Limerick City Cordon Survey Report 2023

Report on Inbound People Movements Across the Limerick City Cordon

List of Abbreviations and Definitions

JTC:

- Junction Turning Counts

LGV:

- Light Goods Vehicle. LGV includes the following vehicle types: Van, Pick-Up, Car Delivery Vans, Minibus, Commercial Vehicles < 3.5 tonnes (single rear tyres)

M/C:

- Motorcycle. M/C includes the following: Motorcycles, Motor Scooters, Mopeds, Three-wheel motorcycles

NTA:

- National Transport Authority

OGV1:

- Ordinary Goods Vehicle 1. OGV1 includes the following vehicle types: 2-Axles Rigid Truck, 3-Axles Rigid Truck and Commercial Vehicles > 3.5 Tonnes (single rear tyres)

OGV2:

- Ordinary Goods Vehicle 2. OGV2 includes the following vehicle types: 4 or more Axles Rigid Truck, 3 Axle or more Articulated Truck, Vehicles in Category OGV1 towing trailer

P/C:

- Pedal Cycle

PED:

- Pedestrian

PSV:

- Public Service Vehicle, excluding private / non-scheduled service vehicle

BUS:

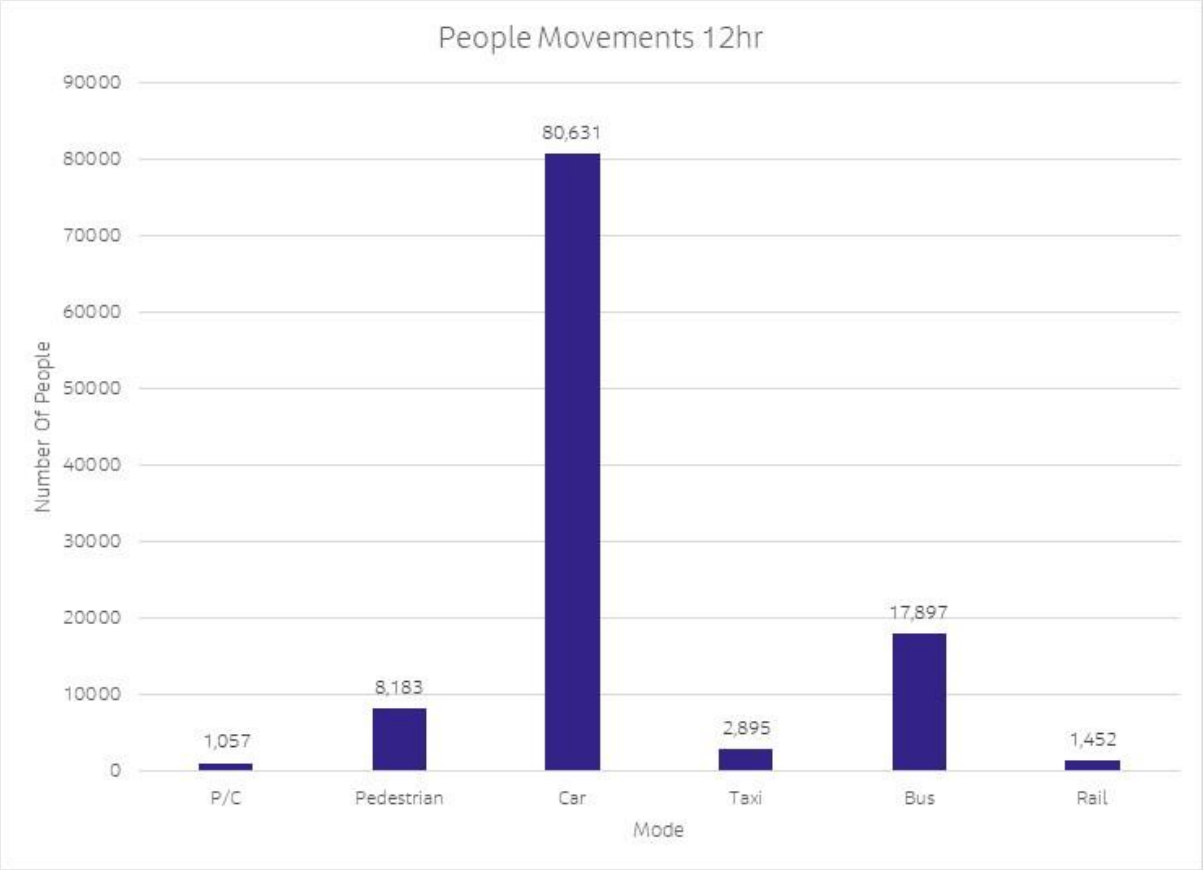
- Includes all public (PSV) / private, single / double deck, scheduled / non-scheduled service vehicles

Executive Summary

The Limerick City Cordon is a cordon of traffic survey locations that encloses Limerick City. Classified Junction Turning Counts and Pedestrian surveys were undertaken at 13 locations to determine the traffic flows crossing the Limerick City Cordon inbound during the key traffic periods for a typical weekday, i.e. AM (07:00 - 10:00), Lunch Time (10:00 - 13:00), School Run (13:00 - 16:00), PM (16:00 - 19:00), OP (19:00 - 07:00) and 24hr (00:00 - 24:00).

Vehicle occupancy surveys were undertaken at 12 sites and Pedestrian and Cycle only surveys were undertaken at 2 locations along the Cordon at key pedestrian and cycle only routes, i.e. parks and dedicated pedestrian and cycle corridors. In addition to this, Bus Occupancy surveys were undertaken at 10 bus stops to determine the number, occupancy and frequency of bus services crossing the Limerick City Cordon. Passenger numbers from the Annual Rail Census (Iarnród Éireann) were also used to determine the passengers travelling across the Limerick City Cordon inbound. Based on the analysis of the 2023 data, the key results are:

- In terms of overall people movements, 28,589 (26%) of a total of 112,115 people travelling inbound towards the City between 07:00 and 19:00 used sustainable modes of travel, i.e. Pedal Cycle, Pedestrian, Bus and Rail (as shown in the figure below).



People Movements by Mode over a 12-hour Period

- The total number of vehicles, pedestrians and cyclists that crossed the Limerick Cordon inbound was 99,656 over 24 hours on the day of the survey.
- The busiest time period for vehicles and cyclists was the AM peak with 19,633 crossing the Limerick City Cordon inbound towards the city. The busiest time period for Pedestrians was the AM peak with 2,182 crossing the Limerick City Cordon inbound.
- Between the hours of 07:00 and 19:00, cars were recorded to have the highest vehicular traffic split, with 74% of the total inbound flows. Light Goods Vehicles (LGVs) recorded 9%, Ordinary Goods Vehicles 1 (OGV1) recorded 2%, Ordinary Goods Vehicles 2 (OGV2) recorded 1% and taxis recorded 2%. The remaining vehicle classifications recorded 2% or less of the total flows.
- Between 07:00 and 19:00, 53% of buses were at 25-49% capacity. Approximately 12% of buses were at 0-24%. 26% were at 50-74% capacity, 6% were at 75-99% capacity and 2% were at 100% capacity.

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1 Introduction

The Limerick City Cordon is a closed cordon of traffic survey locations that encloses Limerick City. This report presents the findings of traffic surveys along the cordon, which were undertaken in November and December 2023 and captured the traffic movements crossing the Limerick City Cordon inbound towards the city.

The structure of this report is set out as follows:

- **Chapter 2** provides a definition of the Limerick City Cordon and sets out the methodology for the data collection;
- **Chapter 3** outlines;
    - The traffic flows crossing the Limerick City Cordon inbound by vehicle classification;
    - The occupancy of the vehicles crossing the Limerick City Cordon in terms of the number of occupants per vehicle. Each vehicle type has been analysed per peak time periods and for the duration of the survey period.
- **Chapter 4** outlines the total number of people movements crossing the Limerick City Cordon inbound towards the city; and
- **Chapter 5** provides a summary of key results.

2 Definition and Methodology

2.1 Definition of the Limerick City Cordon

A map of the Limerick City Cordon is presented in Figure 2-1. The Limerick City Cordon has been chosen to ensure, as far as possible, that any traffic flow (including cyclists and pedestrians) entering the city must pass through one of the locations where the surveys have been undertaken. The data, as presented in this report, refers to movements in one direction only (i.e. inbound towards the city) across the various cordon points.

2.2 Data Sources

To establish the movement of people across the Limerick City Cordon, a bespoke data collection exercise was carried out, comprising of the following surveys:

Junction Turning Counts (JTC):

- The JTC surveys were recorded in 15-minute intervals over a 24-hour period at 13 sites between 21/11/2023 and 14/12/2023. They were undertaken using telescopically mounted video cameras and were recorded for Car, LGV, OGV1, OGV2, Motorcycle, Pedal Cycle, Taxi and Bus.

Pedestrian and Cycle Only Surveys:

- In addition to the pedestrian and cycle flow data obtained from the JTC surveys, the NTA also undertook additional pedestrian and cycle only surveys at links that are only accessible by pedestrians or cyclists. The surveys were recorded in 15-minute intervals over a 24-hour period at 2 additional sites on the day of the survey. The Pedestrian and Cycle Only surveys recorded the following classifications:
    - Adult Pedestrian;
    - Elderly Pedestrian;
    - Child Pedestrian < 5 years old;
    - Child Pedestrian < 16 years old; and
    - Mobility Impaired Pedestrian.

Vehicle Occupancy Surveys

- Vehicle Occupancy counts were also undertaken at survey points along the Limerick City Cordon. Vehicle Occupancy counts were carried out by a manual enumerator between 07:00 and 19:00. All information was recorded in hourly intervals.

Bus Occupancy Surveys

- Bus Occupancy surveys were undertaken at 10 bus stops inside the Limerick City Cordon on the day of the survey in order to record the number of people travelling inbound into the city via bus. Manual enumerators recorded both occupancy of the bus at the bus stop, and the number of passengers boarding and alighting. These surveys also recorded the number of public and private buses passing the bus stop and the type of bus.

Heavy Rail Data:

- Since 2012, Iarnród Éireann has undertaken a census of passengers boarding and alighting on all services passing through all stations on the national rail network. The 2023 survey was undertaken on 09/11/2023. While this rail survey was not commissioned as part of the multi-modal cordon surveys, results from the rail census were used to supplement the surveys.

Additional Two Weekly Vehicle Counts/Speed Surveys:

- Automatic Traffic Counts (ATCs) were carried out over a continuous two-week period (between 18/11/2023 and 01/12/2023) in order to gather longer term data on daily movements at key points on the radial routes leading into the cordon.

Figure 2-1, below, highlights the locations along the Cordon where JTC and pedestrian data has been collected on the movement of people into the city. It also includes the location of Limerick Rail Station as well as those where Pedestrian and Cycle Only surveys were conducted. Figure 2-2 shows the locations where ATC and the taxi occupancy surveys have been undertaken. Figure 2-3 shows the stops where the bus occupancy surveys have been undertaken.

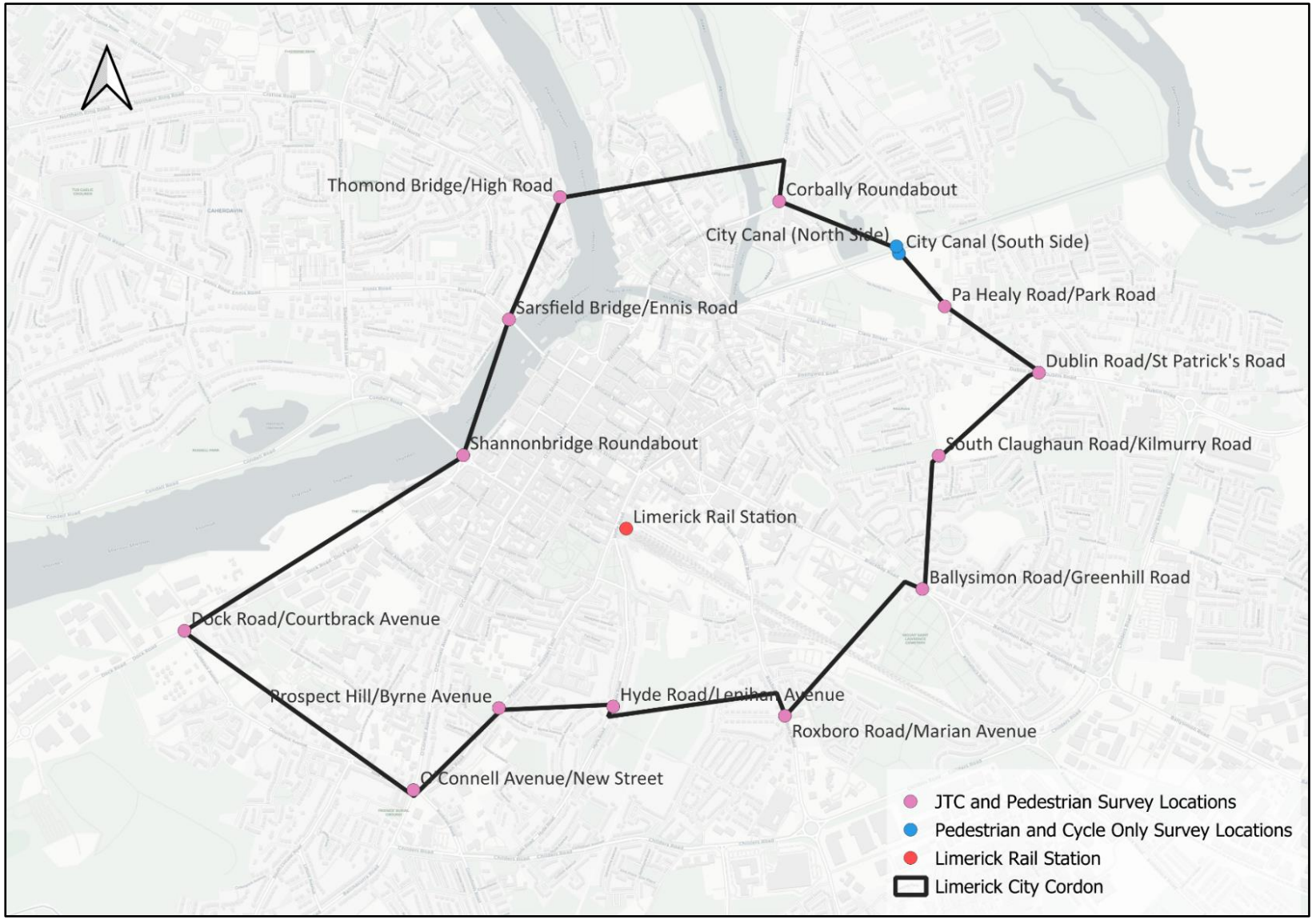


Figure 2-1:JTC and Pedestrian Sites on the Limerick Cordon and Limerick Colbert Rail Station

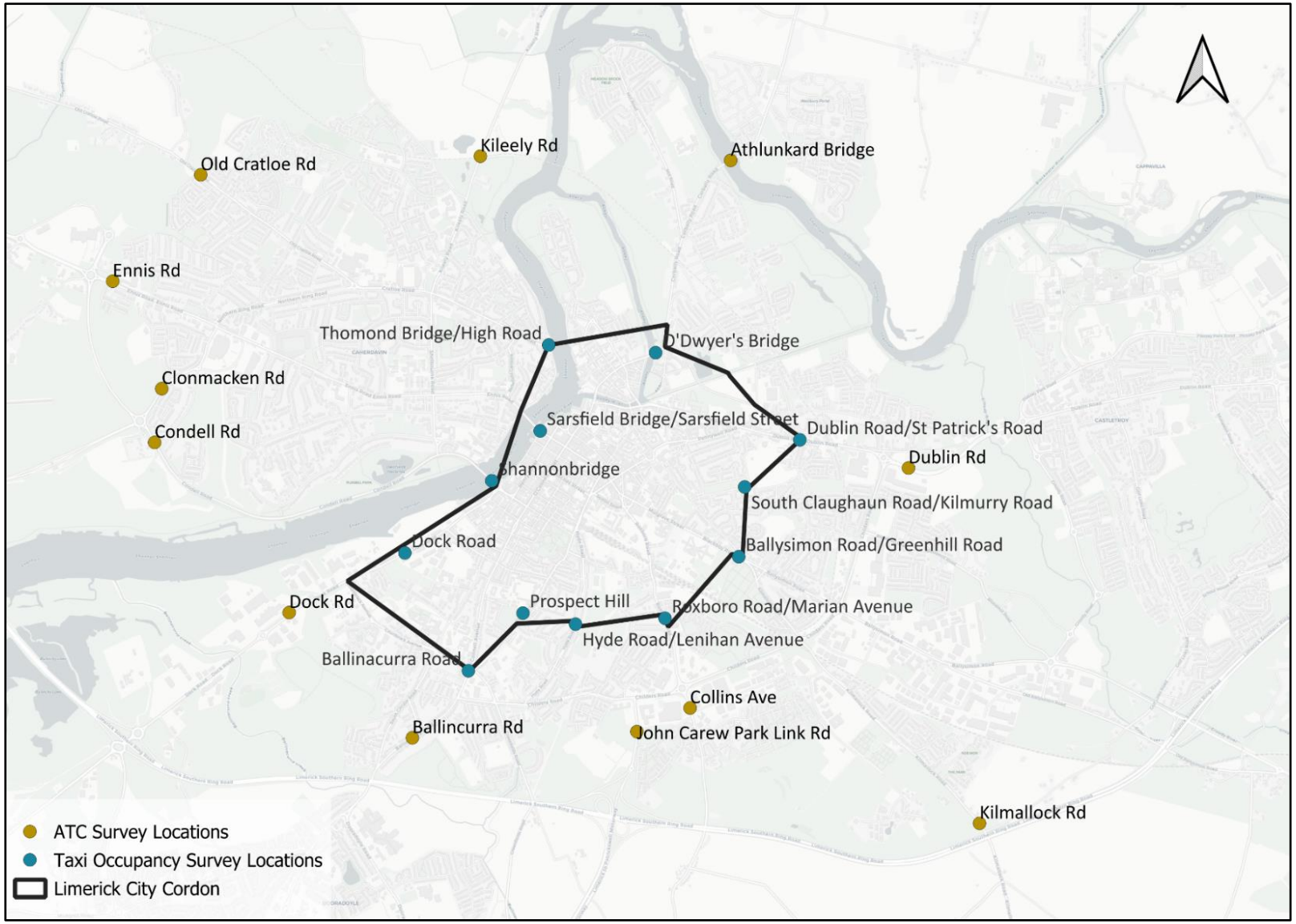


Figure 2-2:ATC and Taxi Occupancy Sites on the Limerick Cordon

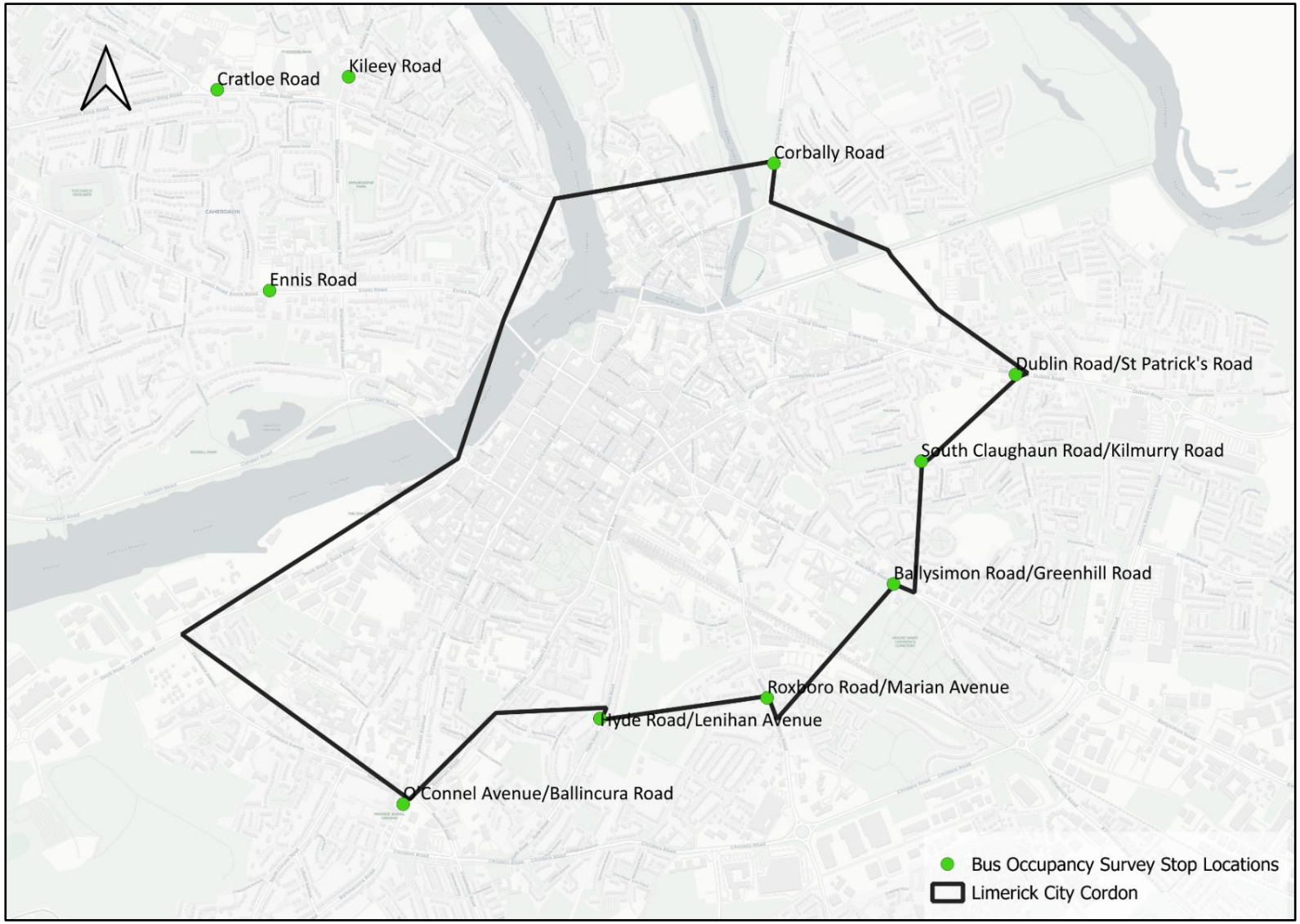


Figure 2-3:Bus Occupancy Stops on the Limerick Cordon

2.3 Time Periods Analysed

Surveys were recorded at either 15-minute or one hour intervals, or, in the case of public transport services, when the bus or train was at a specific stop or station. Therefore, it is possible to understand trends throughout the day from the data. As such, the data has been analysed for the following time periods:

- AM: 07:00 - 10:00
- Lunch Time (LT): 10:00 - 13:00
- School Run (SR): 13:00 - 16:00
- PM: 16:00 - 19:00
- OP: 19:00 - 07:00
- 24hr: 00:00 - 00:00

3 Limerick City Cordon

3.1 Traffic Flow Surveys

3.1.1 Overview

This section outlines the classified vehicle, pedestrian and cycle flows crossing the Limerick City Cordon inbound, towards the city centre. This information was collected from the JTC traffic survey sites for Car, LGV, OGV1, OGV2, Motorcycle, Pedal Cycle, Taxi and Bus, as well as pedestrian survey sites. It should be noted that these surveys count the number of vehicles, cyclists and pedestrians crossing the cordon. However, the figures presented below do not include the number of people in each vehicle (vehicle occupancy). Therefore, these figures are not representative of the mode share. Total passenger flows and mode share are discussed in sections 4.4 and 4.5 of this report.

