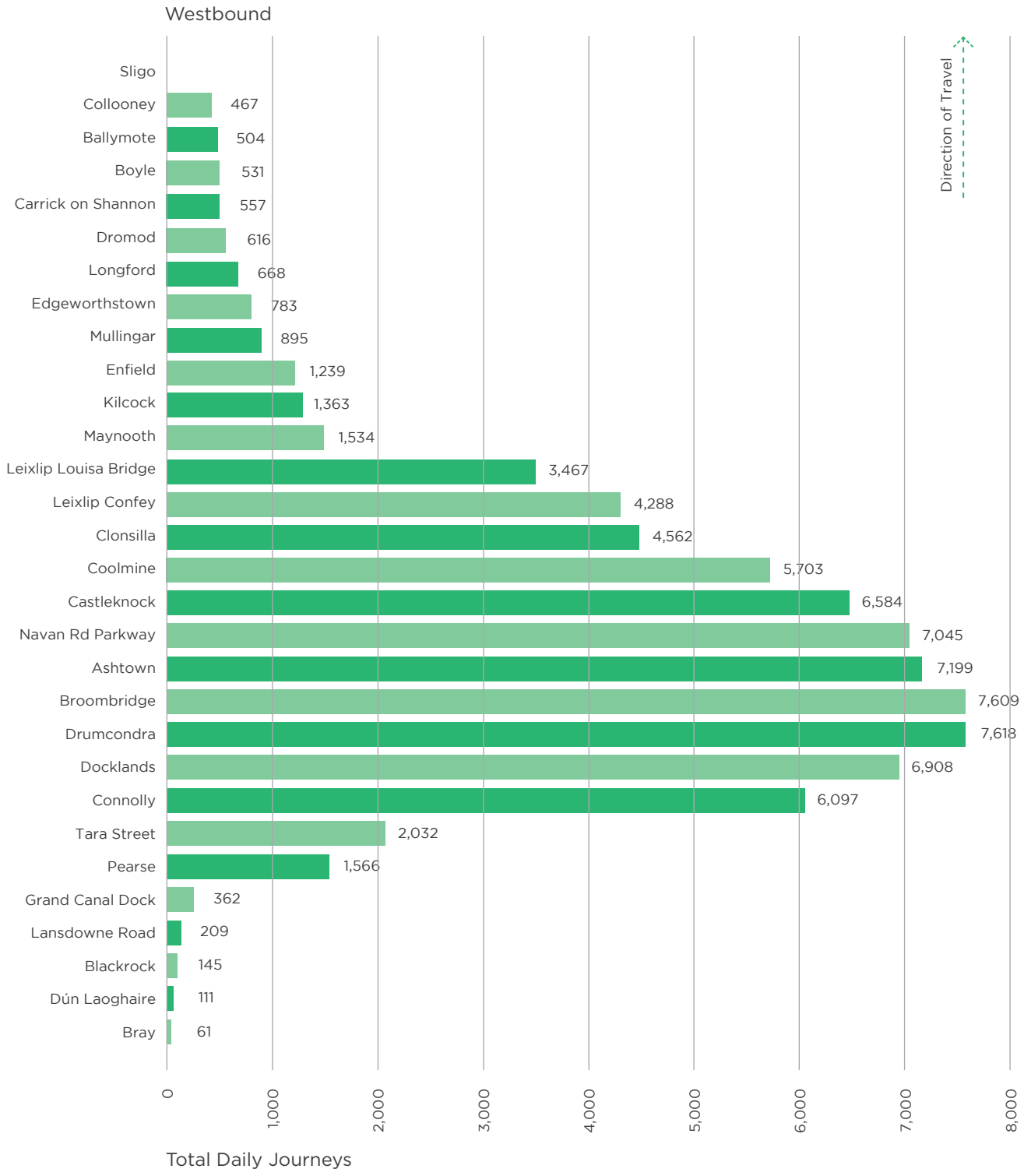


Source: Iarnród Éireann Census 2012

4.4.2 Station by station profile of demand

Chart 14 illustrates the daily patronage build-up in the westbound direction from Bray to Sligo. At the Bray end of the line, there was a slow build up in patronage as far as Pearse station where significant numbers of passengers boarded. This is where a number of Commuter services originate, for example Pearse – Maynooth services. A jump in patronage was also witnessed at Connolly station where InterCity services to Sligo and a number of Commuter services originate. As trains approached stations at the end of the Maynooth Commuter service there was a decline in patronage, with notable decreases in Lexlip, Louisa Bridge and Maynooth.