Table 3-1 presents the observed flows by vehicle classification crossing the Limerick City Cordon inbound during the time periods recorded in the 2023 survey.

Table 3-1:Movements Across the Limerick City Cordon Inbound

Vehicle Classifications	AM 07:00-10:00	LT 10:00-13:00	SR 13:00-16:00	PM 16:00-19:00	OP 19:00-07:00	24hr 00:00-24:00
Car	16,325	13,187	14,443	14,900	15,438	74,293
LGV	1,870	1,915	1,774	1,348	1,175	8,082
OGV1	352	445	327	160	201	1,485
OGV2	147	195	163	63	130	698
Motorcycle	26	21	38	32	27	144
Pedal Cycle	311	188	249	309	308	1,365
Taxi	424	566	562	389	833	2,774
Bus	178	177	177	175	232	939
Pedestrian	2,182	1,772	2,149	2,080	1,693	9,876
Total	21,815	18,466	19,882	19,456	20,037	99,656

Figure 3-1 illustrates the overall flows for all vehicle types across the Limerick City Cordon per key time period. It is evident that the AM time period has the highest volume of traffic movements, with a total of 21,815 travelling inbound.

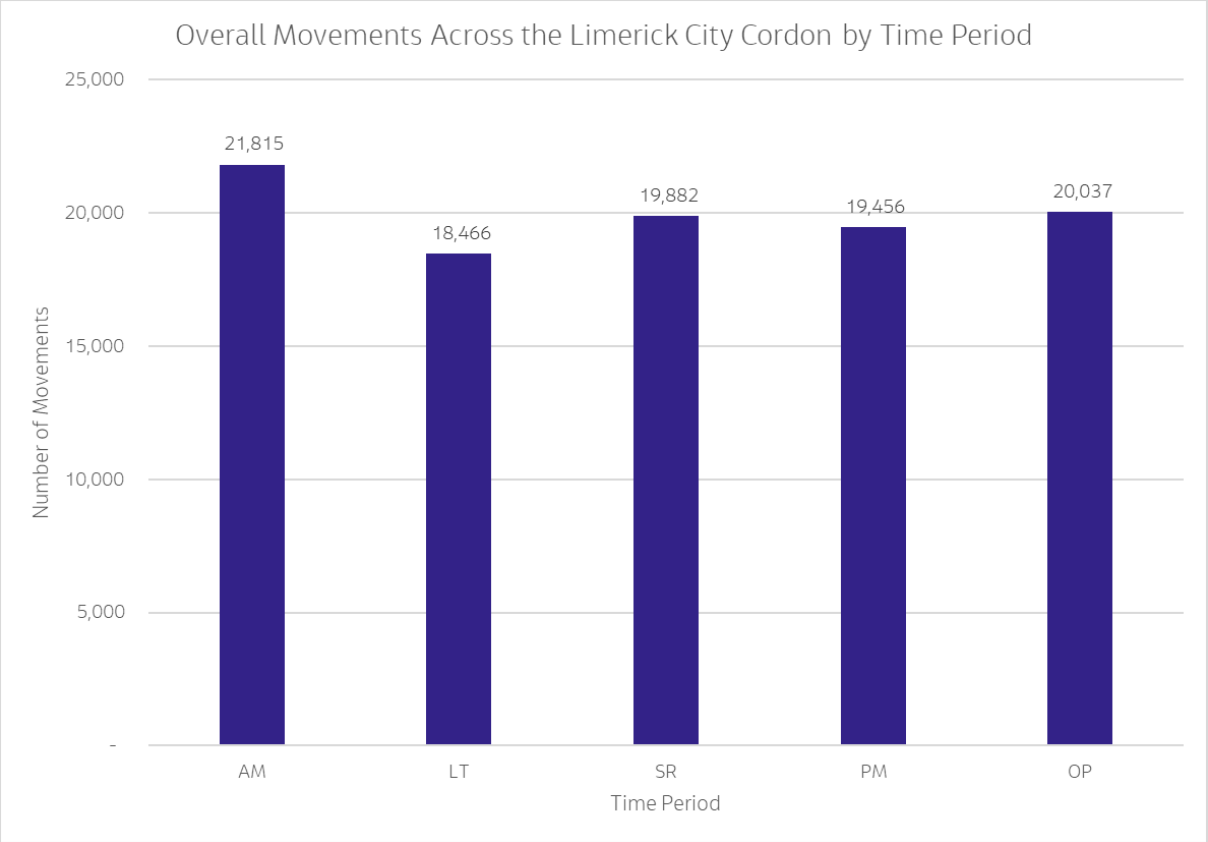


Figure 3-1:Total Movements across the Limerick City Cordon Inbound by Time Period

For further information, please refer to Appendix A, which presents additional graphs separated into the respective time periods and survey site locations.

Figure 3-2 sets out the number of vehicles in each classification as recorded in the JTC surveys, as well as the number of pedestrians, over a 24-hour period. This figure shows that car is the most common vehicle type, with 74,293 inbound movements in the 24-hour period, accounting for 75% of all crossings.

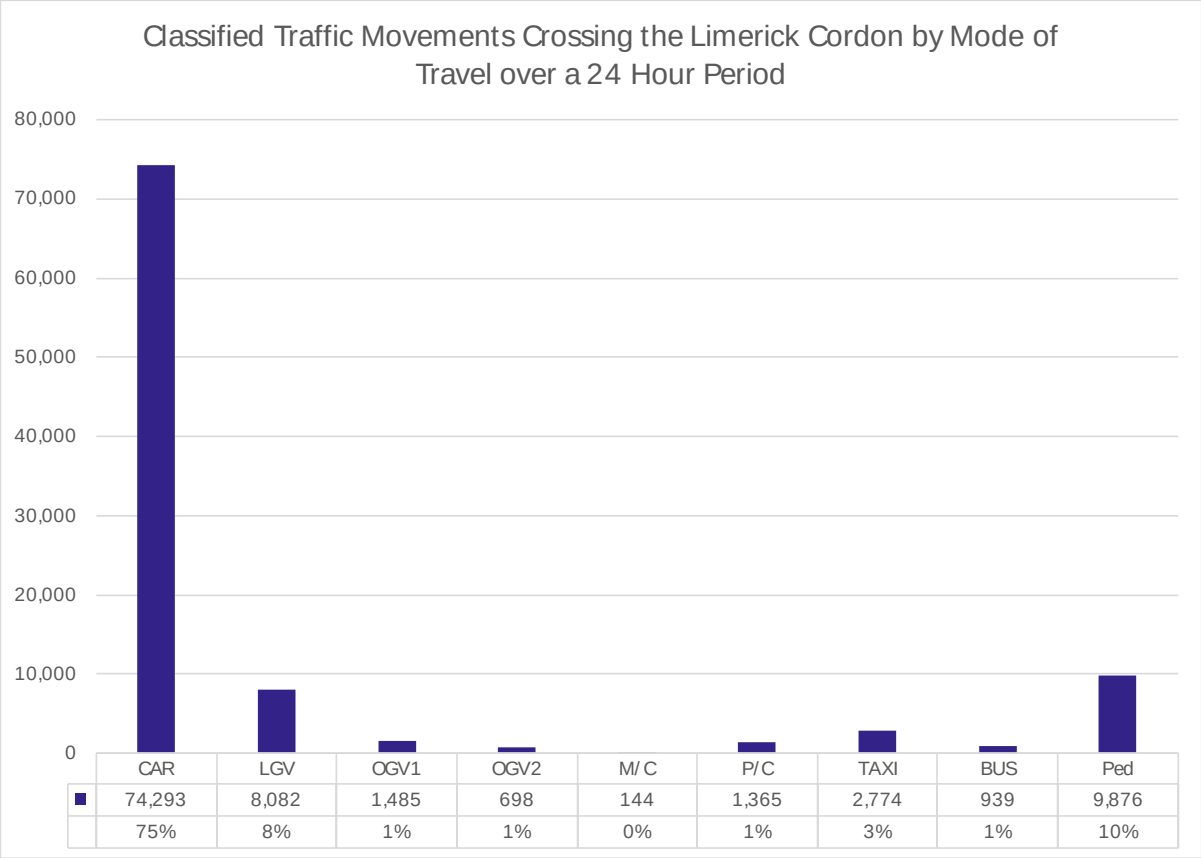


Figure 3-2:Total Number and Percentage of Vehicles crossing the Limerick City Cordon inbound by vehicle classification over a 24 hour period

Figure 3-3 sets out the number of vehicles in each classification as recorded in the JTC surveys, as well as the number of pedestrians, over a 12-hour period (i.e. 07:00 – 19:00). This figure shows that car is the most common vehicle type, with 58,855 inbound movements in the 12-hour period, accounting for 74% of all crossings.

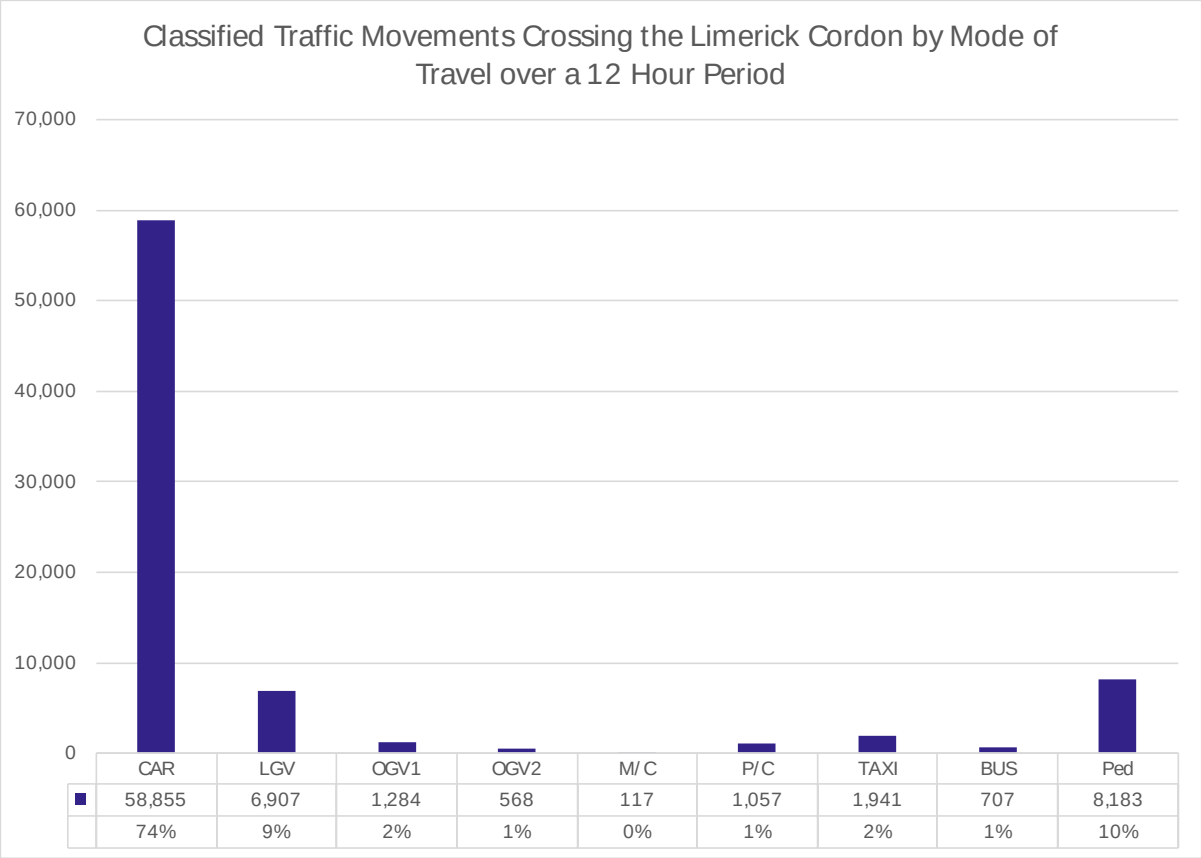


Figure 3-3:Total Number and Percentage of Vehicles crossing the Limerick City Cordon inbound by vehicle classification over a 12 hour period

3.1.2 Vehicle Classified Traffic Flows

The following sections provide a more detailed overview of the JTC survey results by vehicle classification and survey sites. Each vehicle class is analysed in turn providing information on the volume of vehicles per time period and per survey site.

Car

Figure 3-4 below presents the total number of cars crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the AM time period has the highest volume of cars, with a total of 16,325 cars travelling inbound.

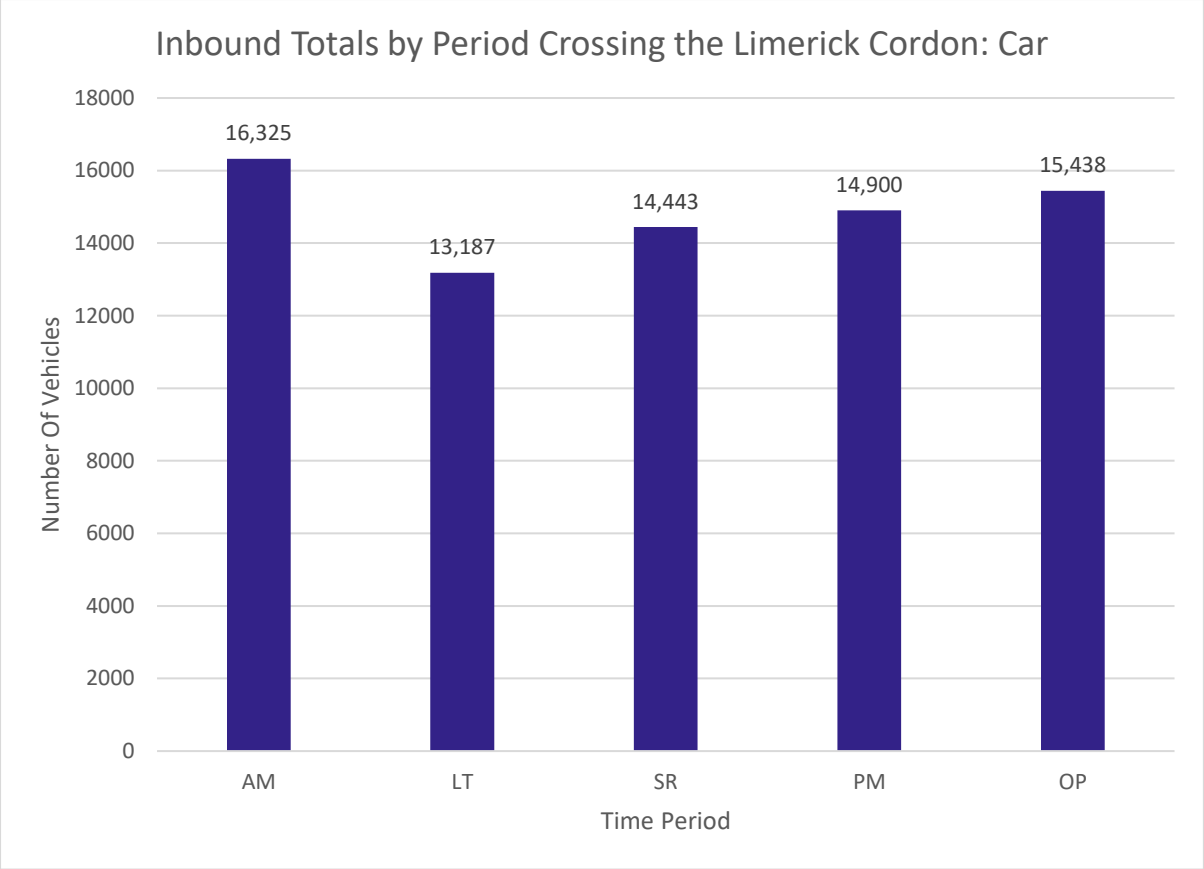


Figure 3-4:Total Number of Car journeys per Time Period

Figure 3-5 presents a further breakdown of the total number of cars, with reference to each site location. The busiest location for cars crossing the Limerick City Cordon was the Dublin Road/St Patrick's Road junction, with a total of 10,365 cars travelling inbound through this junction over a 24-hour period.

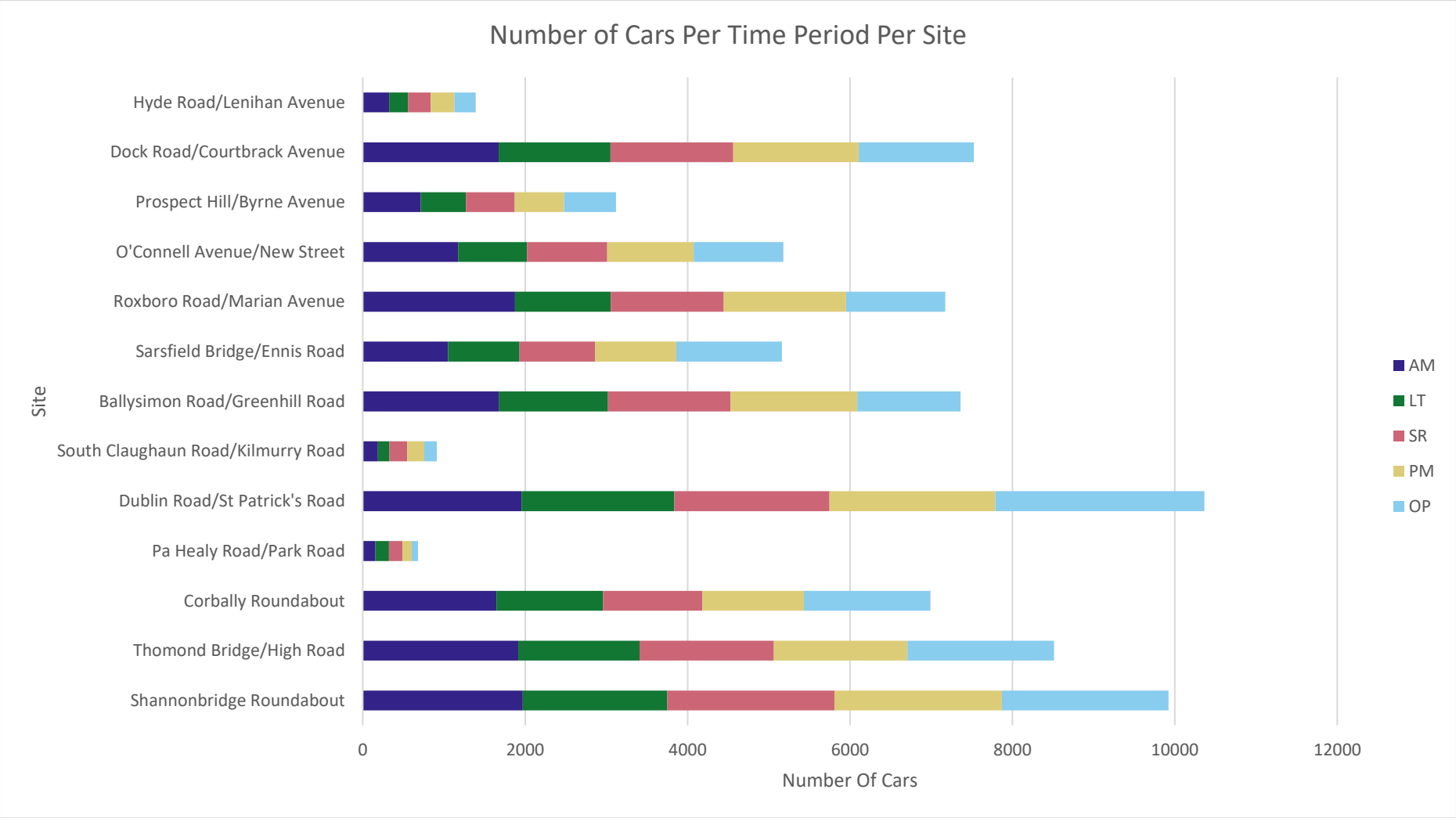


Figure 3-5:Number of Cars Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Please also refer to Appendix A for further information on the total number of cars, with reference to each individual time period.

Light Goods Vehicle

Figure 3-6 below presents the total number of LGVs crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the LT time period has the highest volume of LGVs, with a total of 1,915 LGVs travelling inbound.

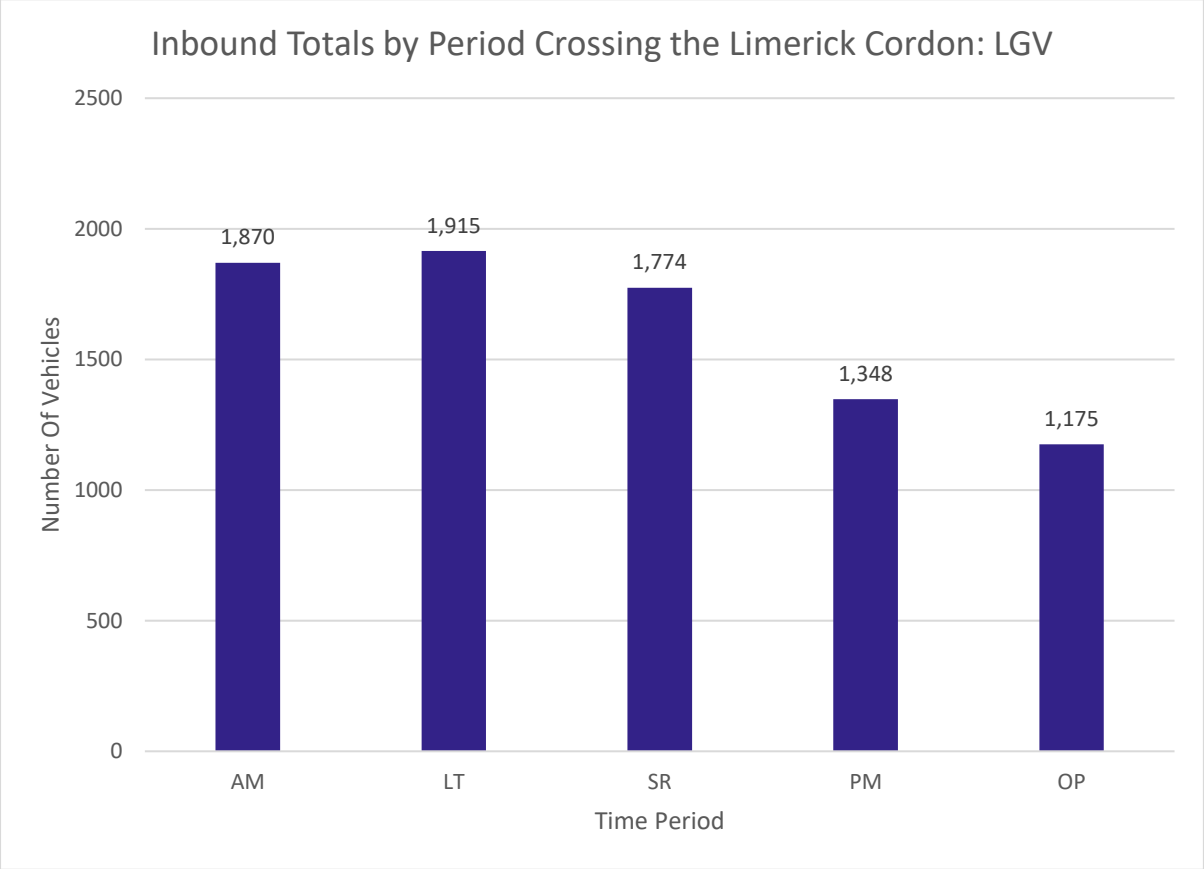


Figure 3-6:Total Number of LGV journeys per Time Period

Figure 3-7 presents a further breakdown of the total number of LGVs, with reference to each site location. The busiest location for LGVs crossing the Limerick City Cordon was the Dock Road/Courtbrack Avenue junction, with a total of 1,260 LGVs travelling inbound through this junction over a 24-hour period.

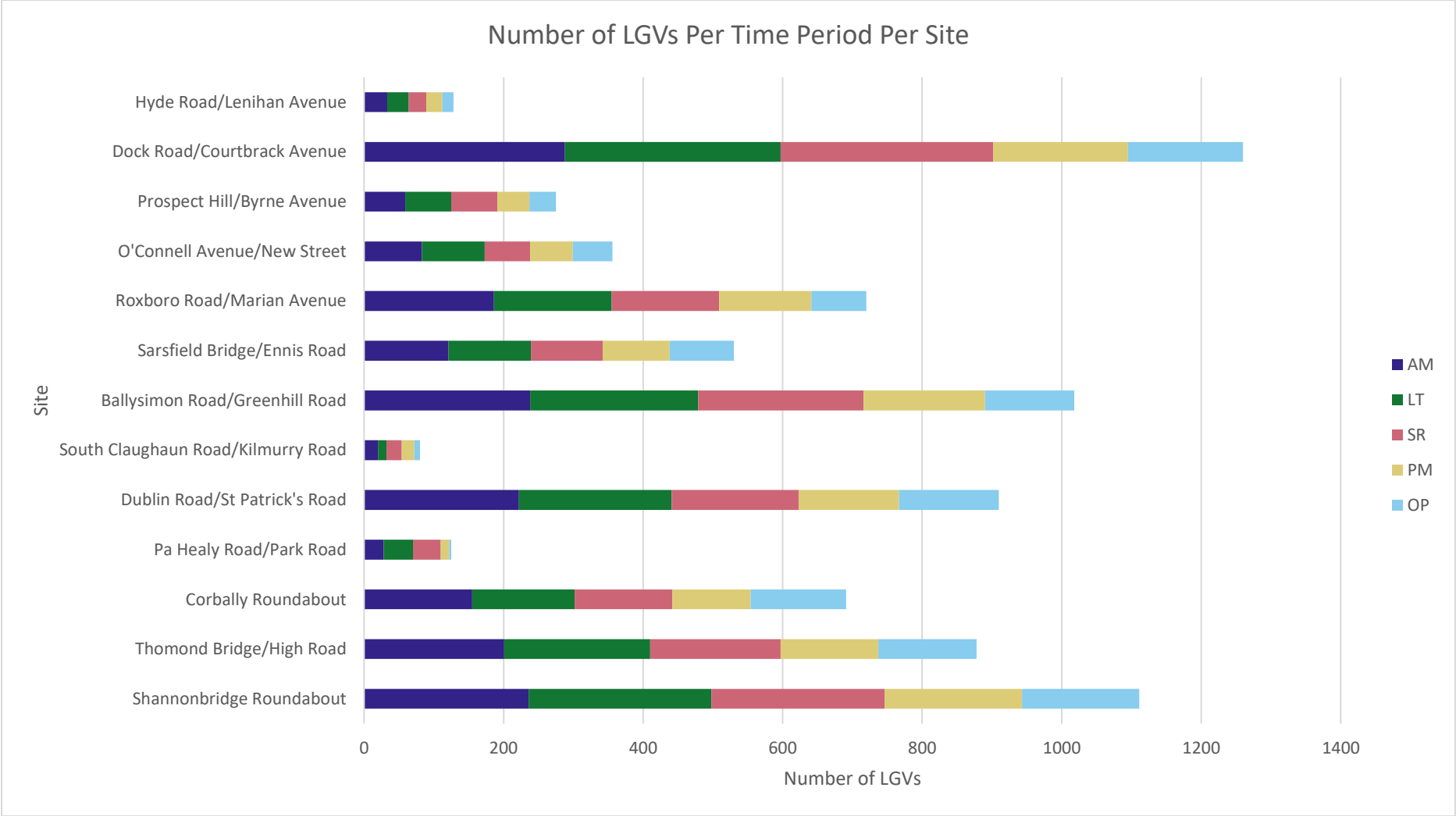


Figure 3-7:Number of LGVs Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Ordinary Goods Vehicle 1

Figure 3-8 below presents the total number of OGV1s crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the LT time period has the highest volume of OGV1s, with a total of 445 OGV1s travelling inbound.

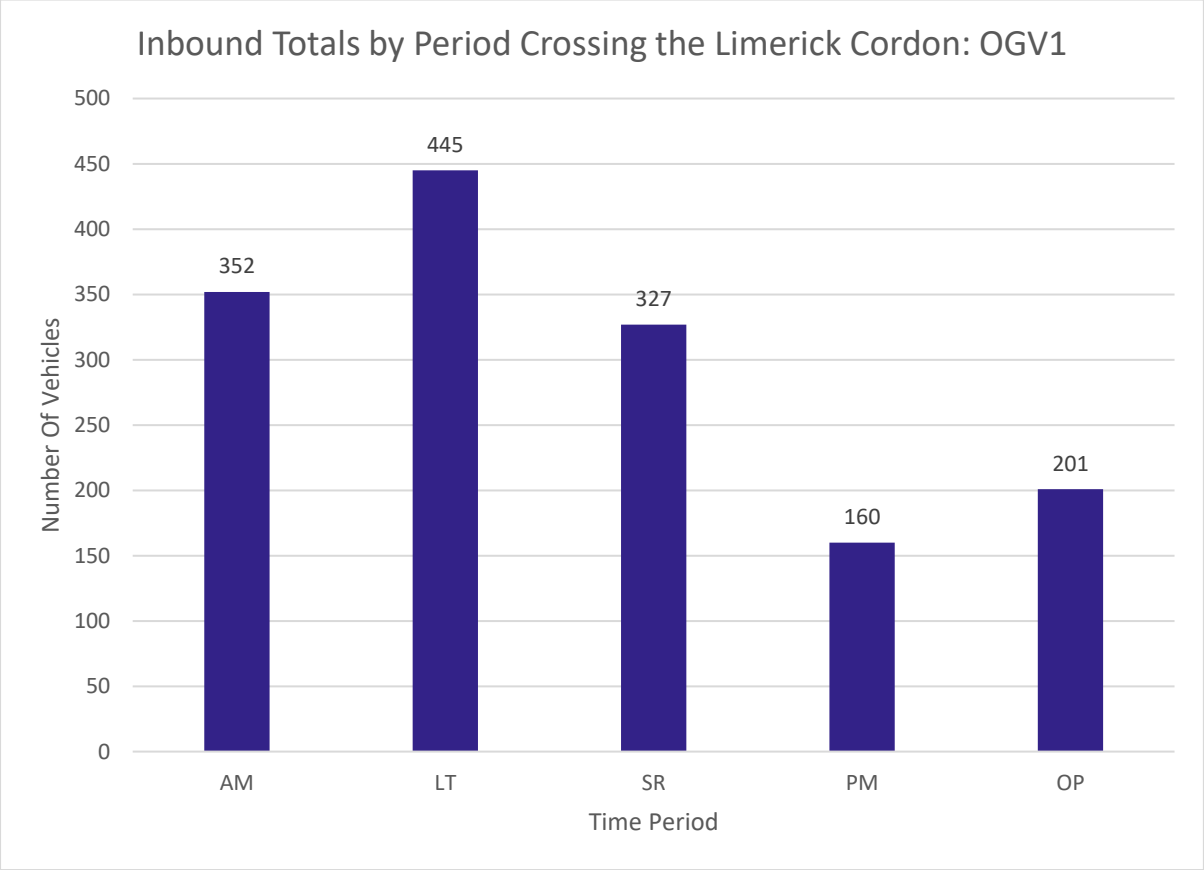


Figure 3-8:Total Number of OGV1 journeys per Time Period

Figure 3-9 presents a further breakdown of the total number of OGV1s, with reference to each site location. The busiest location for OGV1s crossing the Limerick City Cordon was the Dock Road/Courtbrack Avenue junction, with a total of 302 OGV1s travelling inbound through this junction over a 24-hour period.

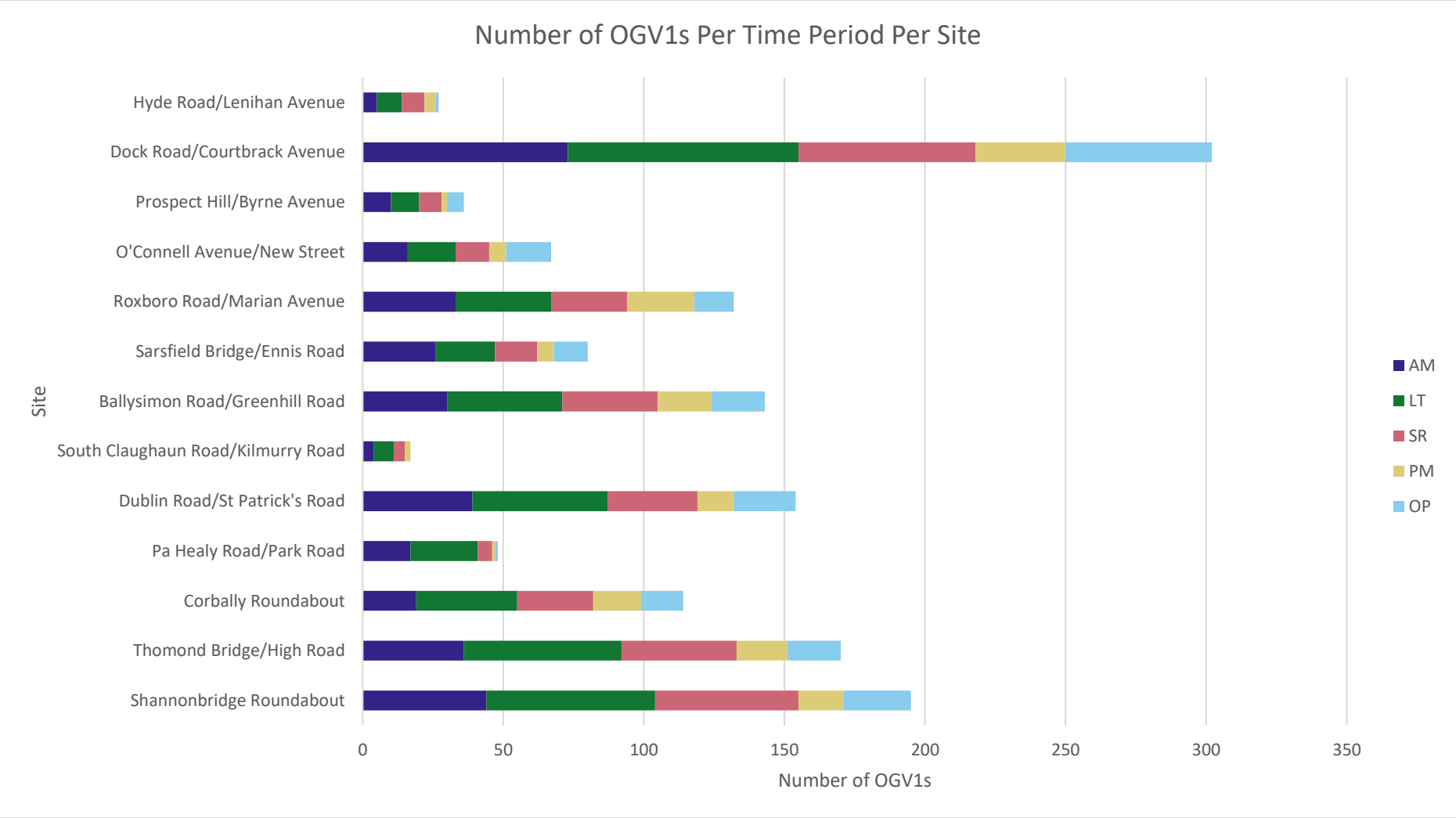


Figure 3-9:Number of OGV1s Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Ordinary Goods Vehicle 2

Figure 3-10 below presents the total number of OGV2s crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the LT time period has the highest volume of OGV2s, with a total of 195 OGV2s travelling inbound.

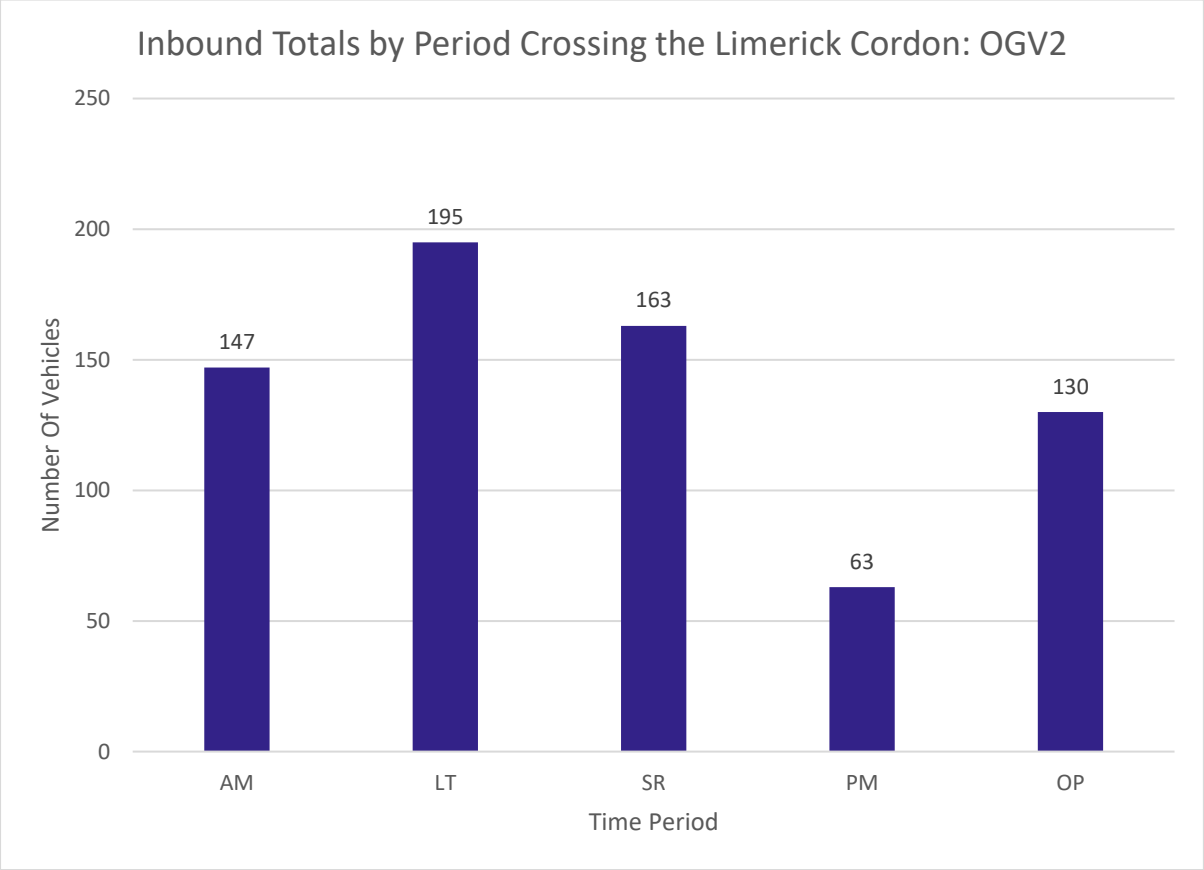


Figure 3-10:Total Number of OGV2 journeys per Time Period

Figure 3-11 presents a further breakdown of the total number of OGV2s, with reference to each site location. The busiest location for OGV2s crossing the Limerick City Cordon was the Dock Road/Courtbrack Avenue junction, with a total of 302 OGV2s travelling inbound through this junction over a 24-hour period.

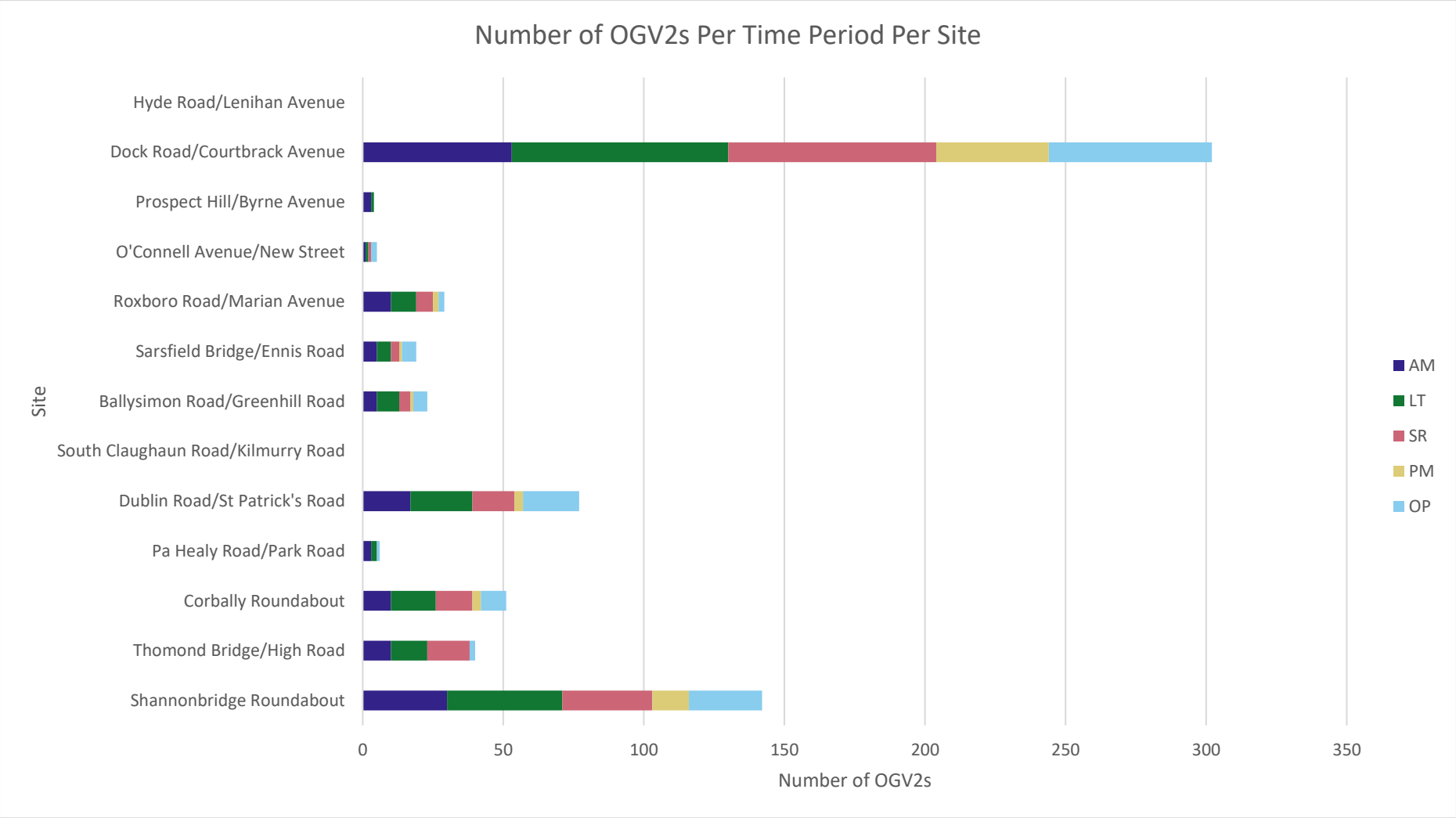


Figure 3-11:Number of OGV2s Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Motorcycle

Figure 3-12 below presents the total number of motorcycles crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the SR time period has the highest volume of motorcycles, with a total of 38 motorcycles travelling inbound.