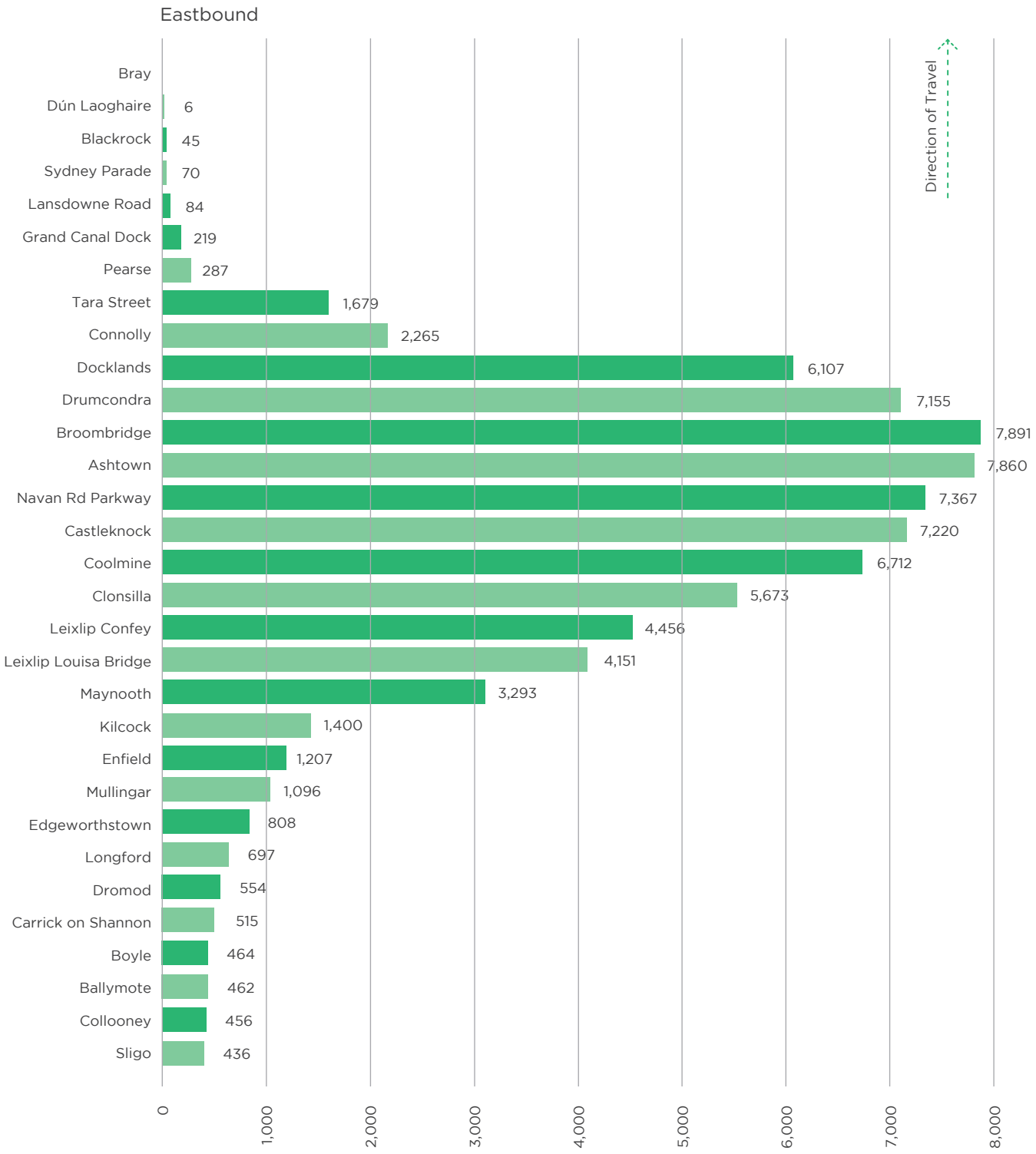
Chart 14 Station by station profile of demand, Sligo - Longford - Bray line (Westbound), 2012



Source: Iarnród Éireann Census 2012

In the eastbound direction, as shown in Chart 15, patronage on this line grew modestly from Sligo to Kilcock, before increasing substantially at Maynooth where Dublin Commuter services originate. As trains moved closer to Dublin city the build-up in patronage along the line gathered pace, reflecting Commuter service usage on the line. There was a significant drop off in patronage at Connolly, given the fact that this is the final destination for InterCity and many Commuter services.

Chart 15 Station by station profile of demand Sligo - Longford - Bray line (Eastbound), 2012



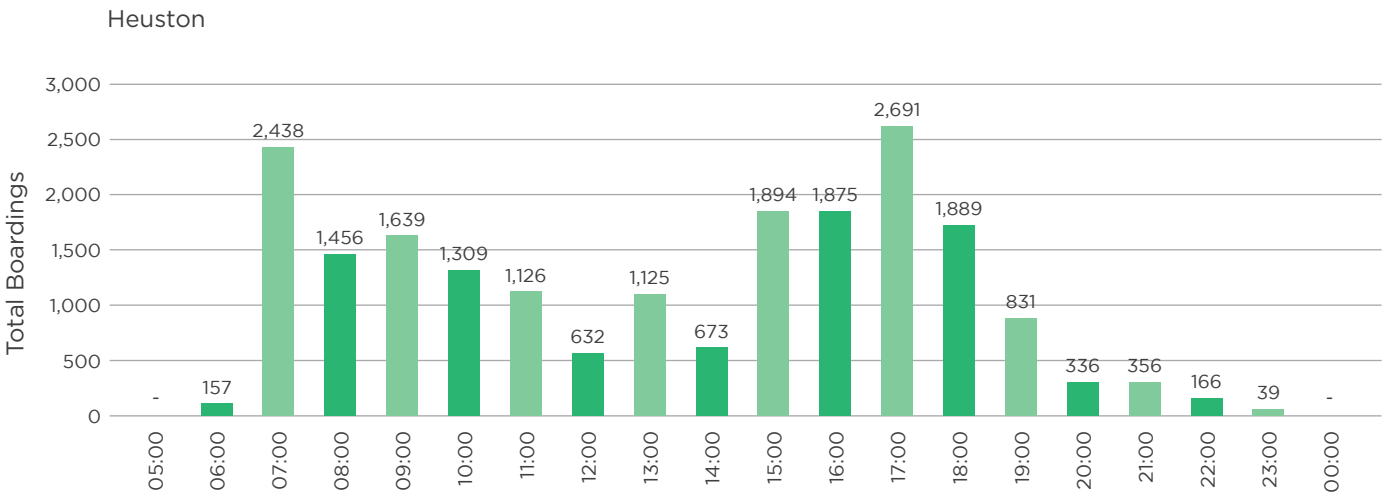
Source: Iarnród Éireann Census 2012

4.5 Heuston lines

As shown in Figure 1, Chapter 1 the Heuston lines branch out to form a network serving the majority of the country, with services terminating at Kildare, Waterford, Newbridge, Athlone, Carlow, Portlaoise, Cork, Tralee, Limerick, Galway, and Westport.

Chart 16 shows the build-up of demand on all Heuston services over the course of the Census day setting out total boardings by hour based on time of arrival or departure from Heuston station. In contrast with the rest of the network, the highest number of boardings on the Heuston lines in the morning occurred between 07:00 and 08:00, rather than between 08:00 and 09:00. This earlier peak is driven largely by the number of passengers boarding at Heuston between 07:00 - 08:00 on early morning trains bound for other parts of the country. Intercity rather than commuter demand accounts for the majority of the market at Heuston.