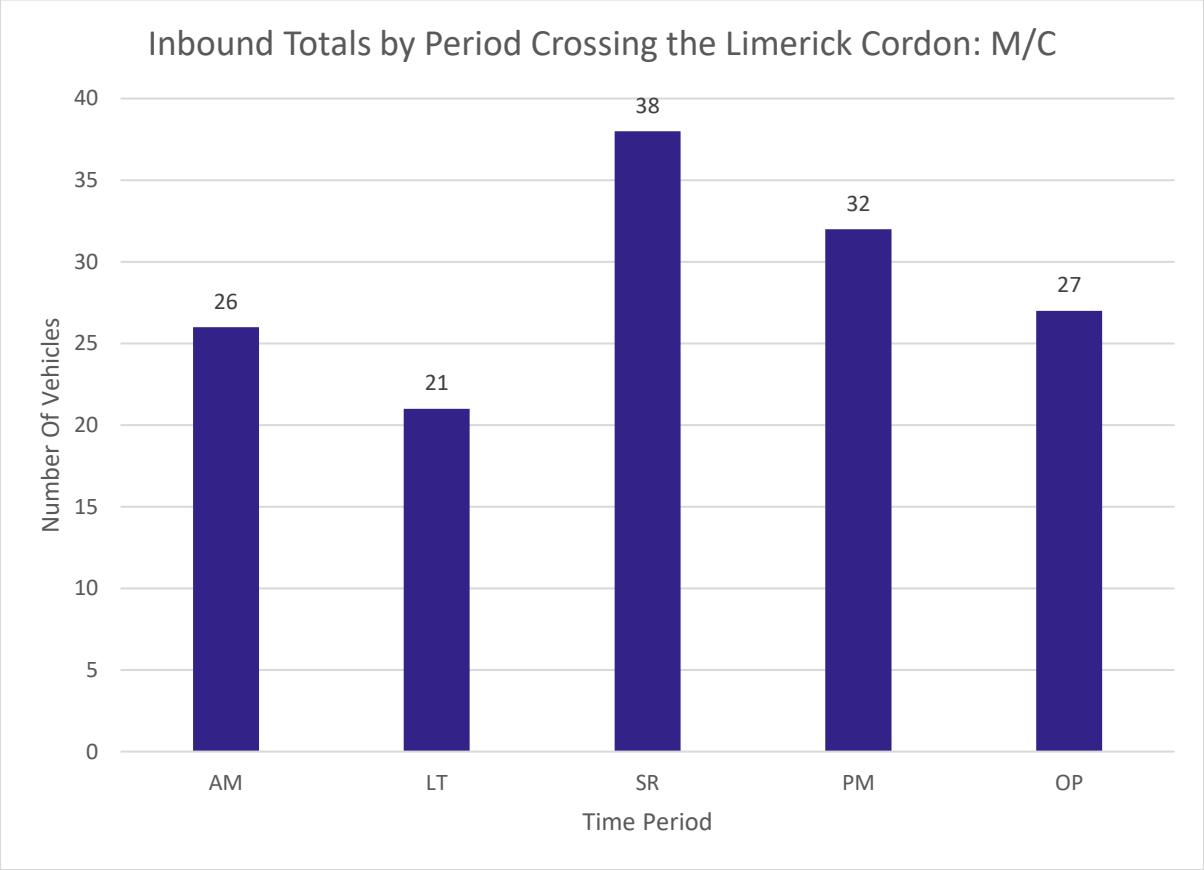


Figure 3-12:Total Number of Motorcycle journeys per Time Period

Figure 3-13 presents a further breakdown of the total number of motorcycles, with reference to each site location. The busiest location for motorcycles crossing the Limerick City Cordon was the Dublin Road/St Patrick's Road junction, with a total of 21 motorcycles travelling inbound through this junction over a 24-hour period.

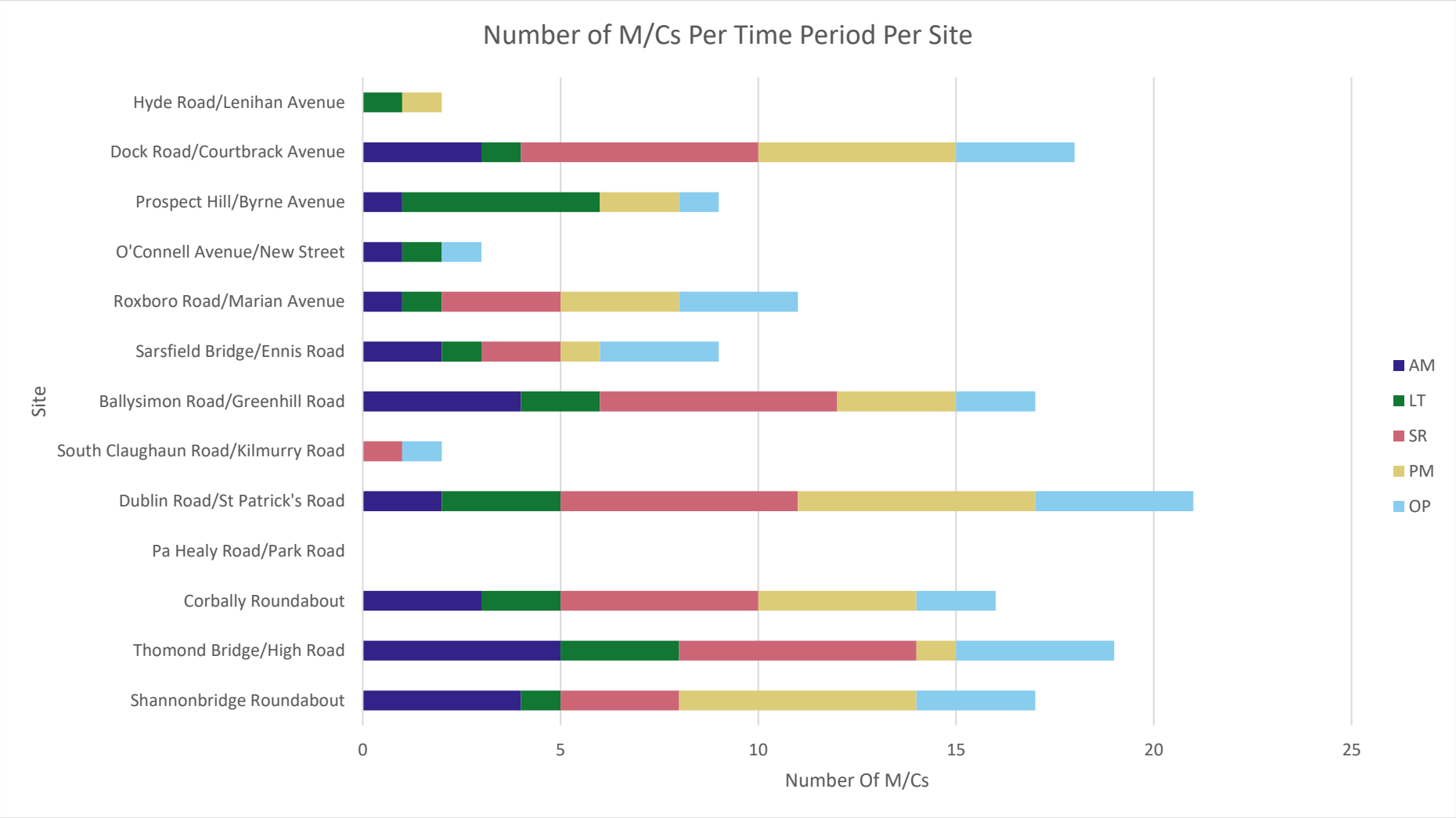


Figure 3-13:Number of Motorcycles Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Pedal Cycle

Figure 3-14 below presents the total number of pedal cycles crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the AM time period has the highest volume of pedal cycles, with a total of 311 pedal cycles travelling inbound.

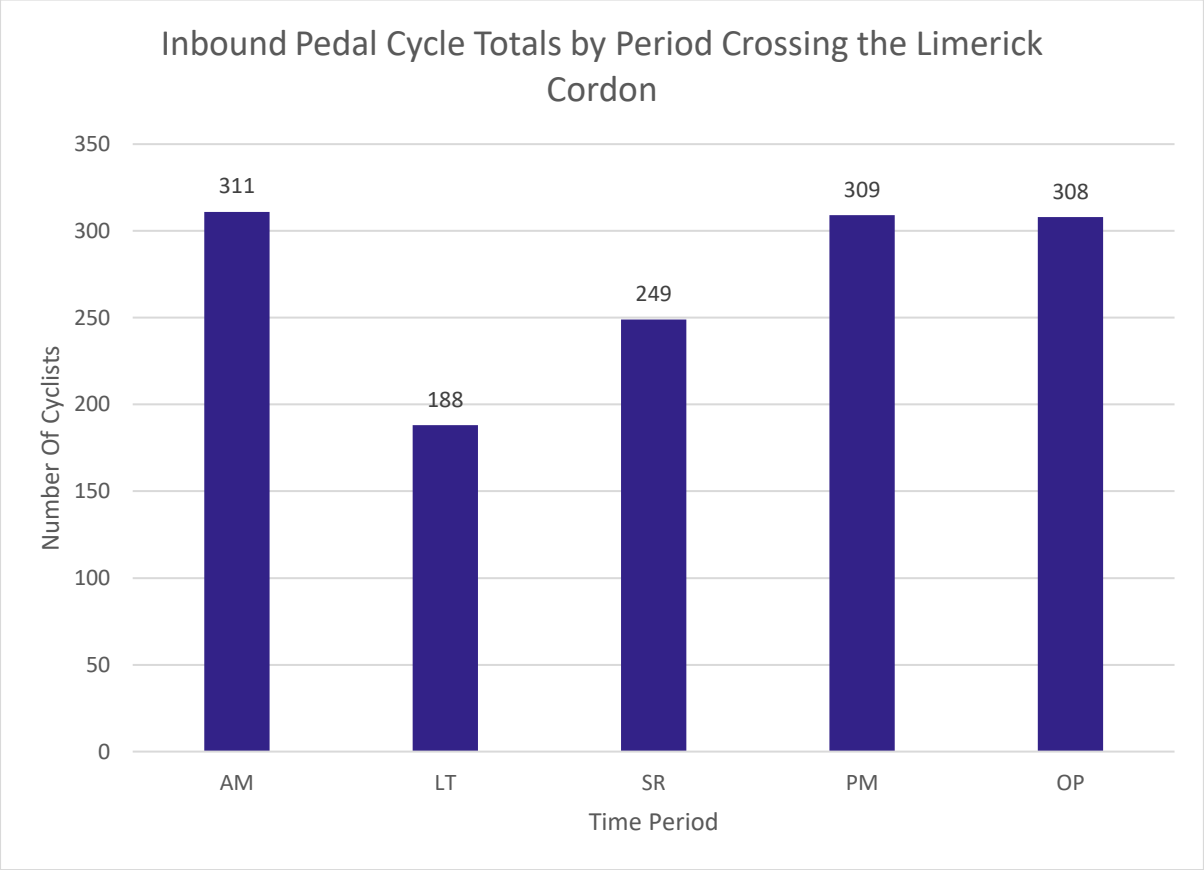


Figure 3-14:Total Number of Pedal Cycle journeys per Time Period

Figure 3-15 presents a further breakdown of the total number of pedal cycles, with reference to each site location. The busiest location for pedal cycles crossing the Limerick City Cordon was the Shannonbridge Roundabout junction, with a total of 182 pedal cycles travelling inbound through this junction over a 24-hour period.

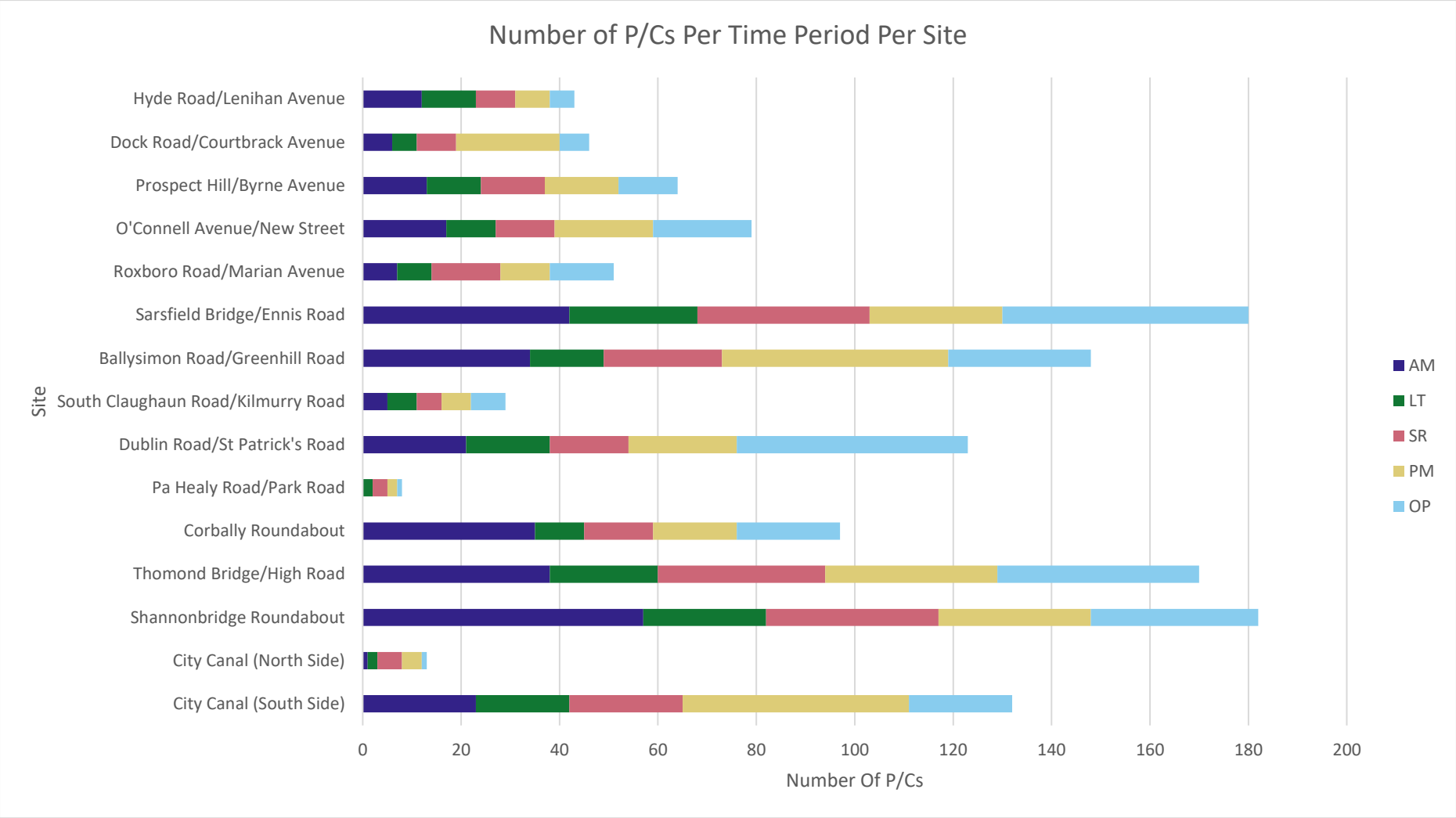


Figure 3-15:Number of Pedal Cycles Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Taxi

Figure 3-16 below presents the total number of taxis crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the OP time period has the highest volume of taxis, with a total of 833 taxis travelling inbound.

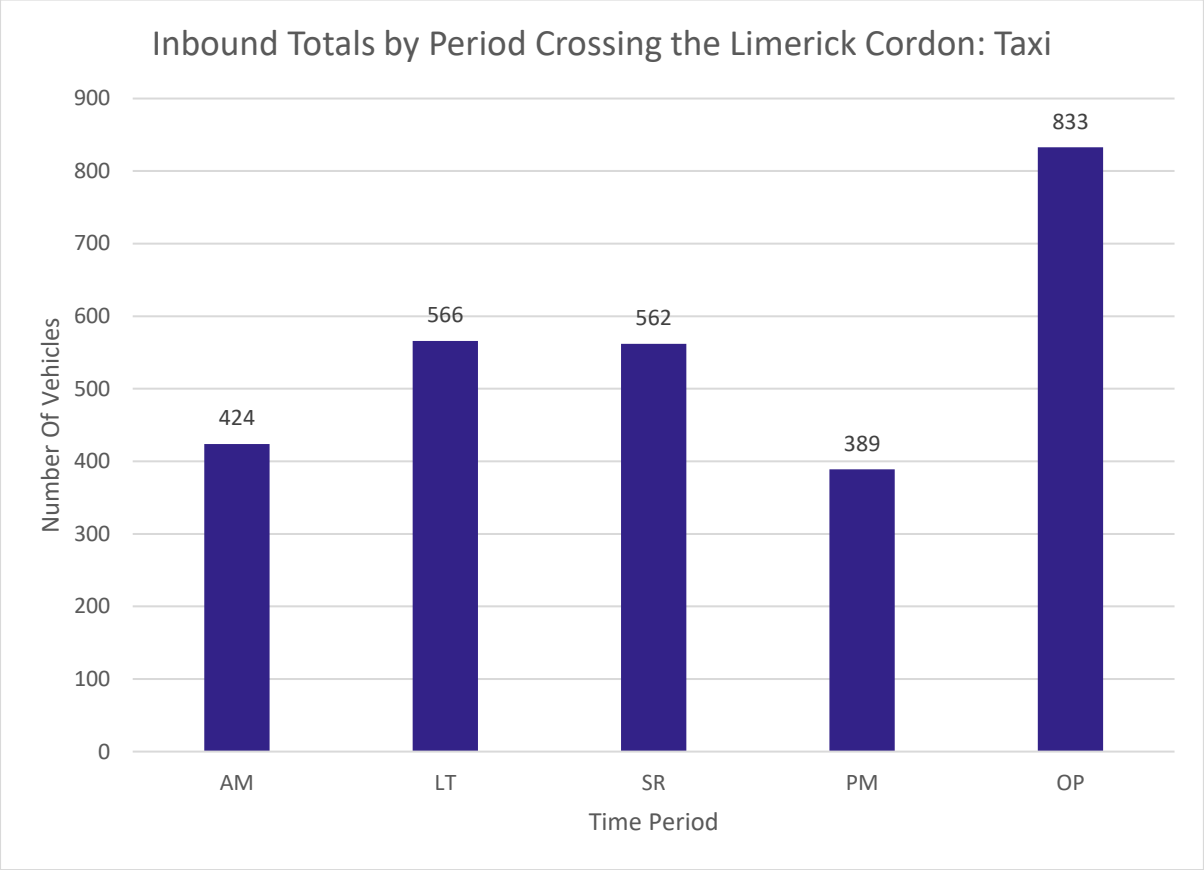


Figure 3-16:Total Number of Taxi journeys per Time Period

Figure 3-17 presents a further breakdown of the total number of taxis, with reference to each site location. The busiest location for taxis crossing the Limerick City Cordon was the Dublin Road/St Patrick's Road junction, with a total of 458 taxis travelling inbound through this junction over a 24-hour period.

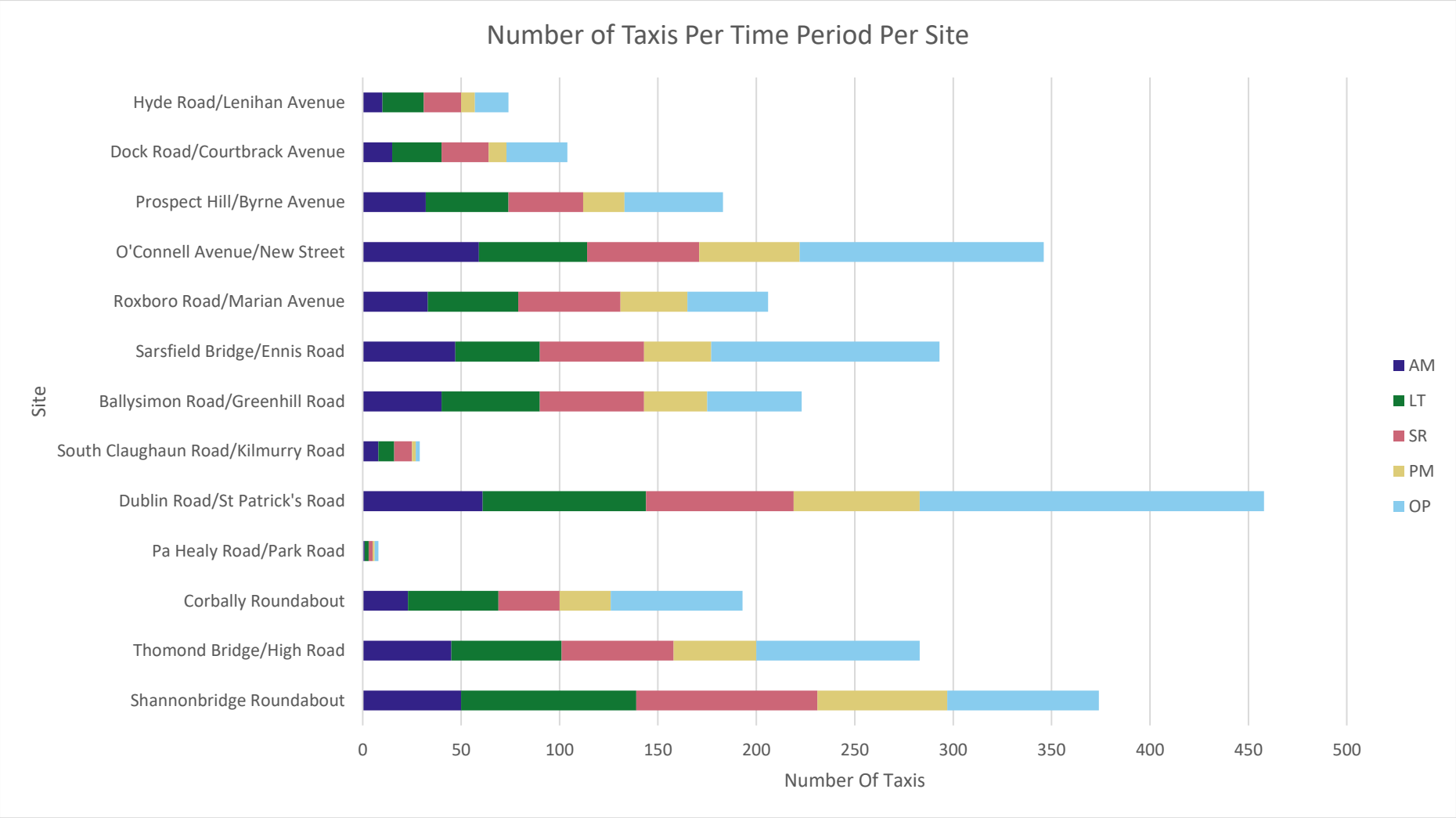


Figure 3-17:Number of Taxis Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Bus

Figure 3-18 below presents the total number of buses crossing the Limerick City Cordon for each surveyed time period. Overall, it is evident that the OP time period has the highest volume of buses, with a total of 232 buses travelling inbound.

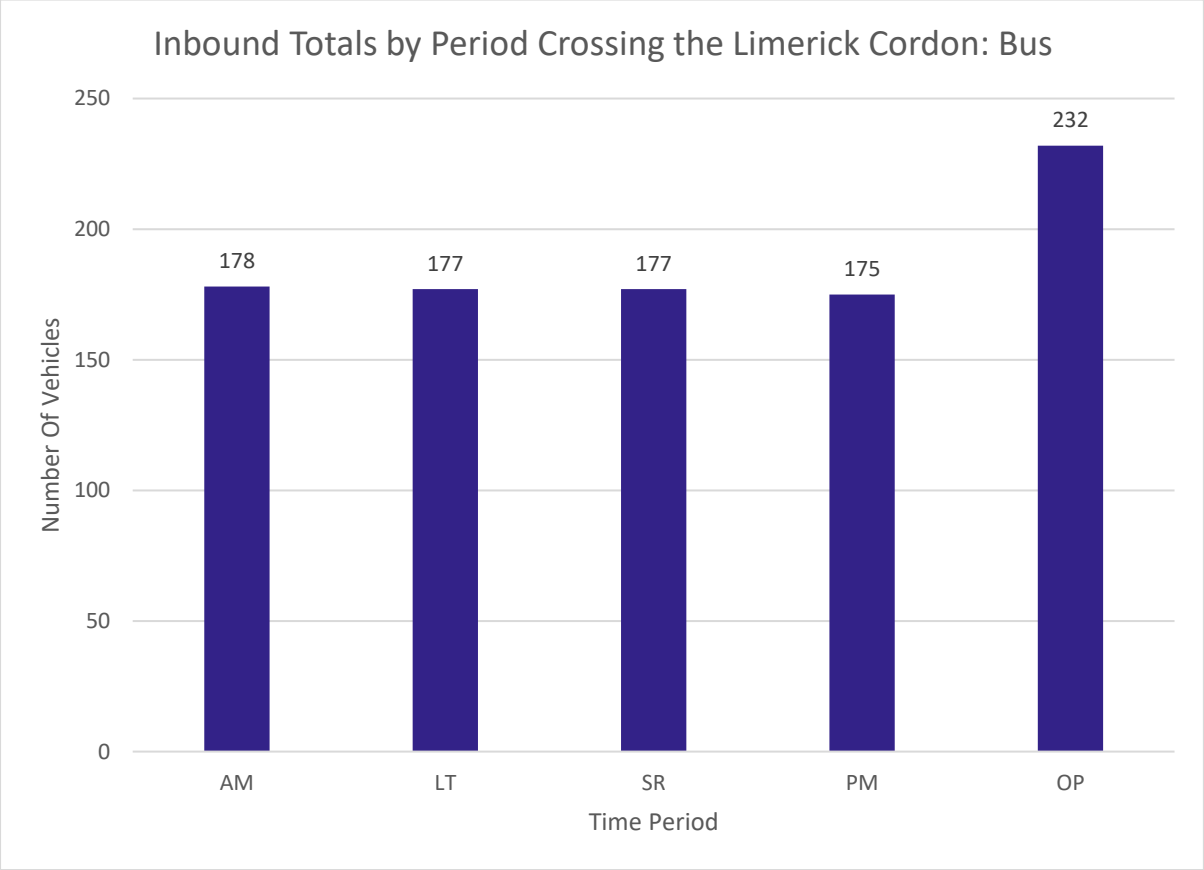


Figure 3-18:Total Number of Bus journeys per Time Period

Figure 3-19 presents a further breakdown of the total number of buses, with reference to each site location. The busiest location for buses crossing the Limerick City Cordon was the O'Connell Avenue/New Street junction, with a total of 157 buses travelling inbound through this junction over a 24-hour period.

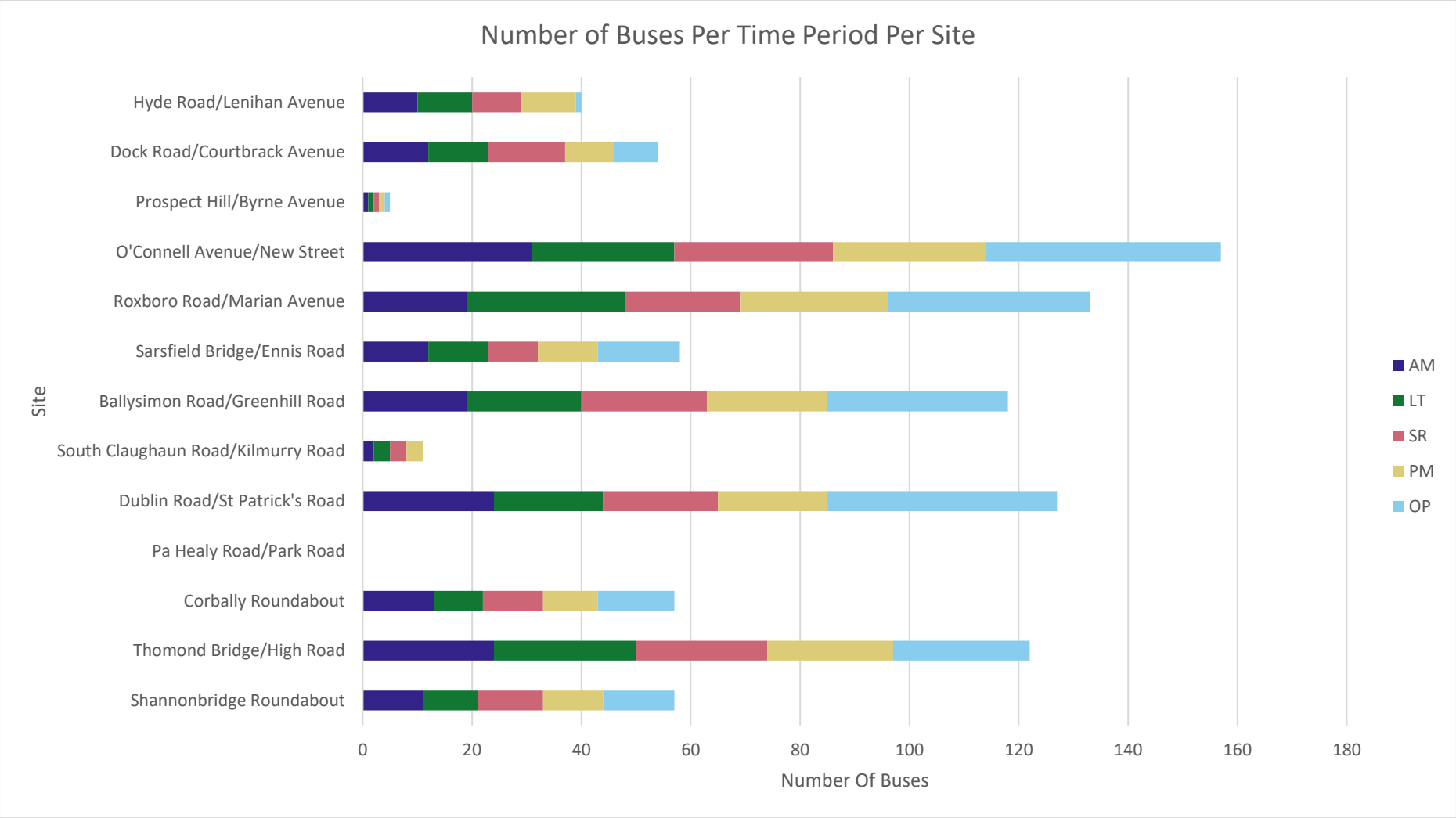


Figure 3-19:Number of Buses Crossing the Limerick City Cordon Inbound at all Sites Per Time Period

Pedestrians

Figure 3-20 presents the total number of pedestrian movements crossing the Limerick City Cordon per surveyed time period. Overall, it is evident that the AM period has the highest volume of pedestrians, with a total of 2,182 pedestrians travelling inbound.

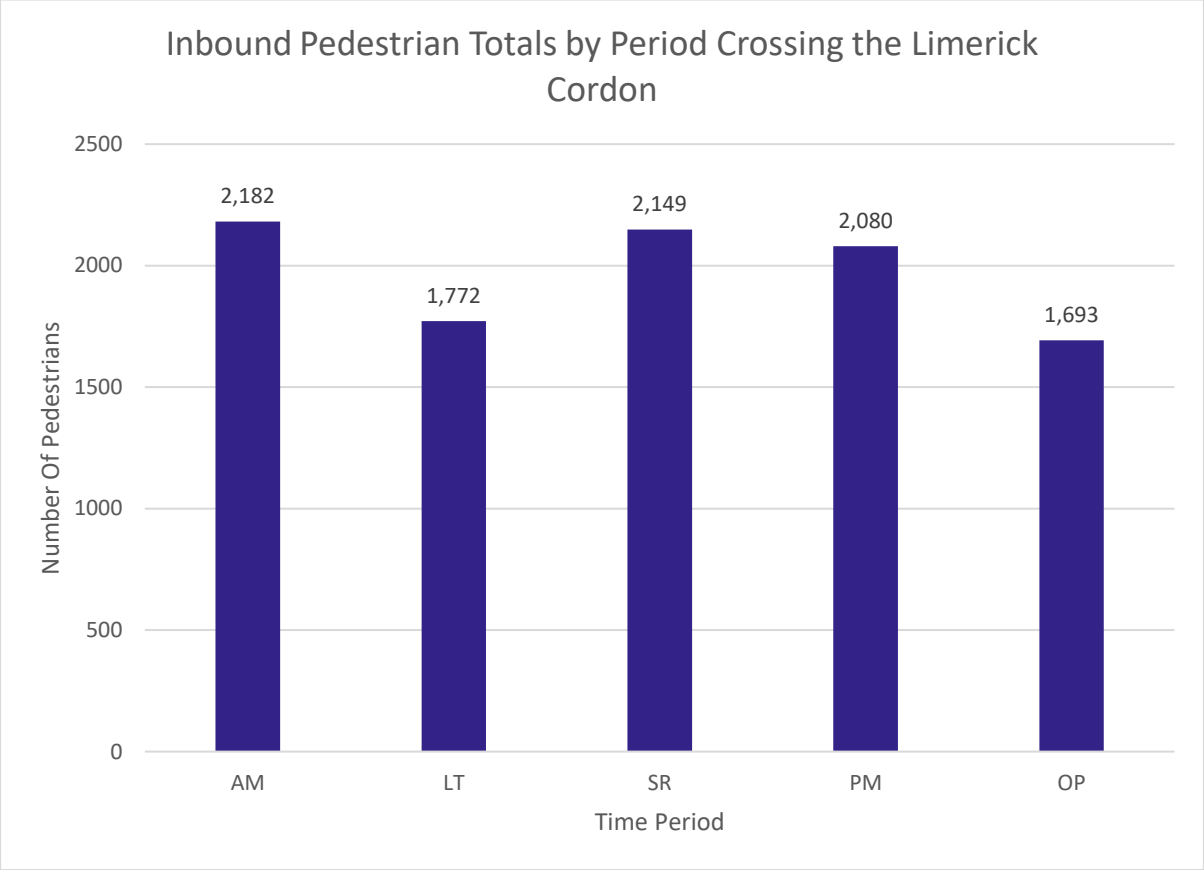


Figure 3-20:Total Pedestrians per Time Period

Figure 3-21 presents a further breakdown of the total number of pedestrian movements, with reference to each site location. The busiest location for pedestrians crossing the Limerick City Cordon was the Sarsfield Bridge/Ennis Road, with a total of 3,059 pedestrians travelling inbound through this junction over a 24-hour period.

Please also refer to Appendix A for further information on the total number of pedestrian movements, with reference to each individual time period and the classified pedestrian types (i.e. adult, OAP, child < 5, child < 16 and mobility impaired).

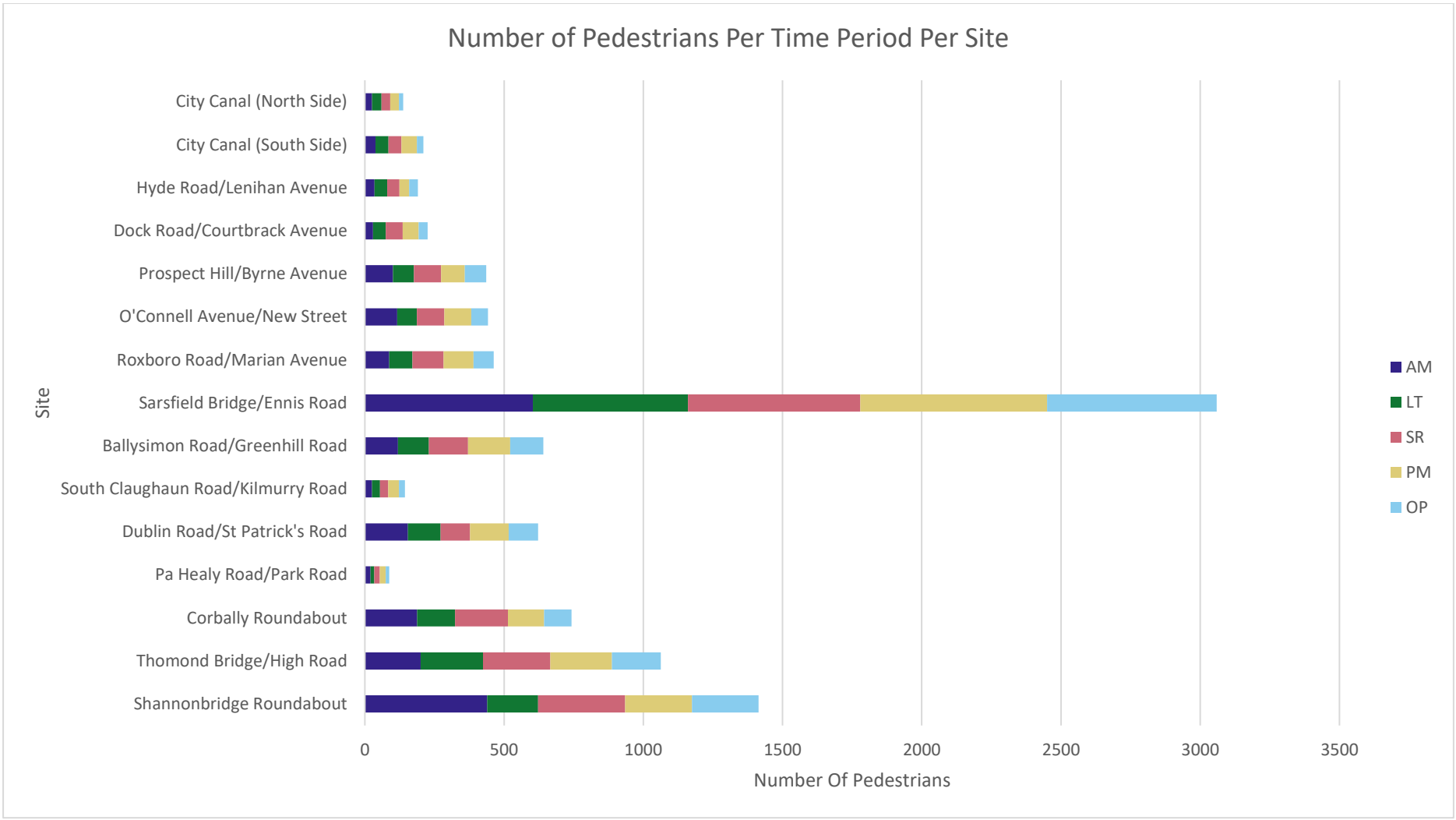


Figure 3-21:Total Pedestrians at all Sites per Time Period

3.1.3 Daily Movements Across the Limerick City Cordon

ATCs recorded traffic flows at 15-minute intervals at 12 sites on the main radial routes into and around the city for a period of two weeks to understand daily two-way traffic movements. These surveys were primarily used to provide insight into the variation in demand across the week. The results from these surveys show that the day with the highest number of vehicles travelling inbound is Friday, as can be seen in Figure 3-22.

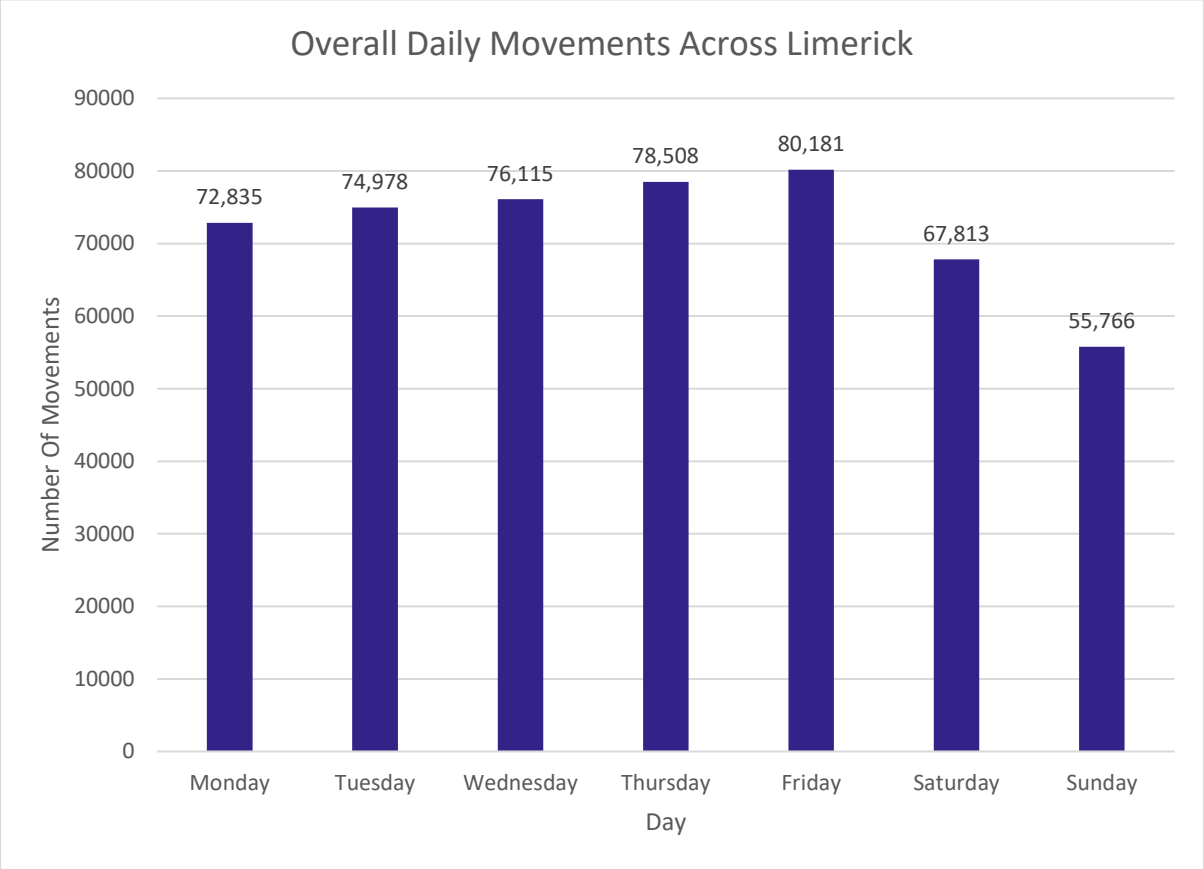


Figure 3-22:Average Daily Traffic at ATC Sites

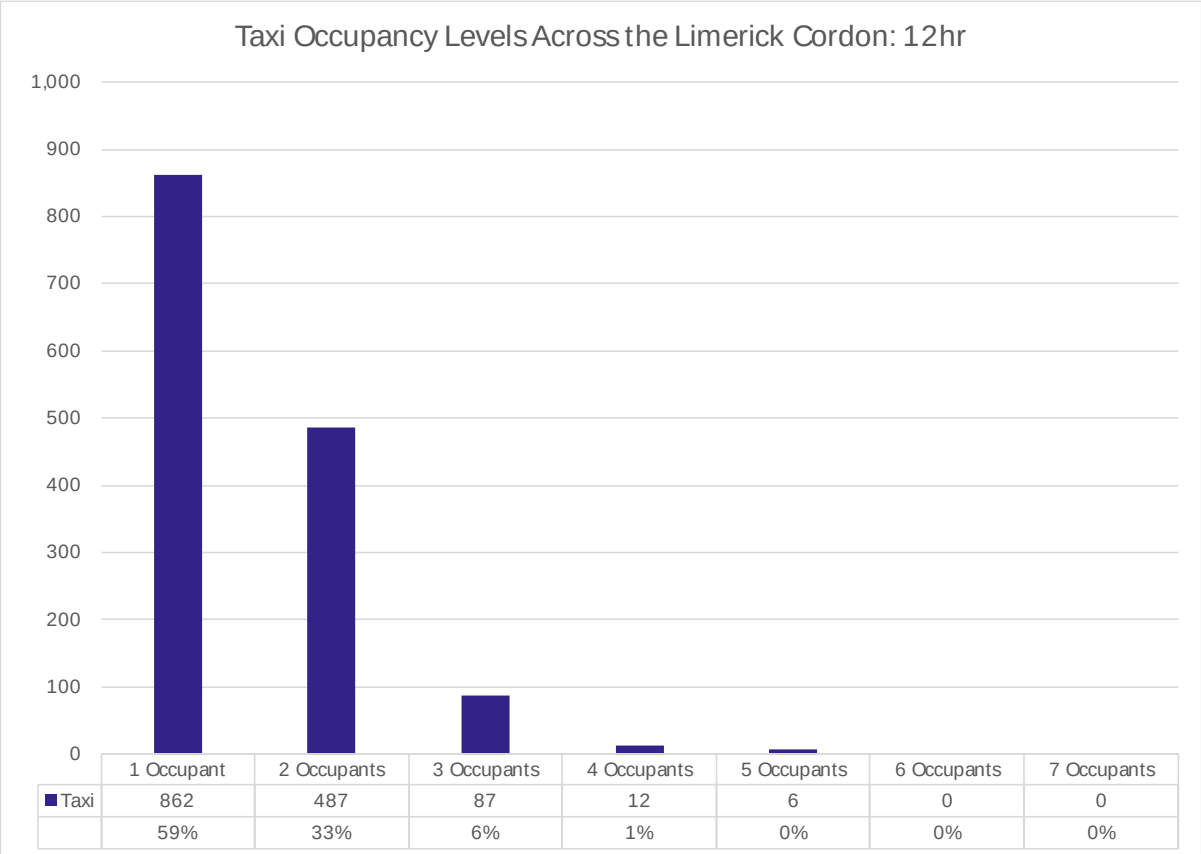
3.2 Vehicle Occupancy Data

3.2.1 Taxi Occupancy

In order to obtain accurate data reflective of a neutral weekday, taxi occupancy surveys were recorded in hourly intervals, over a 12-hour period (i.e. 07:00-19:00) on the day of the survey.