Chart 16 Hourly profile of demand, Heuston lines, 2012



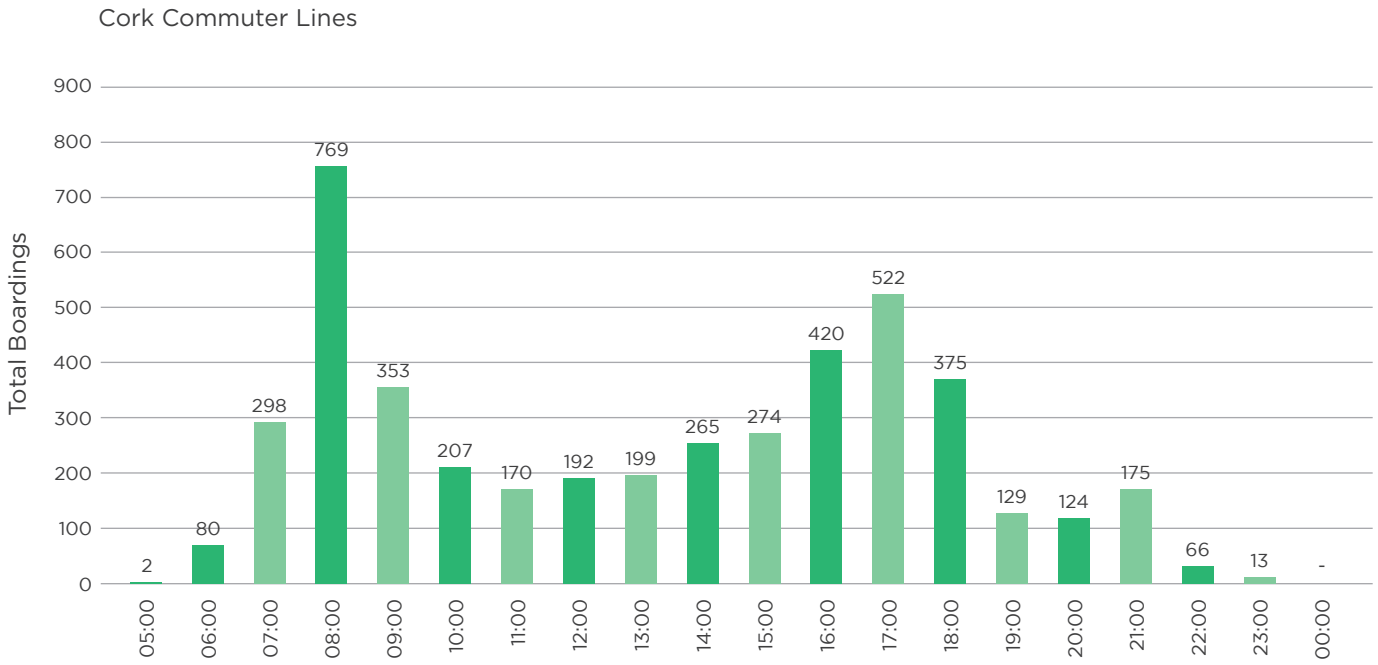
Source: Iarnród Éireann Census 2012

4.6 Cork Commuter lines

As shown on Figure 3 there are three Commuter services in Cork, running between Kent Station and Midleton, Cobh and Mallow respectively. There is also a service between Mallow and Tralee that allows interchange with services to Cork and to Dublin.

Chart 17 shows the hourly profile of demand across this network. There was a notably low level of demand by comparison with services in the Greater Dublin Area, which is likely to be reflective of the lower levels of population and economic activity. The profile exhibits a distinct peak in the morning of nearly 770 passengers between 08:00 and 09:00. In the evening patronage peaked between 17.00 and 18.00 but the peak was less marked than in the morning and exhibited more peak spreading.

Chart 17 Hourly profile of demand, Cork Commuter lines, 2012

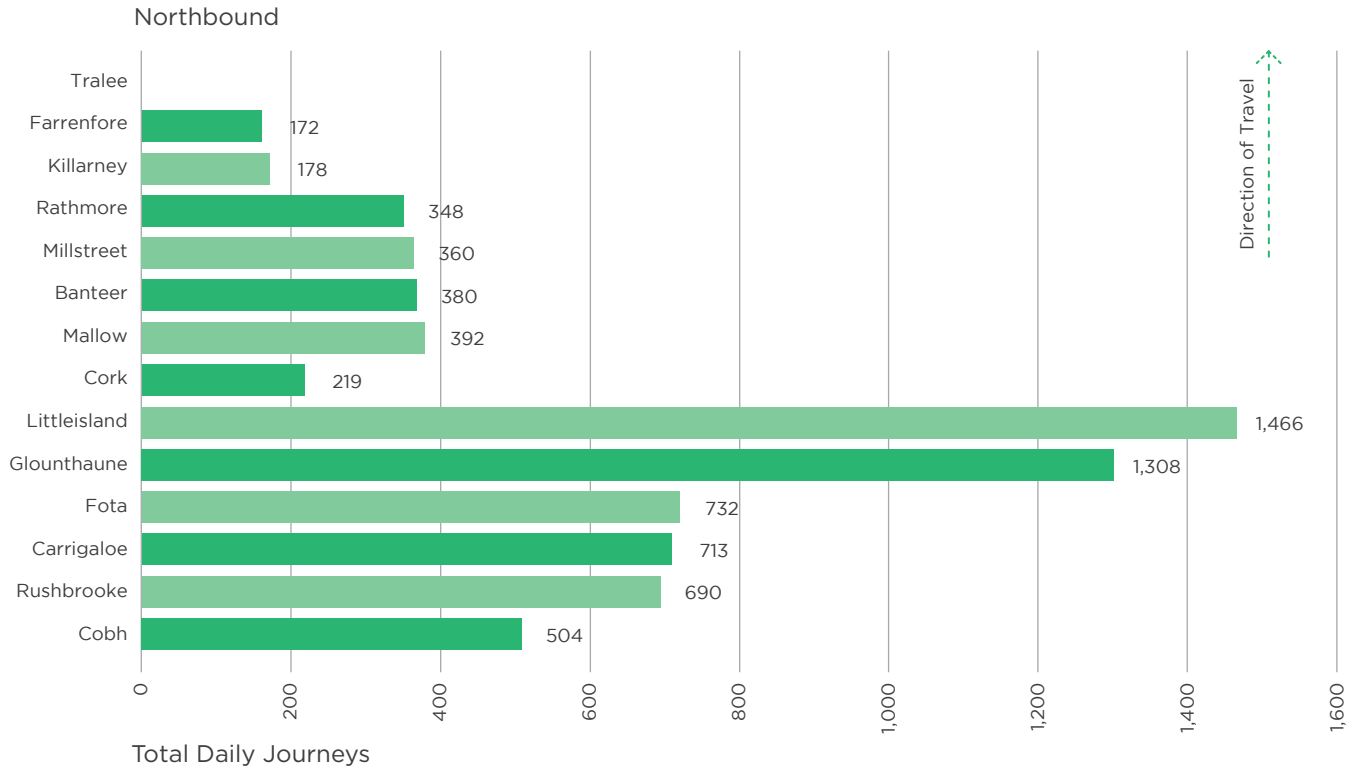


Source: Iarnród Éireann Census 2012

4.6.1 Station by station profile

Although there are no through services between the Cobh/Midleton line and the Mallow line, it is interesting to plot the profile of demand on a station by station basis, as shown in Chart 18 for the northbound direction and Chart 19 for the southbound direction. (Patronage on the Midleton line is captured at Glounthaune, where the two lines join). There are more services to Cobh and to Midleton than there are to Mallow, and this is reflected in the demand profiles. The busiest section of the line was between Littleisland and Cork Kent Station. For the Tralee line, there was very little change in the patronage from Mallow to Rathmore and approximately half of the remaining patrons alighted at Killarney and half in Tralee.

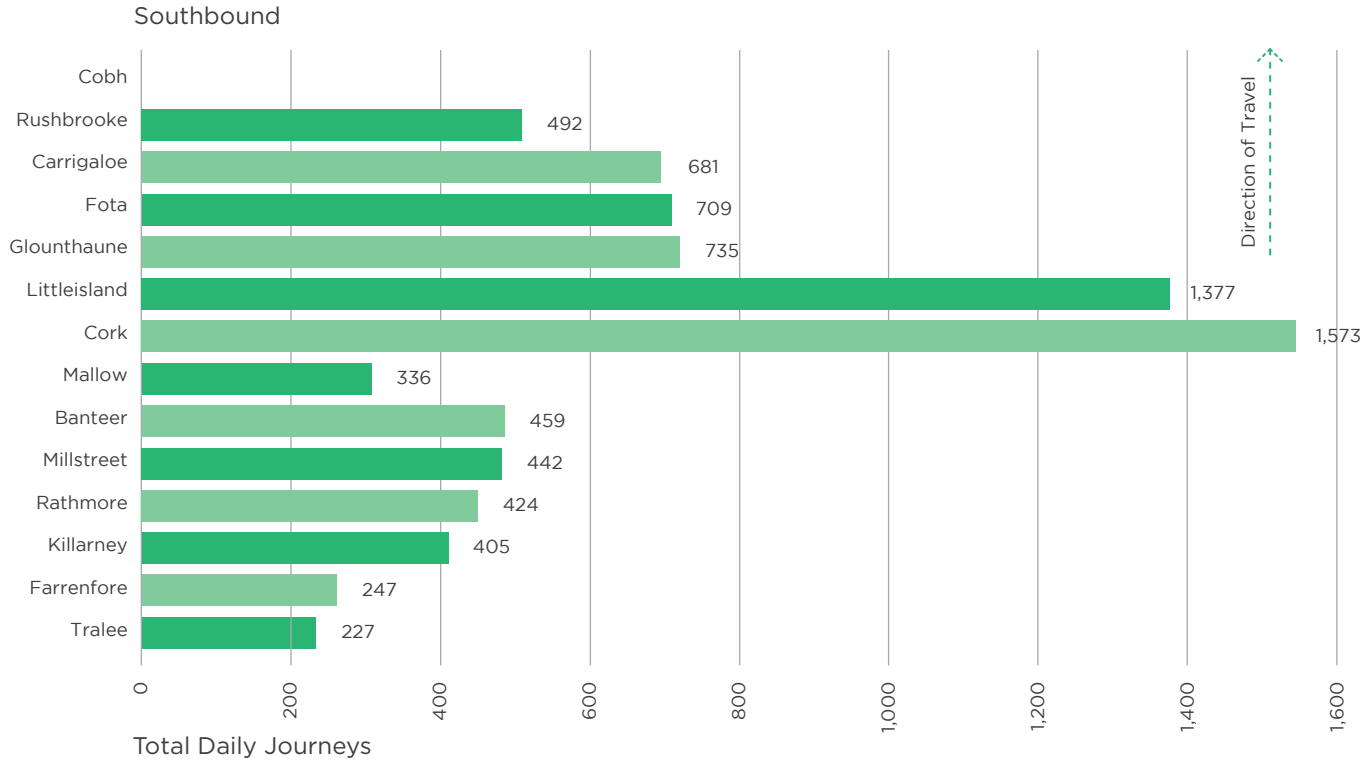
Chart 18 Station by station profile of demand, Cork Commuter lines[19]



Source: Iarnród Éireann Census 2012

The profile in the southbound direction mirrored that of the northbound direction, with Tralee and Killarney stations showing the most activity on the Mallow - Tralee line.

Chart 19 Station by station profile of demand, Cork Commuter lines[20]



Source: Iarnród Éireann Census 2012

19 Note that passengers to and from Midleton and Carrigtwohill are captured at Glouthaune station.
20 Note that passengers to and from Midleton and Carrigtwohill are captured at Glouthaune station

4.7 Other lines on the network

The remaining parts of the network, not previously discussed are:

- Galway - Athenry - Ennis - Limerick
- Limerick - Limerick Junction/Nenagh - Ballybrophy
- Waterford - Limerick Junction.

As can be seen from Table 13 the daily patronage on these lines was small relative to other lines in the rail network which is a reflection of factors such as the level of population catchment and the competitiveness and attractiveness of other modes of travel.

Table 13 Daily patronage on regional lines outside the Greater Dublin and Cork areas

Line	Daily patronage
Galway - Athenry - Ennis - Limerick	1,011
Limerick - Limerick Junction / Nenagh - Ballybrophy	1,331
Waterford to Limerick Junction line	156

Source: Iarnród Éireann Census 2012

5: Characteristics in radial rail usage, Dublin 2012

5.1 Daily boardings by radial corridor

To understand how demand compares across the radial corridors in and out of Dublin, boardings on the inbound direction and section of each line were identified, as shown in Table 14.

Daily boardings on the Northern lines, comprising DART, Commuter and InterCity Services, north of the city totalled 21,000. Boardings on the Southeastern group of lines were of a similar number although the DART accounted for a far higher proportion of the Southeastern patronage.

The Heuston lines and the Sligo lines had similar daily boardings (approximately 10,000); however, InterCity traffic accounted for the majority of patronage on the Heuston lines whereas Commuter service boardings represented the majority on the Sligo lines.