Figure 3-23, Figure 3-24, Figure 3-25, Figure 3-26 and Figure 3-27 display the observed vehicle occupancy for taxis crossing the Limerick City Cordon inbound towards the city during the respective time periods. Please note these graphs display both the absolute values and the percentage occupancy for each time period.

During the 12-hour period (07:00 and 19:00) 59% of Taxis crossing the Limerick City Cordon had one occupant, 33% had two occupants and 6% had three occupants.



	1 Occupant	2 Occupants	3 Occupants	4 Occupants	5 Occupants	6 Occupants	7 Occupants
Taxi	862	487	87	12	6	0	0
	59%	33%	6%	1%	0%	0%	0%

Figure 3-23:Taxi Occupancy: 12 Hour

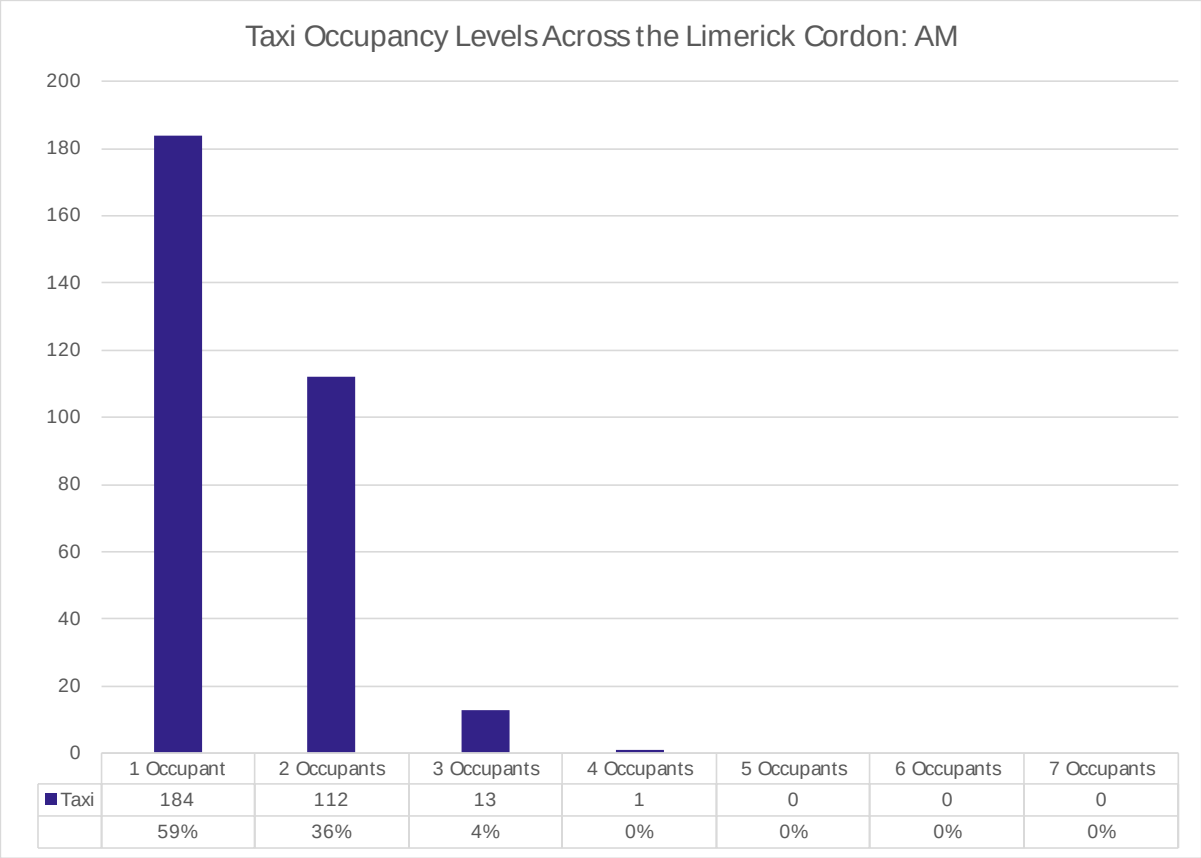


Figure 3-24:Taxi Occupancy: AM

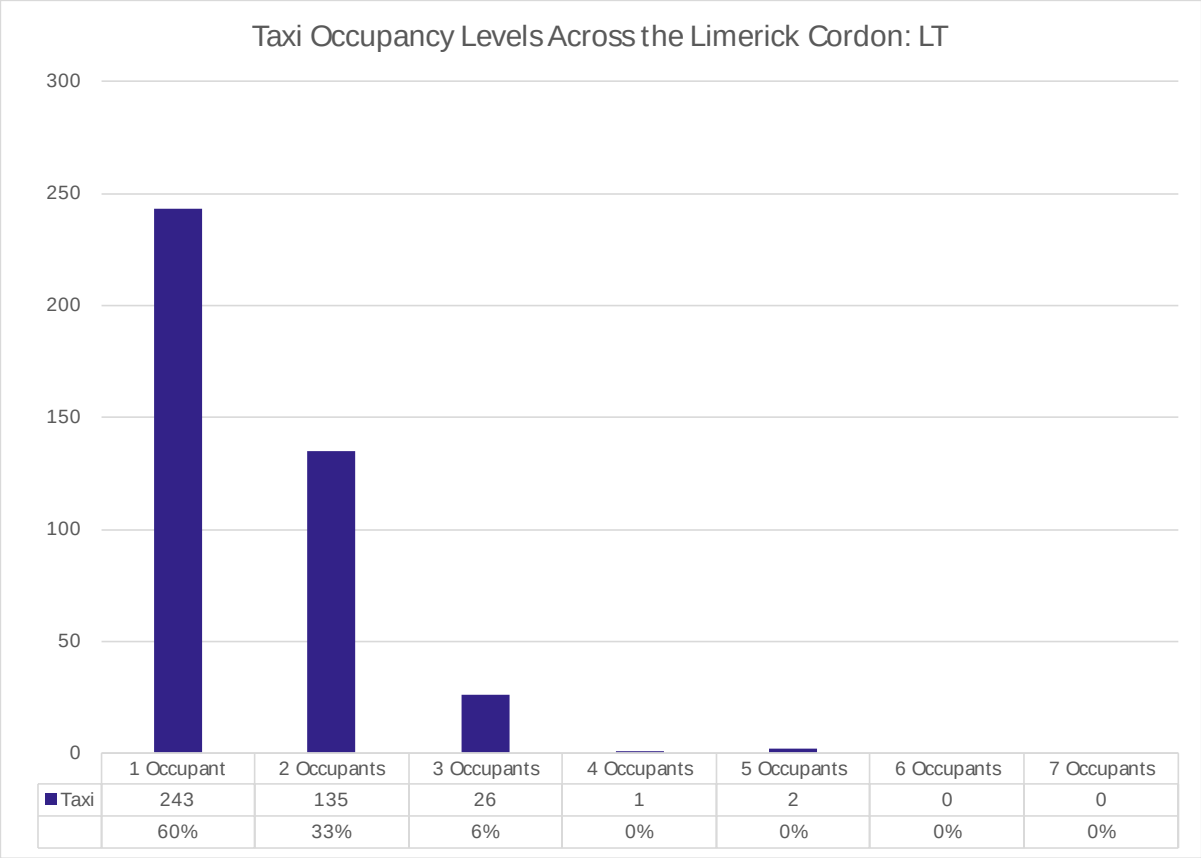
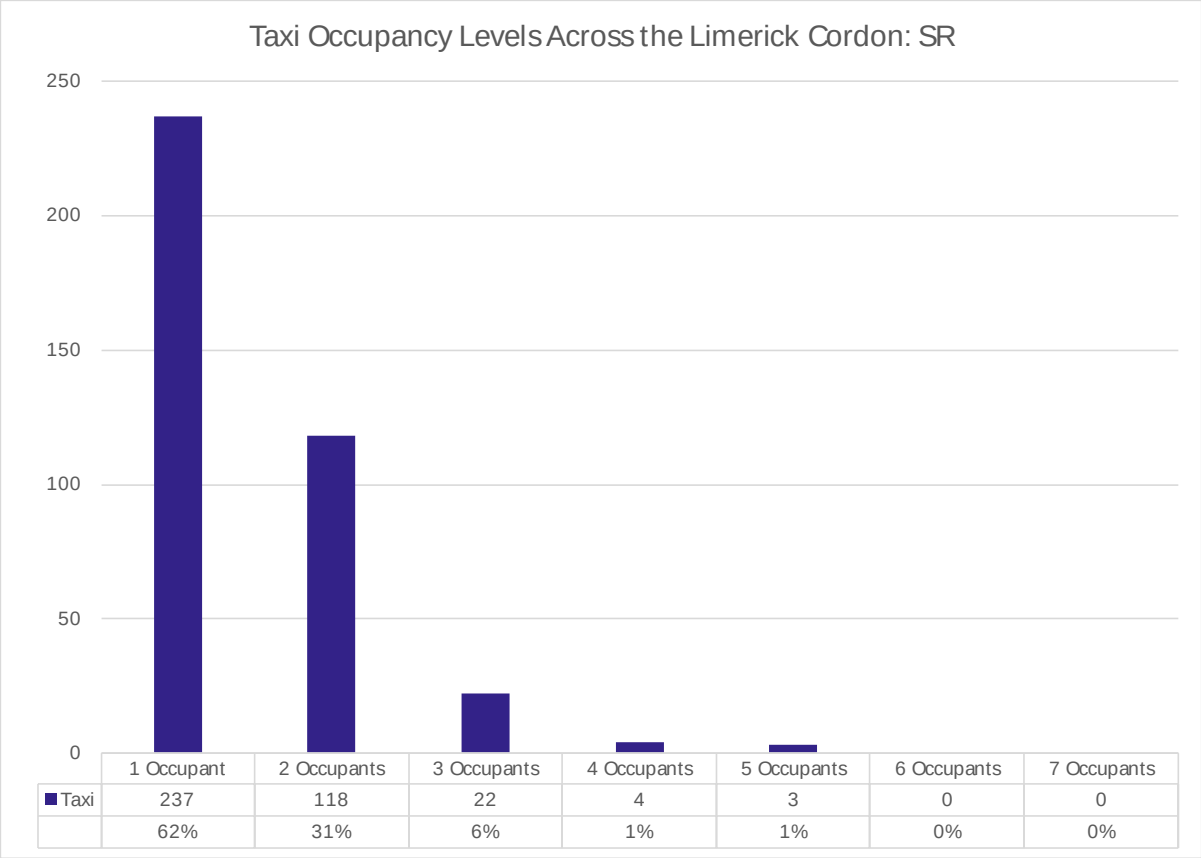


Figure 3-25:Taxi Occupancy: LT



	1 Occupant	2 Occupants	3 Occupants	4 Occupants	5 Occupants	6 Occupants	7 Occupants
Taxi	237	118	22	4	3	0	0
	62%	31%	6%	1%	1%	0%	0%

Figure 3-26:Taxi Occupancy: SR

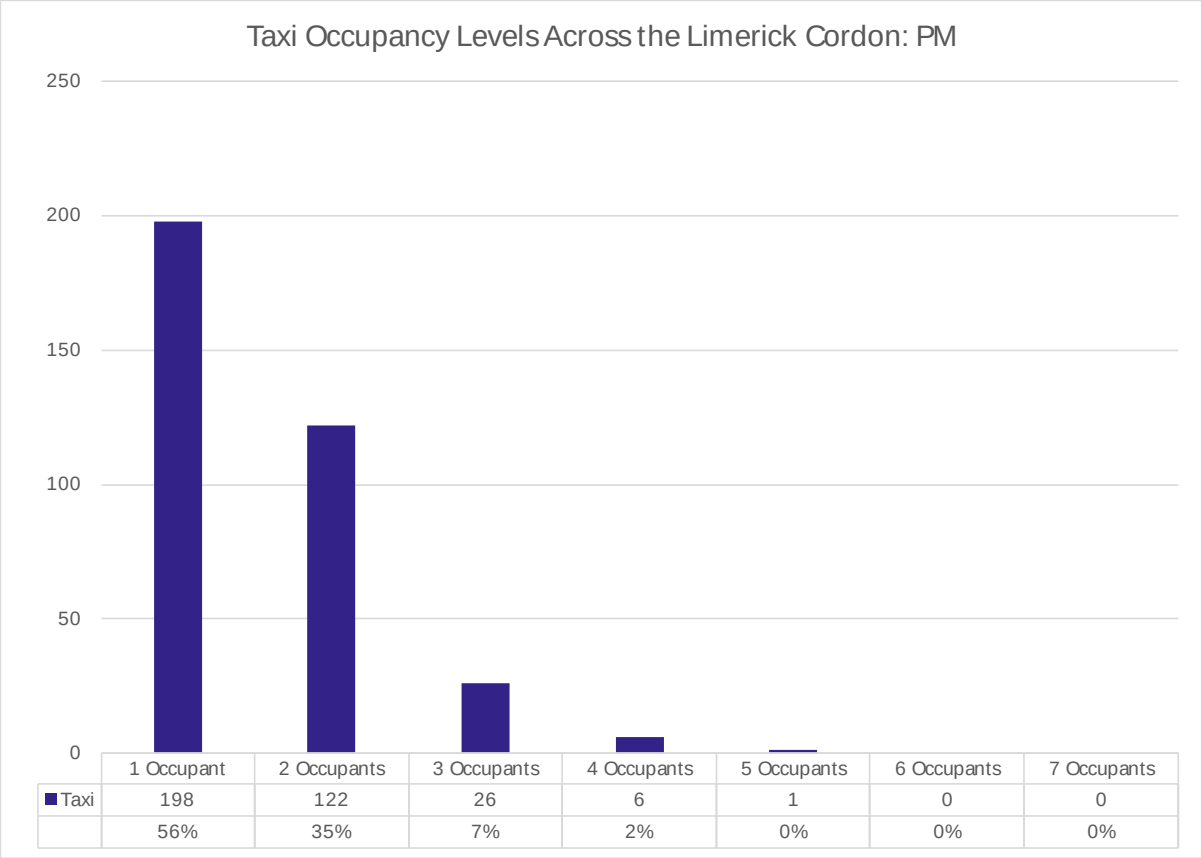


Figure 3-27:Taxi Occupancy: PM

Taxi Occupancy per site

Figure 3-28, Figure 3-29, Figure 3-30, Figure 3-31 and Figure 3-32 display the vehicle occupancy for taxis crossing the Limerick City Cordon during the respective time periods, with further reference to each individual site location.