Table 14 Daily boardings from stations inbound to the city centre (excludes city centre boardings)

Radial corridor	Section	Service	Daily boardings
Northern lines	Malahide/Howth - Clontarf Road	DART	12,403
	Dundalk - Howth Junction	Commuter	7,064
	Northern Ireland - Donabate	InterCity	1,536
Total			21,003
Southeastern lines	Greystones - Grand Canal Dock	DART	19,667
	Bray - Grand Canal Dock	Commuter	817
	Rosslare - Grand Canal Dock	InterCity	1,180
Total			21,664
Heuston Lines	Portlaoise - Heuston	Commuter	1,737
	National - Heuston	InterCity	8,251
Total			9,988
Sligo lines	Longford - Drumcondra	Commuter	7,594
	Sligo - Drumcondra	InterCity	1,871
Total			9,465

Source: Iarnród Éireann Census 2012

5.2 Peak hour flows by radial corridor

Table 15 shows the morning peak hour (08:00 - 09:00) flow inbound on a radial corridor basis, with the breakdown for DART, Commuter and InterCity across various lines and services. Table 16 shows the evening peak hour (17:00 - 18:00) flows in an outbound direction from the city centre. It can be seen that the Northern lines carried more than twice as many passengers as the Southeastern lines in the morning peak hour. Comparison with Table 14 is interesting because, over the course of the entire day, the Southeastern lines experienced slightly more demand than the Northern lines. Evidently, the Northern line demand is more peaked and more dependent on the longer distance commuter market.

The highest hourly flow on Commuter services occurred on the Longford lines, closely followed by Dundalk. In the evening peak hour flows were less than in the morning peak hour but followed the same general patterns.

Table 15 Maximum flows per line in the morning peak hour (08:00 - 09:00) - inbound

Radial corridor	Service	Maximum hourly passenger flow	Location of maximum flow
Northern lines	DART	4,004	Clontarf Road - Connolly
	Commuter	2,292	Clongriffin - Howth Junction
	InterCity	1,148	Donabate - Connolly Station
Total*		7,444	
Southeastern lines	DART	3,367	Blackrock - Booterstown
	Commuter	0	No Commuter services 08:00-09:00
	InterCity	327	Blackrock - Lansdowne Road
Total		3,694	
Heuston Lines	Commuter	658	Clondalkin Fonthill - Parkwest & Cherry
	InterCity	1,038	Hazelhatch - Heuston
Total		1,696	
Sligo lines	Commuter	2,433	Broombridge - Drumcondra
	InterCity	435	Maynooth - Drumcondra
Total		2,868	

Source: Iarnród Éireann Census 2012

** Although the routes do not all peak at precisely the same location, this total is not significantly greater than that at the busiest link, and is a useful indicator for planning purposes.*

Table 16 Maximum flows per line in the evening peak hour (17:00 - 18:00) - outbound

Line	Service	Maximum passenger flow	Location of maximum flow
Northern lines	DART	2,382	Tara Street - Connolly
	Commuter	2,060	Clongriffin - Portmarnock
	InterCity	0	No Dublin - Belfast service 17:00 - 18:00
Total		4,442	
Southeastern lines	DART	2,025	Lansdowne Road - Sandymount
	Commuter	0	No Commuter service 17:00 - 18:00
	InterCity	221	Pearse - Bray
Total		2,246	
Heuston Lines	Commuter	181	Parkwest & Cherry - Clondalkin Fonthill
	InterCity	2,057	Heuston - Hazelhatch
Total		2,238	
Sligo lines	Commuter	1,847	Drumcondra - Broombridge
	InterCity	420	Connolly - Maynooth
Total		2,267	

Source: Iarnród Éireann Census 2012

5.3 Train loadings by radial corridor

Tables 17 and 18 show the busiest train (the train carrying the most passengers or passenger load) in the morning and evening peak hours by line.

The most heavily loaded train was the 08:00 DART service from Greystones to Malahide, on the section of line between Blackrock and Booterstown. It carried 906 passengers at that point. This service was operated using an 8-car DART, which has a capacity of 1,400 passengers (seats and standing) - this represents a 65 percent load factor.

The most heavily loaded Commuter service was the 07:55 from Maynooth to Bray, which carried 850 passengers between Broombridge and Drumcondra. Assuming an 8-car trainset with a capacity of 1,280 (seats and standing), this represents a 66 percent load factor, similar to DART.

In the morning peak hour, and overall, the most heavily loaded InterCity service was the 05:45 Sligo - Connolly service which carried 435 passengers between Maynooth and Drumcondra. If served using a 6-car high capacity intercity railcar with seating capacity of406, it means not all passengers were able to get a seat from Maynooth station inbound.

In general, InterCity services across all lines had similar passenger loads on their busiest trains during the morning peak hour, approximately 300 - 400 passengers. There were lower levels of patronage on the busiest trains on Heuston lines compared to other lines.

Table 17 Most heavily loaded trains in the morning peak hour

Line	Service	Maximum load per train	Service	Location
Northern lines	DART	818	08.07 Malahide - Dún Laoghaire	Clontarf road -Connolly
	Commuter	812	06.45 (Newry) Dundalk - Bray	Portmarnock - Connolly
	InterCity	336	06.50 Belfast - Connolly	Drogheda - Connolly
Southeastern lines	DART	906	08.00 Greystones - Malahide	Blackrock - Booterstown
	Commuter	206	05.55 Gorey - Connolly	Dún Laoghaire - Blackrock
	InterCity	327	05.35 Rosslare - Dundalk	Dún Laoghaire - Blackrock
Heuston Lines	Commuter	253	07.43 Portlaoise - Heuston	Hazelhatch - Heuston
	InterCity	334	07.30 Cork - Heuston	Portarlington - Heuston
Sligo lines	Commuter	850	07.55 Maynooth - Bray	Broombridge - Drumcondra
	InterCity	435	05.45 Sligo - Connolly	Maynooth - Drumcondra

Source: Iarnród Éireann Census 2012

Table 18 Busiest service in the evening peak hour (outbound)

Line	Service	Highest load per train	Train	Location of busiest service
Northern lines	DART	691	16.30 Greystones - Malahide	Tara Street - Connolly
	Commuter	726	16.50 Bray - Drogheda	Connolly - Howth Junction
	InterCity	211	15.20 Connolly - Belfast	Connolly-Drogheda
Southeastern lines	DART	597	17.00 Malahide - Greystones	Booterstown - Blackrock
	Commuter	221	17.36 Connolly- Wexford	Pearse - Bray
	InterCity	94	18:38 Connolly - Rosslare	Pearse - Dun Laoghaire
Heuston Lines	Commuter	299	17.10 Heuston - Athlone	Heuston - Newbridge
	InterCity	389	16.35 Heuston -Waterford	Heuston - Hazelhatch
Sligo lines	Commuter	636	17.05 Bray - Maynooth	Drumcondra - Broombridge
	InterCity	420	17.05 Connolly-Sligo	Connolly - Maynooth

Source: Iarnród Éireann Census 2012

Appendices

Appendix A: 39
Daily boardings at each station, by service type, from the Rail Census 2012

Appendix B: 43
Daily alightings at each station, by service type, from the Rail Census 2012

Appendix C: 47
Changes in journeys taken across each service from 2011 to 2012

Appendix D: 48
Train capacity by type

Source: Iarnród Éireann Census 2012

Appendix A: Daily boardings at each station, by service type, from the Rail Census 2012

Table Boardings

Service Type & Station	DART North Bound	DART South Bound	Rosslare - City Centre - Dundalk	Dundalk / Drogheda - City Centre - Rosslare	Bray - City Centre - Maynooth - Sligo	Sligo - Maynooth - City Centre - Bray	Total 2012	Total 2011	Total 2010
Rosslare Europort			20	0			20	-	-
Rosslare			22	3			25	-	-
Wexford			60	21			81	-	-
Enniscorthy			49	12			61	64	-
Gorey			94	11			105	89	74
Arklow			113	6			119	98	125
Rathdrum			80	14			94	84	99
Wicklow			158	22			180	142	160
Kilcoole			22	1			23	18	65
Greystones	1,619	0	205	34			1,858	1,705	1,694
Bray	2,500	161	236	71	61	0	3,029	3,001	3,239
Shankill	1,191	110					1,301	1,193	1,228
Killiney	773	86					859	797	733
Dalkey	1,165	379					1,544	1,566	1,373
Glenageary	1,339	155					1,494	1,366	1,297
Sandycove & Glas	779	216					995	954	1,054
Dún Laoghaire	2,173	806	179	143	57	1	3,359	3,102	3,271
Salthill & Monkstown	873	168					1,041	1,086	1,162
Seapoint	532	167					699	678	696
Blackrock	1,720	500	129	14	35	1	2,399	2,391	2,438
Booterstown	679	485					1,164	1,172	1,187
Sydney Parade	917	386		5		0	1,308	1,465	1,535
Sandymount	609	366					975	870	1,063
Lansdowne Road	1,444	850	110	19	65	2	2,490	2,653	2,557
Grand Canal Dock	1,354	1,135	143	27	159	7	2,825	2,463	2,403
Pearse	2,881	4,247	2674	261	1,240	9	11,312	11,271	11,925
Tara Street	1,993	2,758	1036	199	509	61	6,556	6,749	6,896
Connolly	2,216	3,032	3571	369	4,132	157	13,477	12,189	12,419
Clontarf Road	270	1,161					1,431	1,401	1,259
Killester	200	1,392					1,592	1,470	1,535
Harmonstown	133	861					994	955	1,032
Raheny	242	1,430					1,672	1,626	1,583
Kilbarrack	186	952					1,138	1,077	1,110
Howth Junction	373	1,001	222	134			1,730	1,761	1,770
Bayside	143	881					1,024	1,229	1,305
Sutton	56	601					657	821	717
Howth	0	1,285					1,285	1,092	943
Clongriffin	36	580	13	45			674	-	-
Portmarnock	29	848	52	307			1,236	1,224	1,069

Service Type & Station	DART North Bound	DART South Bound	Rosslare - City Centre - Dundalk	Dundalk / Drogheda - City Centre - Rosslare	Bray - City Centre - Maynooth - Sligo	Sligo - Maynooth - City Centre - Bray	Total 2012	Total 2011	Total 2010
Malahide	0	1,411	378	529			2,318	2,317	2,163
Donabate			120	1,093			1,213	1,107	1,116
Rush & Lusk			116	684			800	857	902
Skerries			95	1,184			1,279	1,188	1,135
Balbriggan			105	1673			1,778	1,705	1,816
Gormanston			5	87			92	100	123
Laytown			24	351			375	385	402
Drogheda			120	974			1,094	1,094	954
Dundalk			68	499			567	418	367
Northern Irish Railways				1040			1,040	-	-
Docklands					811	0	811	733	565
Drumcondra					938	212	1,150	1,184	957
Broombridge					97	132	229	208	177
Ashtown					129	614	743	774	795
Phoenix Park					22	175	197	172	127
Castleknock					174	666	840	827	791
Coolmine					313	1237	1,550	1,634	1,603
Clonsilla					264	998	1,262	1,318	1,486
Hansfield					0	0	0	0	0
Dunboyne					0	177	177	151	113
M3 Parkway					0	226	226	234	210
Leixlip Confey					113	398	511	472	467
Leixlip Louisa Bridge					65	904	969	999	900
Maynooth					190	2012	2,202	2,270	2,317
Kilcock					34	213	247	210	190
Enfield					13	118	131	139	108
Mullingar					78	373	451	449	406
Edgeworthstown					32	135	167	117	98
Longford					41	180	221	231	202
Dromod					23	58	81		
Carrick on Shannon					31	83	114		
Boyle					33	43	76		
Ballymote					31	38	69		
Collooney					7	34	41		
Sligo					0	436	436		
Total	28425	28410	10219	9836	9697	9700	96,287	93,126	93,516

Table Boardings

Service Type & Station	Heuston North Bound	Heuston South Bound	Kerry & Cork Regional South bound	Cork & Kerry Regional North Bound	Limerick - Galway	Limerick Jct - Limerick - Ballybrophy	Limerick Jct - Wateford	Total 2012	Total 2011	Total 2010
Heuston	0	8650	---	---	---	---	---	8,650	3,891	3,823
Parkwest & Cherry Orch	63	63	---	---	---	---	---	126	106	68
Clondalkin Fonthill	19	18	---	---	---	---	---	37	45	28
Adamstown	73	12	---	---	---	---	---	85	67	71
Hazelhatch & Celbridge	290	33	---	---	---	---	---	323	274	245
Sallins & Naas	882	34	---	---	---	---	---	916	833	925
Newbridge	867	96	---	---	---	---	---	963	1,004	893
Kildare	598	123	---	---	---	---	---	721	675	644
Athy	299	147	---	---	---	---	---	446	499	382
Carlow	414	151	---	---	---	---	---	565	396	356
Monasterevin	32	2	---	---	---	---	---	34	62	10
Portarlington	317	86	---	---	---	---	---	403	457	470
Tullamore	308	63	---	---	---	---	---	371	379	325
Clara	48	7	---	---	---	---	---	55	62	56
Athlone	232	236	---	---	---	---	---	468	297	297
Portlaoise	409	79	---	---	---	---	---	488	408	449
Ballybrophy	78	1				5		84		
Templemore	50	17						67		
Thurles	311	193						504		
Limerick Junction	636	128				528	42	1,334		
Limerick	213	0			265	743		1,221		
Charleville	47	31						78		
Mallow	449	166	259	372				1,246		
Cork (Kent)	1,320	0	1573	219				3,112		
Muine Bheag	98	10						108		
Kilkenny	267	61						328		
Thomastown	34	2						36		
Waterford	470	0					30	500		
Tullamore	308	63						371		
Clara	48	0						48		
Athlone	232	63						295		
Ballinasloe	57	52						109		
Woodlawn	0	10						10		
Attymon	0	1						1		
Athenry	107	71			182			360		
Galway	579	0			169			748		
Roscommon	49	14						63		
Castlerea	46	7						53		
Ballyhaunis	38	7						45		
Claremorris	44	10						54		