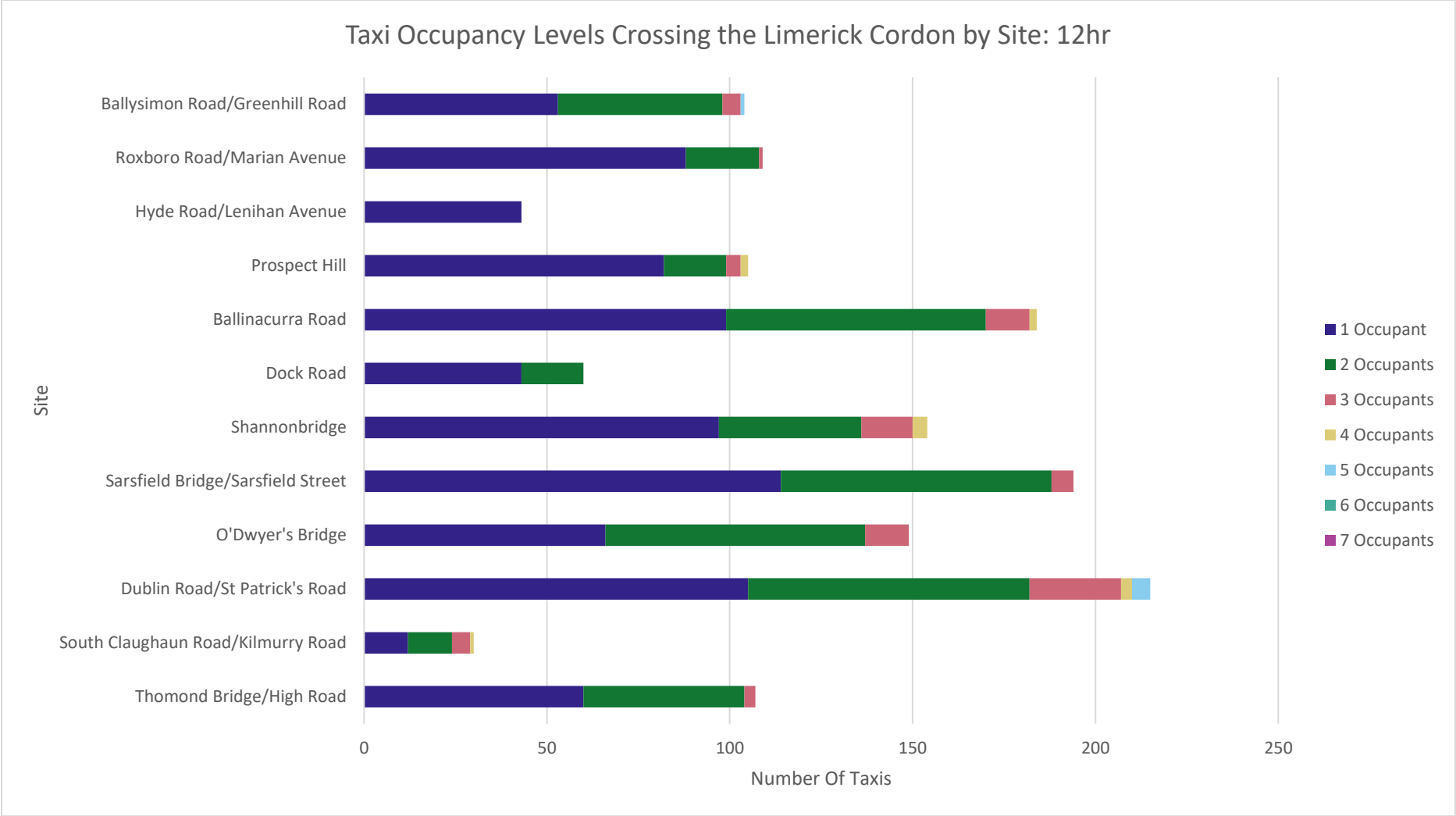


Figure 3-28:Taxi Occupancy per Site: 12 Hour

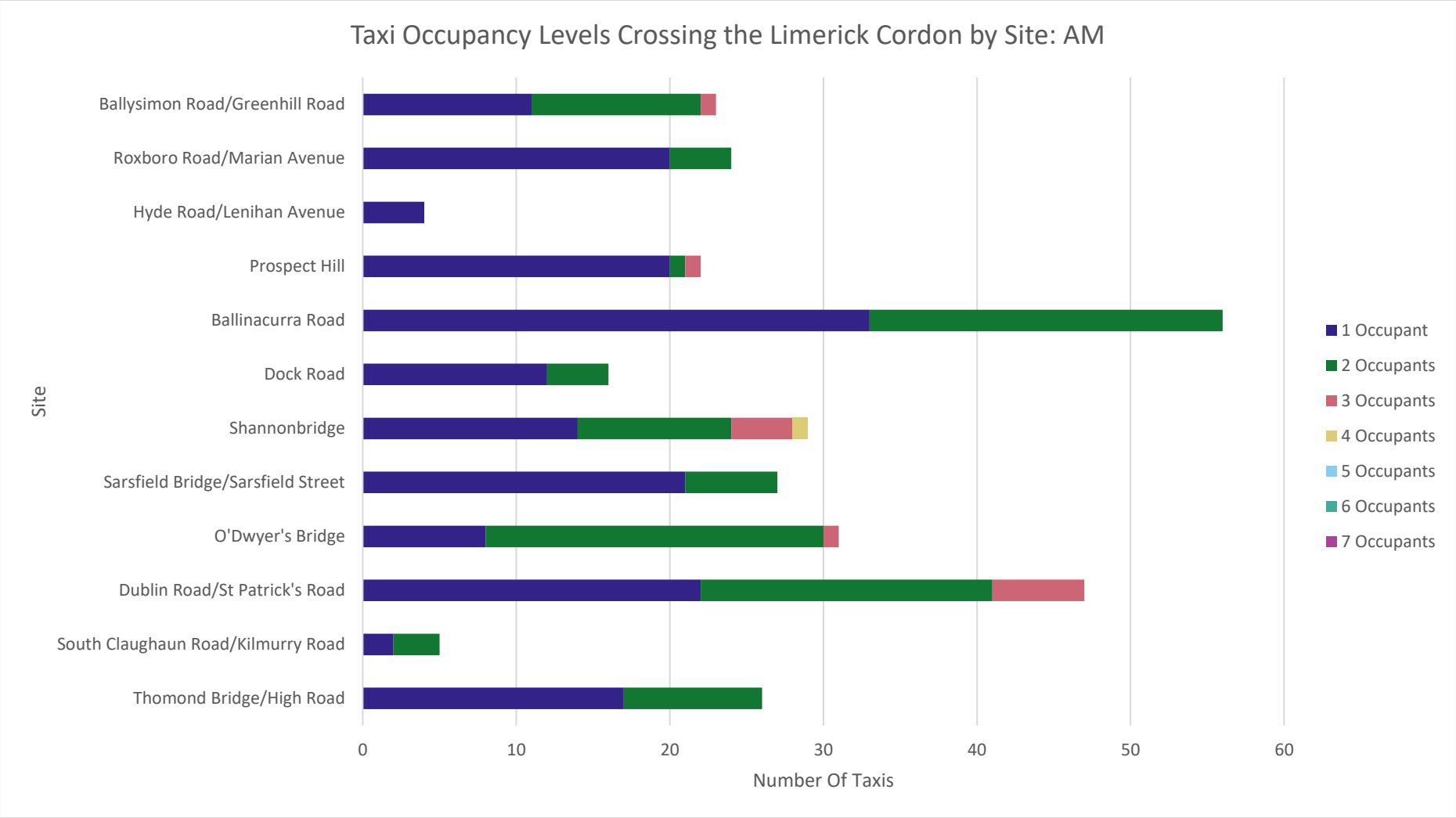


Figure 3-29:Taxi Occupancy per Site: AM

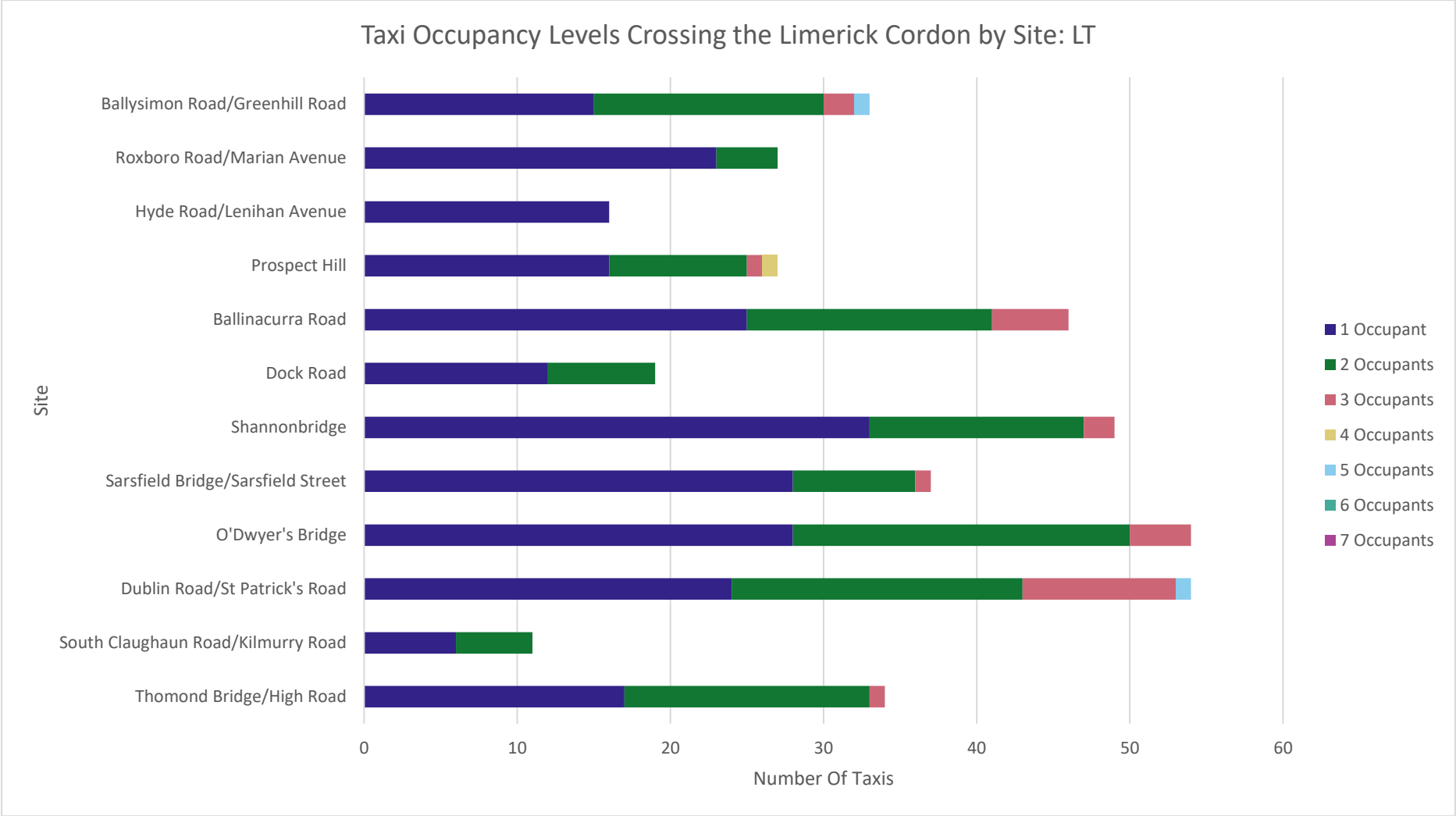


Figure 3-30:Taxi Occupancy per Site: LT

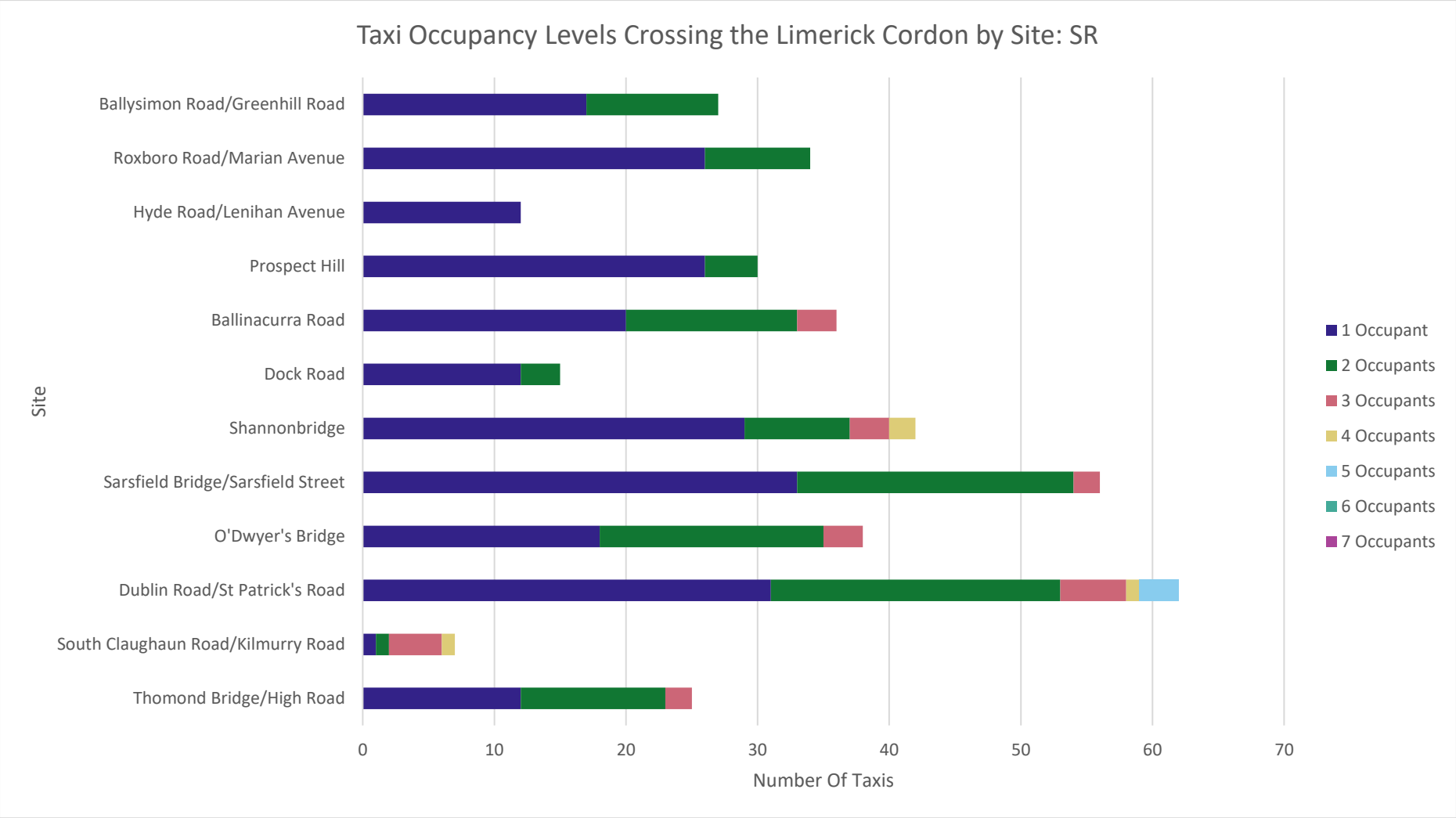


Figure 3-31:Taxi Occupancy per Site: SR

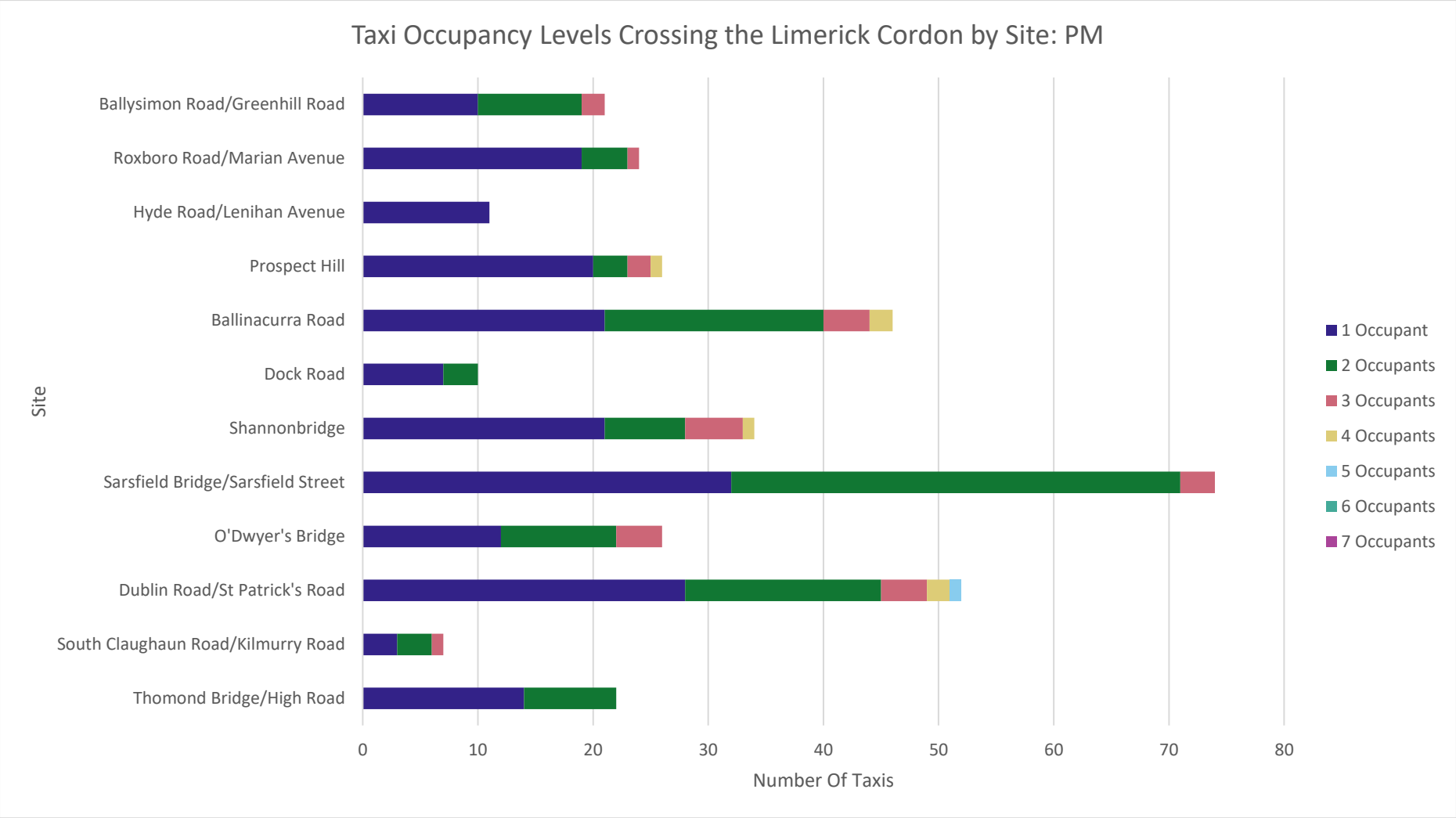


Figure 3-32:Taxi Occupancy per Site: PM

3.2.2 Bus Occupancy

Bus occupancy information was obtained from 10 bus stop survey locations, recorded at hourly intervals over a 12-hour period (i.e. 07:00 - 19:00) on the day of the survey.

Figure 3-33, Figure 3-34, Figure 3-35, Figure 3-36 and Figure 3-37 display the recorded bus occupancies crossing the Limerick City Cordon inbound towards the city during the respective time periods. The bus occupancies are displayed in terms of 5 different capacity bands (0-24%, 25-49%, 50-74%, 75-99% and 100%). Please note that these graphs display both the absolute values and the percentage occupancy for each time period. The figure below shows that, over the full 12-hour survey period, approximately 12% of buses were at less than 25% capacity, 53% were at between 25% and 49% capacity, 26% were at between 50% and 74% capacity, 6% were at between 75% and 99% capacity and approximately 2% were full.