Service Type & Station	Heuston North Bound	Heuston South Bound	Kerry & Cork Regional South bound	Cork & Kerry Regional North Bound	Limerick - Galway	Limerick Jct - Limerick - Ballybrophy	Limerick Jct - Wateford	Total 2012	Total 2011	Total 2010
Castlebar	92	1						93		
Westport	90	0						90		
Manulla Junction	76	62						138		
Foxford	10	2						12		
Ballina	65	0						65		
Banteer	8	0	24	5				37		
Millstreet	9	0	28	6				43		
Rathmore	9	0	25	7				41		
Killarney	56	4	168	12				240		
Farrenfore	2	0	23	4				29		
Tralee	54	0	227	0				281		
Littleisland			39	211				250		
Glounthaune			32	130				162		
Carrigtwohill			18	65				83		
Midleton			0	422				422		
Fota			2	21				23		
Carrigaloe			4	32				36		
Rushbrooke			11	190				201		
Cobh			0	504				504		
Sixmilebridge					60			60		
Ennis					276			276		
Gort					18			18		
Ardrahan					14			14		
Craughwell					27			27		
Roscrea						15		15		
Cloughjordan						5		5		
Nenagh						18		18		
Birdhill						8		8		
Castleconnell						9		9		
Carrick on Suir							15	15		
Clonmel							29	29		
Cahir							9	9		
Tipperary							31	31		
Total	10,141	10,659	2,433	2,200	1,011	1,331	156	27,931	9,455	9,042

Appendix B: Daily alightings at each station, by service type, from the Rail Census 2012

Table Alightings

Service Type & Station	DART North Bound	DART South Bound	Rosslare - City Centre - Dundalk	Dundalk / Drogheda - City Centre - Rosslare	Bray - City Centre - Maynooth - Sligo	Sligo - Maynooth - City Centre - Bray	Total 2012	Total 2011	Total 2010
Rosslare Europort			0	18			18		
Rosslare			2	28			30		
Wexford			3	61			64		
Enniscorthy			5	50			55	60	
Gorey			14	93			107	115	93
Arklow			3	114			117	109	130
Rathdrum			2	90			92	75	107
Wicklow			18	127			145	121	142
Kilcoole			1	33			34	20	31
Greystones	0	1,445	27	99			1,571	1,448	1,536
Bray	145	2,444	87	185	0	6	2,867	2,776	3,032
Shankill	101	987					1,088	1,040	1,105
Killiney	75	699					774	688	703
Dalkey	359	1,227					1,586	1,644	1,324
Glenageary	160	1,139					1,299	1,227	1,132
Sandycove & Glas	220	779					999	895	881
Dún Laoghaire	720	2,129	140	242	7	40	3,278	3,074	3,475
Salthill & Monkstown	167	823					990	1,042	1,021
Seapoint	137	413					550	588	603
Blackrock	564	1,584	27	151	1	26	2,353	2,300	2,577
Booterstown	523	608					1,131	1,130	1,139
Sydney Parade	568	891		52		14	1,525	1,530	1,621
Sandymount	347	625					972	983	1,101
Lansdowne Road	921	1,456	126	265	1	137	2,906	2,512	2,510
Grand Canal Dock	1,282	1,212	3	255	6	75	2,833	3,060	2,953
Pearse	4,378	3,227	334	1,895	36	1,401	11,271	11,004	10,794
Tara Street	3,637	2,342	229	1,073	43	647	7,971	7,777	8,667
Connolly	3,117	2,727	429	3,789	67	3,999	14,128	13,061	12,689
Clontarf Road	1,019	327					1,346	1,406	1,321
Killester	1,179	184					1,363	1,363	1,381
Harmonstown	780	136					916	796	932
Raheny	1,209	280					1,489	1,355	1,621
Kilbarrack	823	171					994	1,007	942
Howth Junction	986	378	188	212			1,764	1,768	1,877
Bayside	870	88					958	1,090	949
Sutton	598	48					646	681	587
Howth	1,178	0					1,178	1,051	1,046
Clongriffin	507	22	91	20			640	540	455
Portmarnock	607	19	406	25			1,057	1,024	1,041

Service Type & Station	DART North Bound	DART South Bound	Rosslare - City Centre - Dundalk	Dundalk / Drogheda - City Centre - Rosslare	Bray - City Centre - Maynooth - Sligo	Sligo - Maynooth - City Centre - Bray	Total 2012	Total 2011	Total 2010
Malahide	1,248	0	767	287			2,302	2,303	2,403
Donabate			873	156			1,029	1,001	1,005
Rush & Lusk			777	99			876	825	725
Skerries			1281	179			1,460	1,321	1,368
Balbriggan			1449	94			1,543	1,848	1,610
Gormanston			83	2			85	112	84
Laytown			352	15			367	382	359
Drogheda			985	55			1,040	1,106	1,090
Dundalk			443	72			515	406	448
Northern Irish Railway			1074	0			1,074		
Docklands					0	1048	1,048	1,005	936
Drumcondra					228	948	1,176	1,222	1,287
Broombridge					106	101	207	180	173
Ashtown					539	121	660	674	605
Phoenix Park					176	28	204	162	135
Castleknock					635	158	793	801	778
Coolmine					1194	198	1,392	1,520	1,456
Clonsilla					992	181	1,173	1,213	1,179
Hansfield					0	0	0	0	0
Dunboyne					182	3	185	160	146
M3 Parkway					231	0	231	234	149
Leixlip Confey					387	93	480	464	529
Leixlip Louisa Bridge					886	46	932	922	896
Maynooth					2123	115	2,238	2,514	2,246
Kilcock					205	19	224	167	168
Enfield					137	8	145	109	83
Mullingar					422	85	507	442	378
Edgeworthstown					144	24	168	128	130
Longford					156	38	194	190	261
Dromod					75	19	94		
Carrick on Shannon					90	32	122		
Boyle					59	41	100		
Ballymote					58	32	90		
Collooney					44	14	58		
Sligo					467	0	467		
Total	28,425	28,410	10,219	9,836	9,697	9,697	96,284	93,782	94,155

Table Alightings

Service Type & Station	Heuston North Bound	Heuston South Bound	Kerry & Cork Regional South bound	Cork & Kerry Regional North Bound	Limerick, Galway	Limerick Jct, Limerick, Ballybrophy	Limerick Jct, Wateford	Total 2012	Total 2011	Total 2010
Heuston	8,222	-						8,222	4,227	4,165
Parkwest & Cherry Orch	67	73						140	115	78
Clondalkin Fonthill	23	23						46	37	28
Adamstown	23	84						107	100	62
Hazelhatch & Celbridge	35	290						325	305	224
Sallins & Naas	32	911						943	799	928
Newbridge	80	891						971	913	814
Kildare	112	476						588	614	600
Athy	112	349						461	491	273
Carlow	132	392						524	377	359
Monasterevin	1	54						55	55	39
Portarlington	62	443						505	492	492
Tullamore	92	320						412	351	324
Clara	6	35						41	45	47
Athlone	153	274						427	291	227
Portlaoise	76	342						418	243	382
Ballybrophy	8	83				38		91		
Templemore	23	58								
Thurles	137	321								
Limerick Junction	124	662				731	54			
Limerick	-	293			352	547				
Charleville	28	51								
Mallow	328	495	382	199						
Cork (Kent)	-	1,437	336	1,466						
Muine Bheag	23	98								
Kilkenny	23	240								
Thomastown	4	32								
Waterford	-	411					26			
Tullamore	92	320								
Clara	6	35								
Athlone	153	274								
Ballinasloe	38	49								
Woodlawn	7	6								
Attymon	2	-								
Athenry	2	96			134					
Galway	-	658			226					
Roscommon	17	52								
Castlerea	6	55								
Ballyhaunis	5	47								

Service Type & Station	Heuston North Bound	Heuston South Bound	Kerry & Cork Regional South bound	Cork & Kerry Regional North Bound	Limerick, Galway	Limerick Jct, Limerick, Ballybrophy	Limerick Jct, Wateford	Total 2012	Total 2011	Total 2010
Claremorris	13	69								
Castlebar	-	128								
Westport	-	118								
Manulla Junction	-	90								
Foxford	1	17								
Ballina	-	80								
Banteer	-	2	7	17						
Millstreet	-	12	10	26						
Rathmore	-	9	6	19						
Killarney	0	74	10	182				266		
Farrenfore	0	12	3	10				25		
Tralee	0	44	0	172				216		
Littleisland			235	53				288		
Glounthaune			173	23				196		
Carrigtwohill			63	18				81		
Midleton			456	0				456		
Fota			28	2				30		
Carrigaloe			32	9				41		
Rushbrooke			200	4				204		
Cobh			492	0				492		
Sixmilebridge					41			41		
Ennis					229			229		
Gort					11			11		
Ardrahan					3			3		
Craughwell					15			15		
Roscrea						1		1		
Cloughjordan						4		4		
Nenagh						2		2		
Birdhill						2		2		
Castleconnell						6		6		
Carrick on Suir							7	7		
Clonmel							46	46		
Cahir							10	10		
Tipperary							13	13		
Total	10,141	10,659	2,433	2,200	1,011	1,331	156	27,931	9,455	9,042

Appendix C: Changes in journeys taken across each service from 2011 to 2012

Table Variances

Variances: 2012 v 2011		2012 (15 Nov)	2012 (15 Nov)	2011 (24 Nov)	2010 (11 Nov)	Variance % 2012 vs 2011
		National	GDA	GDA	GDA	
DART (Greystones, City Centre, Howth / Malahide & v.v.)	Northbound	28,425	28,425	27,662	27,098	2.8%
	Southbound	28,410	28,410	27,967	28,831	1.6%
	Total	56,835	56,835	55,629	55,929	2.2%
Connolly Commuter Services (Gorey, City Centre, Drogheda, Dundalk & v.v.)	Northbound	10,219	8,046	8,308	8444	-3.2%
	Southbound	9,836	8,540	8,334	8185	2.5%
	Total	20,055	16,586	16,642	16,629	-0.3%
Heuston Commuter Services (Heuston, Kildare, Carlow / Portlaoise /Athlone & v.v.)	Southbound	10,659	5,065	4,548	4,349	11.4%
	Northbound	9,914	4,620	4,907	4,693	-5.8%
	Total	20,573	9,685	9,455	9,042	2.4%
Regional Services (Limerick, Galway, Cork, Cobh, Midleton, Limerick, Ballybrophy, Limerick Junction, Waterford, Limerick, Limerick Junction)						
	Total	7,131				
Total All Services		123,991	101,020	100,257	100,370	0.8%

Appendix D: Train capacity by type

Table Train Capacity

Train Type		Capacity	
4 - DART	(4 car DART set)	700	- Seats + Standing Accommodation
6 - DART	(6 car DART set)	1050	- Seats + Standing Accommodation
8 - DART	(8 car dart set)	1400	- Seats + Standing Accommodation
2 x 2600	(2 car commuter rail car)	206	- Seats + Standing Accommodation
2 x 2800	(2 car commuter rail car)	221	- Seats + Standing Accommodation
4 x 29000	(4 car Commuter railcar)	640	- Seats + Standing Accommodation
8 x 29000	(8 car Commuter railcar)	1280	- Seats + Standing Accommodation
1 x 3ICR	(3-car InterCity railcar)	190	- Seats
1 x 6ICR	(6-car Premier Class InterCity railcar)	376	- Seats
1 x 6HCR	(6-car High Capacity InterCity Railcar)	406	- Seats
7 x MkIV	(7 car Mk IV set)	348	- Seats
7 x DD	(7 car De Dietrich set)	358	- Seats

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