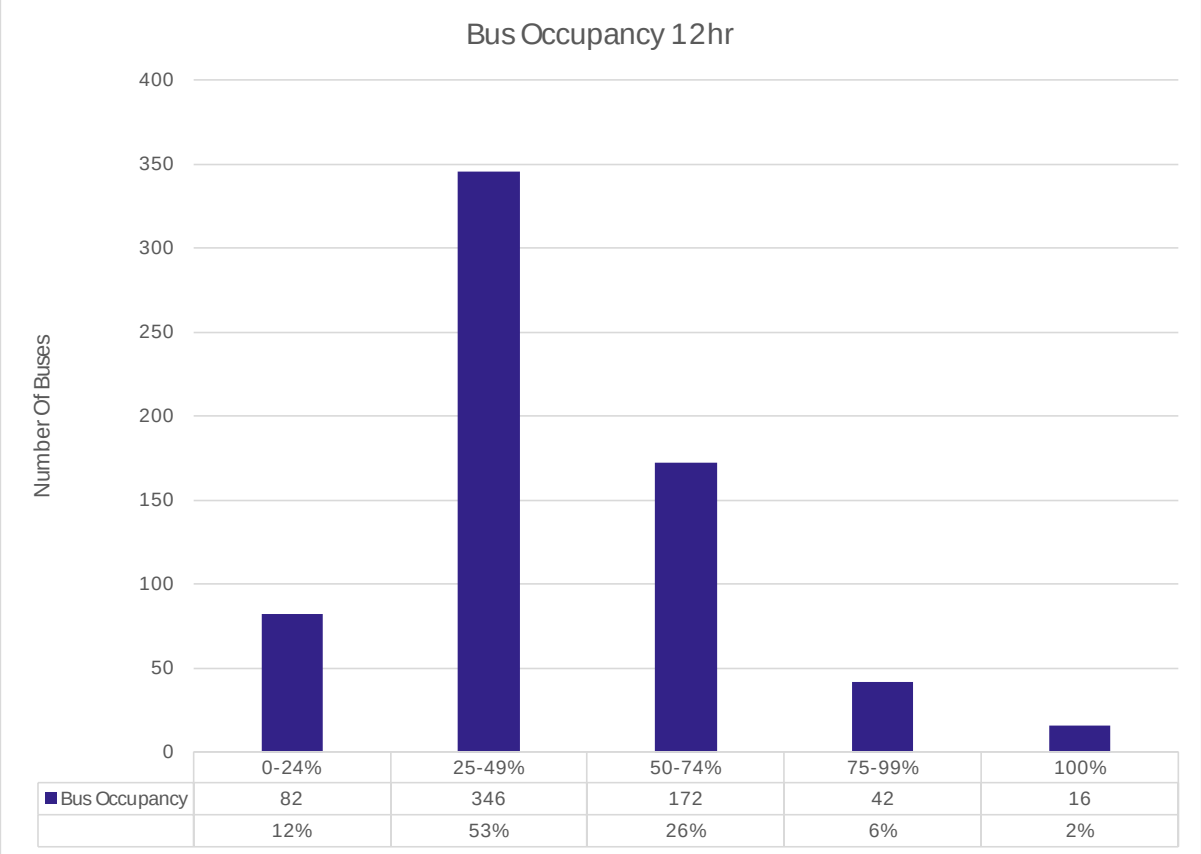


Figure 3-33:Bus Occupancy: 12 Hour

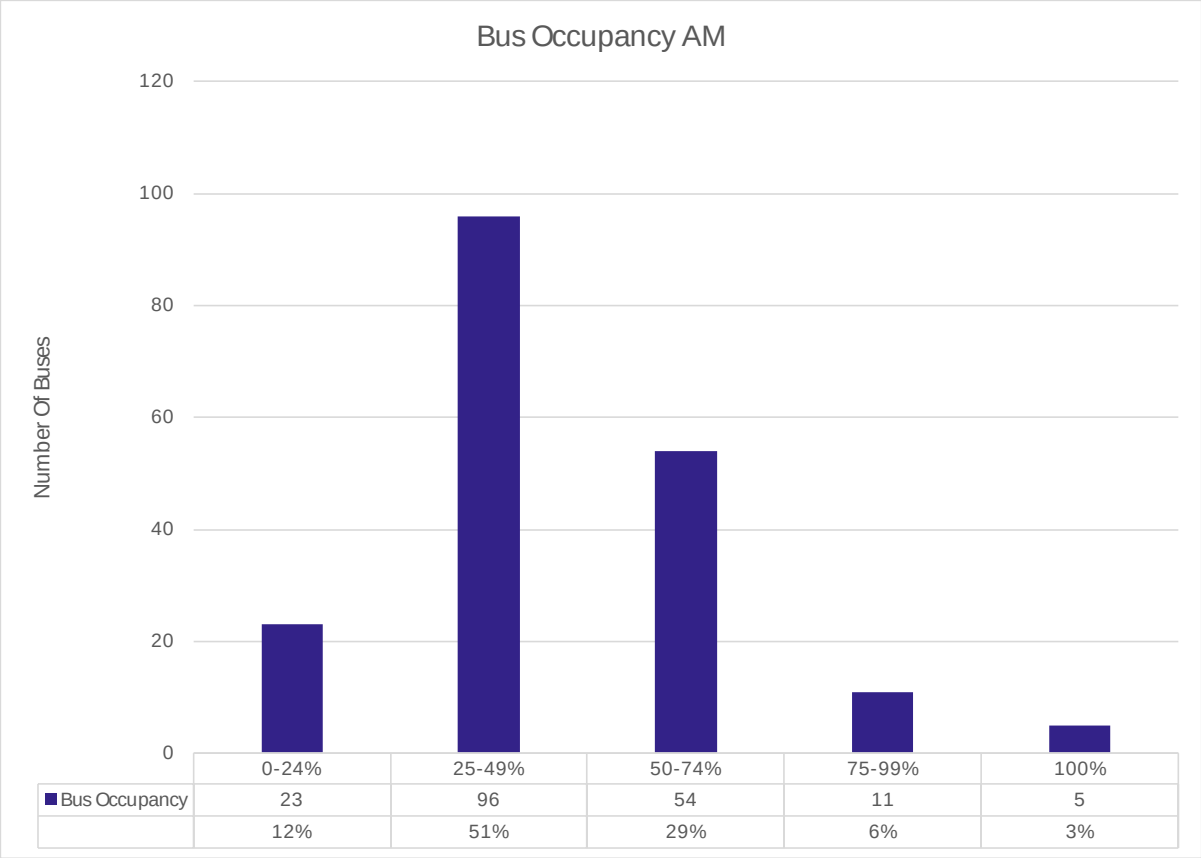


Figure 3-34:Bus Occupancy: AM

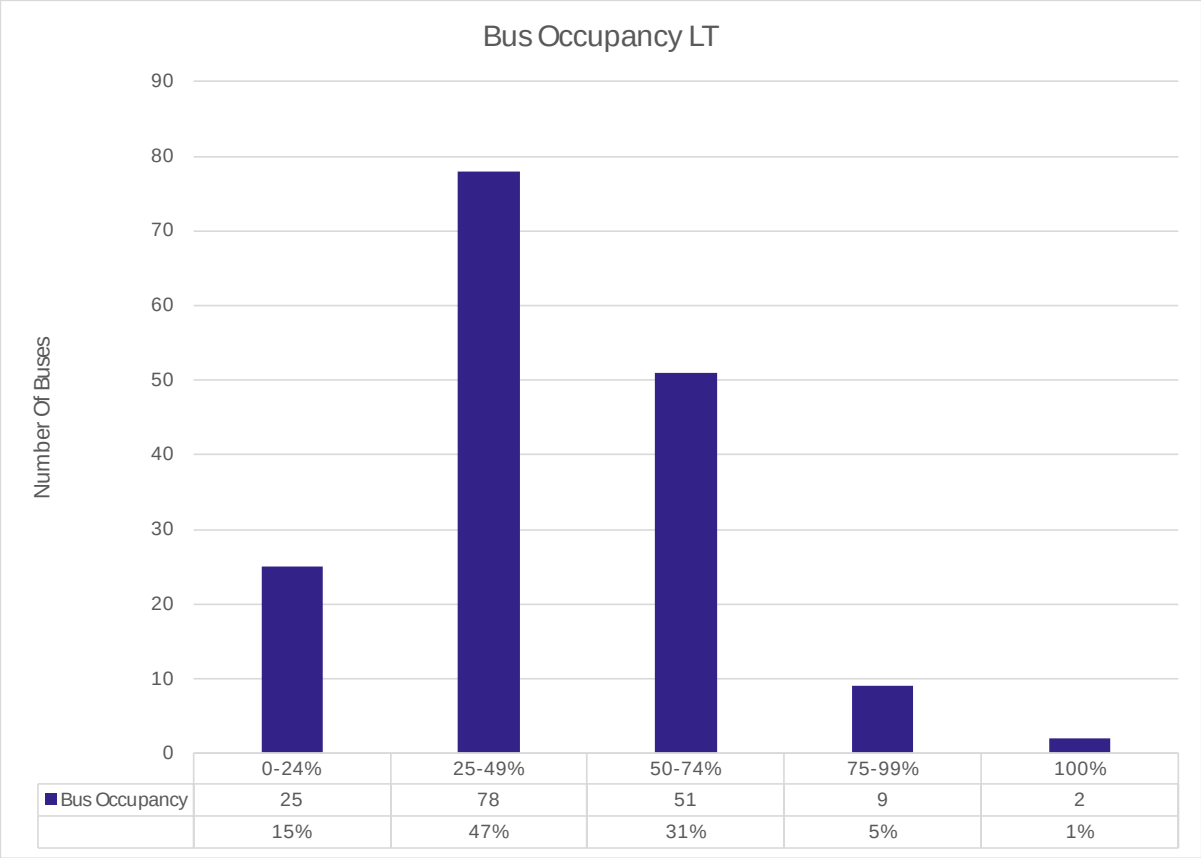


Figure 3-35:Bus Occupancy: LT

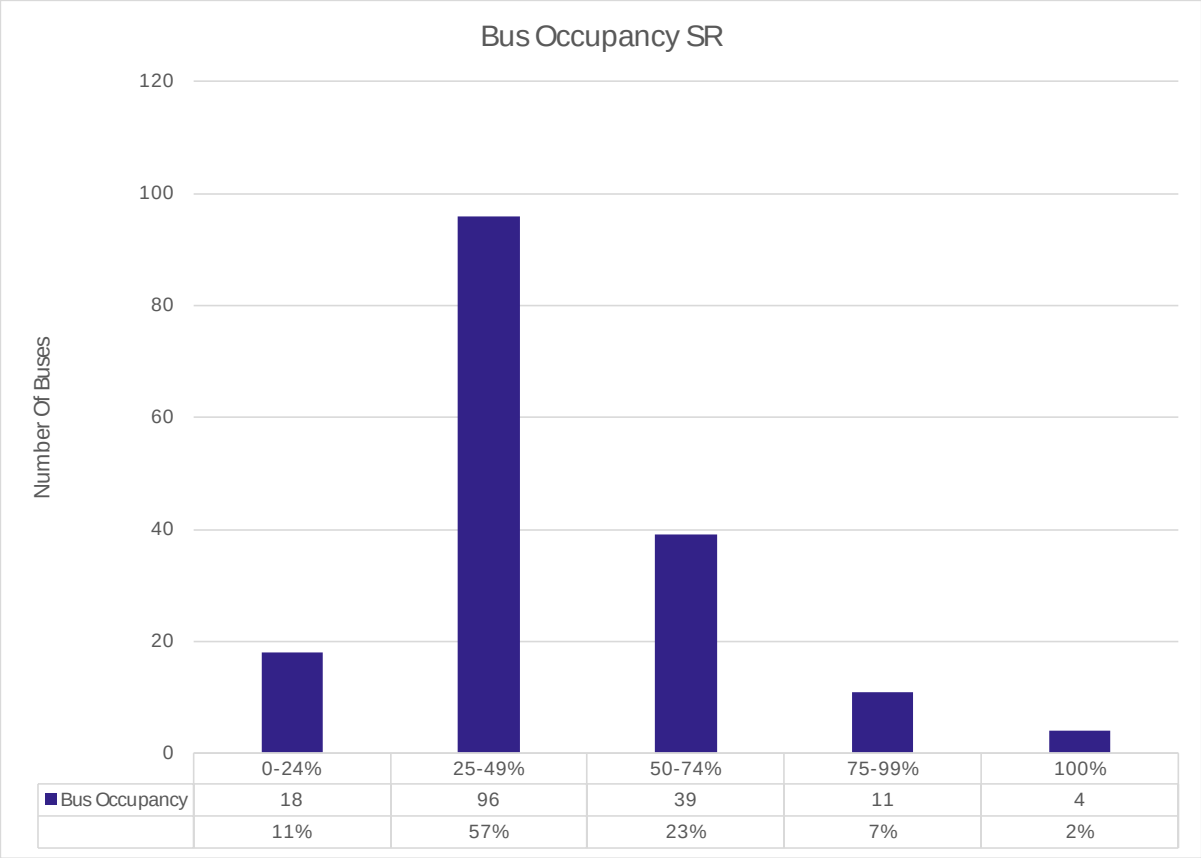


Figure 3-36:Bus Occupancy: SR

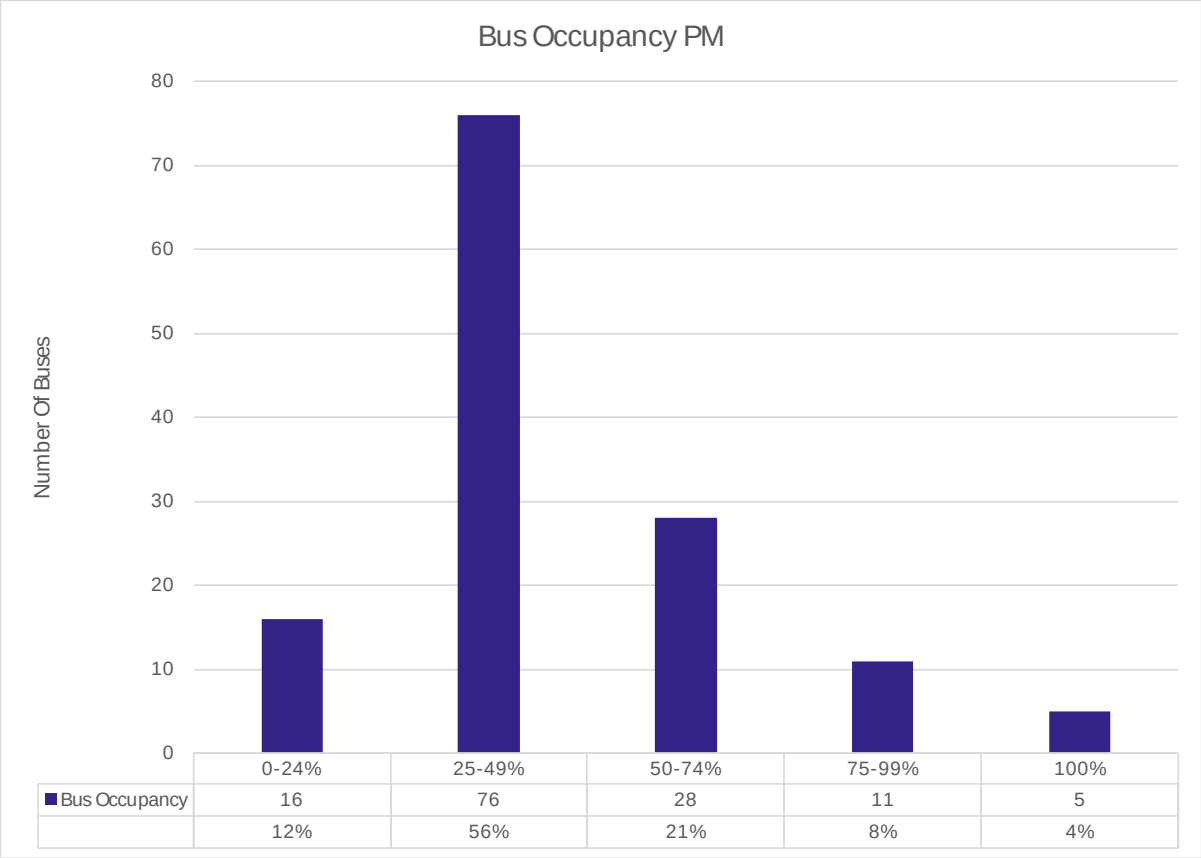


Figure 3-37:Bus Occupancy: PM

Bus Occupancy per Site

Figure 3-38, Figure 3-39, Figure 3-40, Figure 3-41 and Figure 3-42 display the vehicle occupancy for buses crossing the Limerick City Cordon during the respective time periods, with further reference to each individual bus stop location.

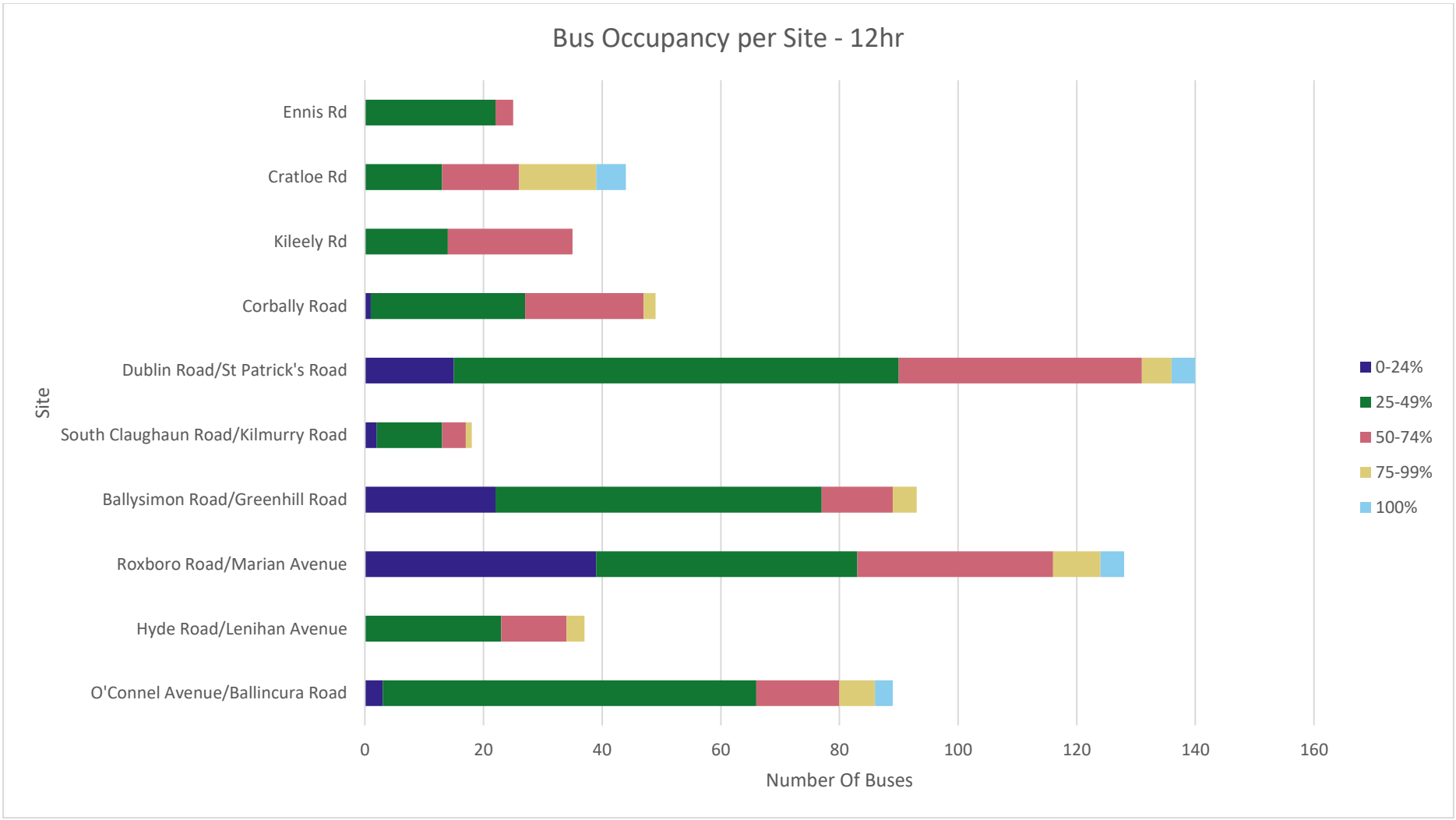


Figure 3-38:Bus Occupancy per Site: 12 Hour

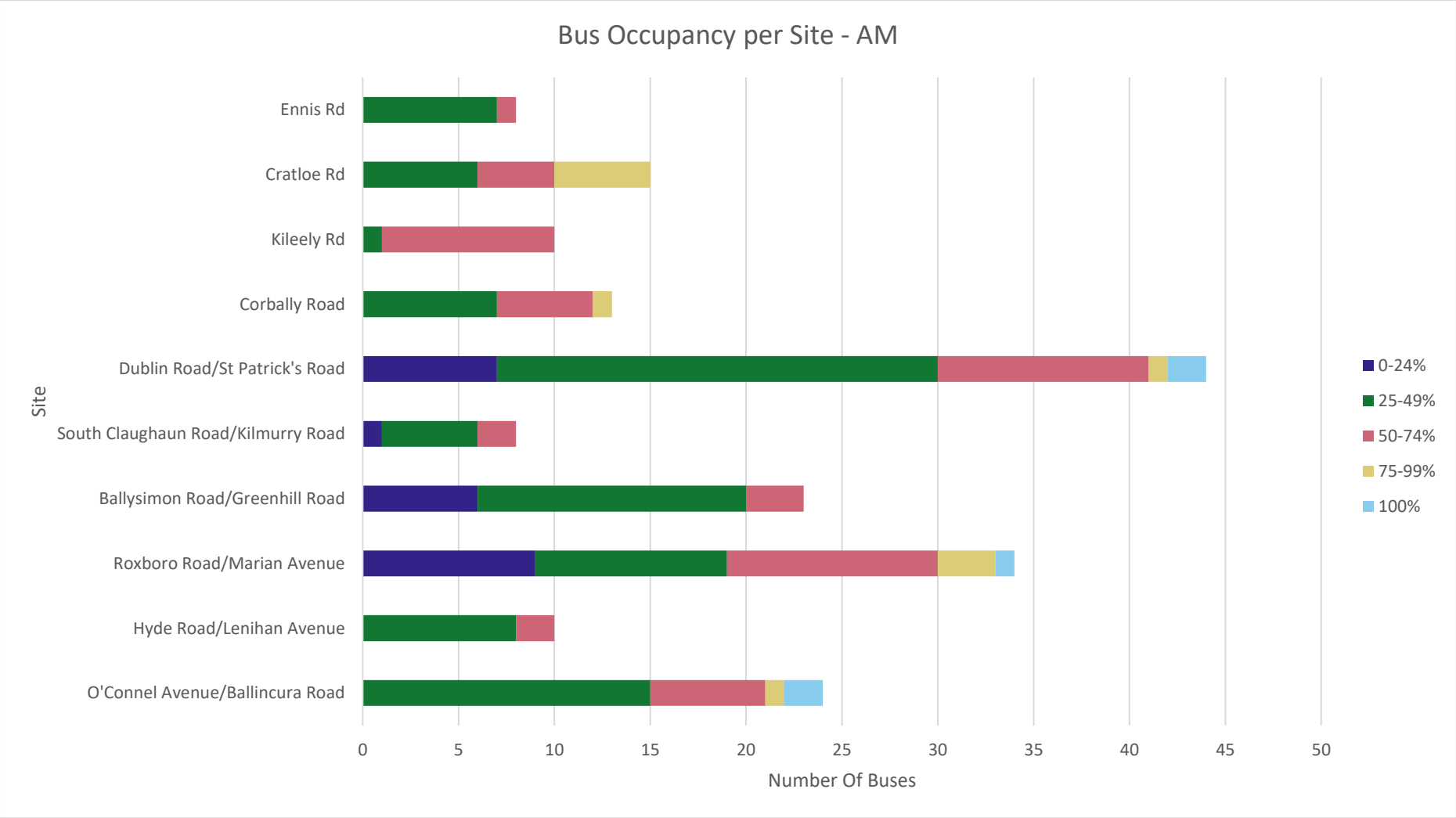


Figure 3-39:Bus Occupancy per Site: AM

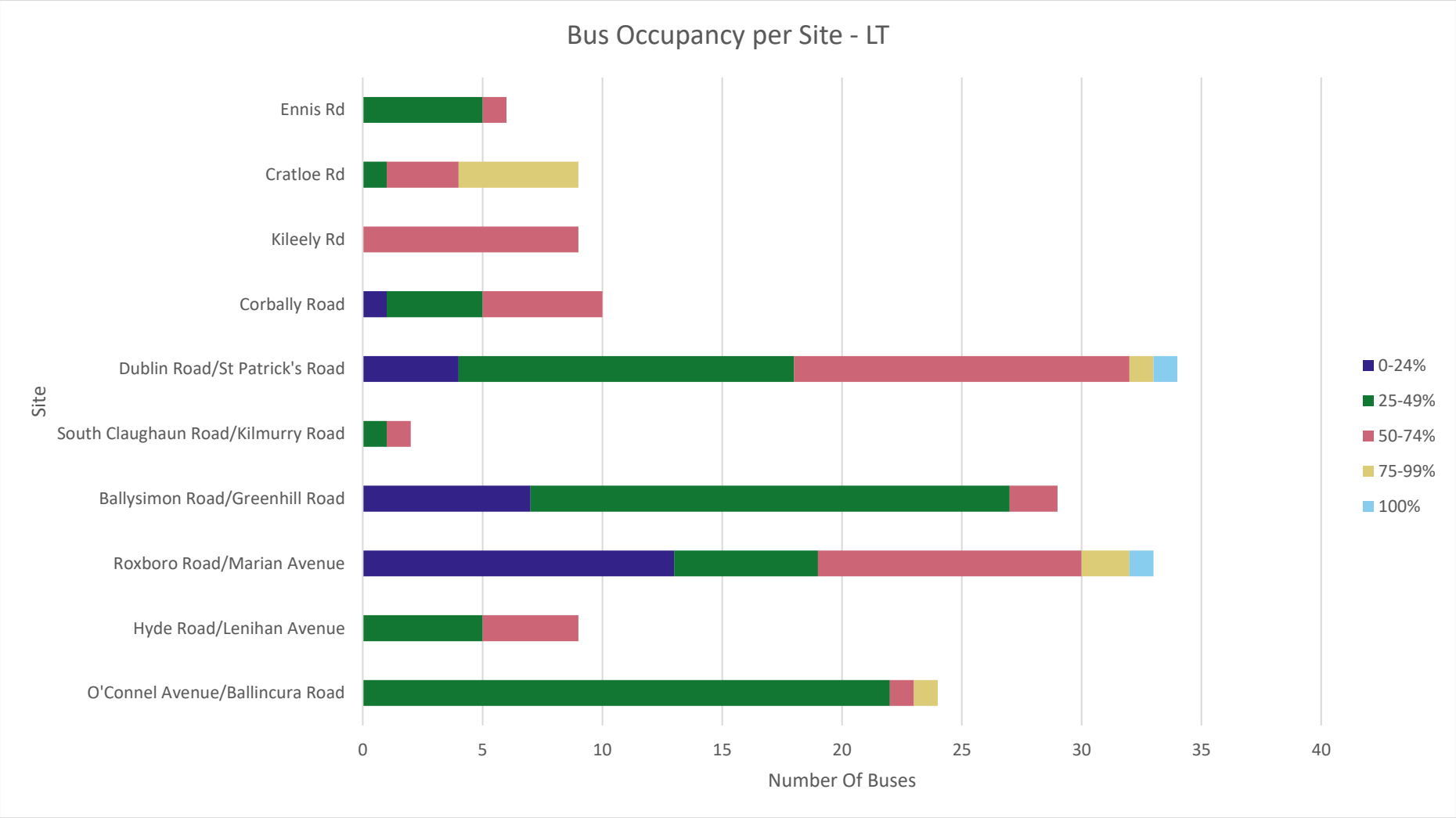


Figure 3-40:Bus Occupancy per Site: LT

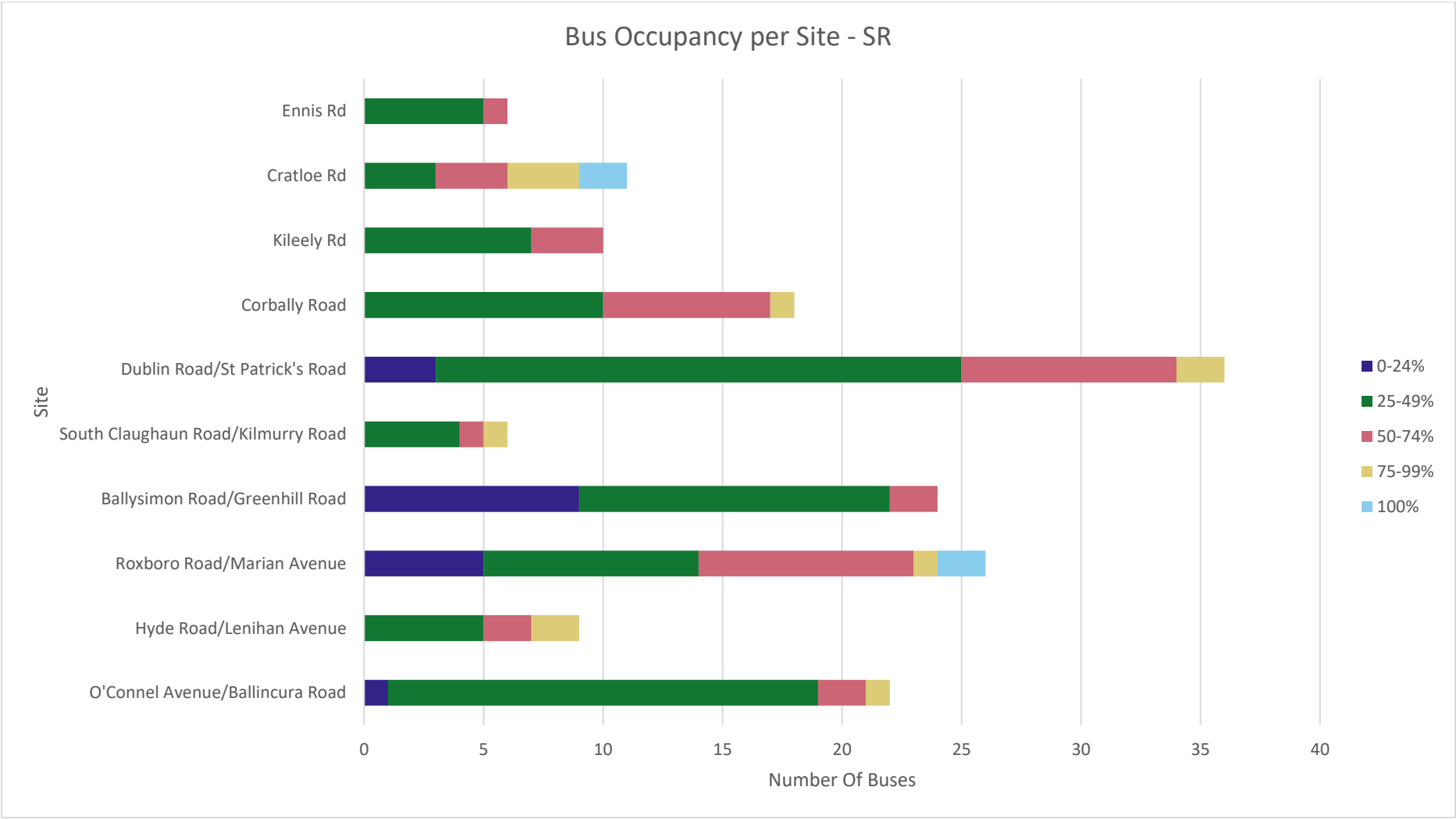


Figure 3-41:Bus Occupancy per Site: SR

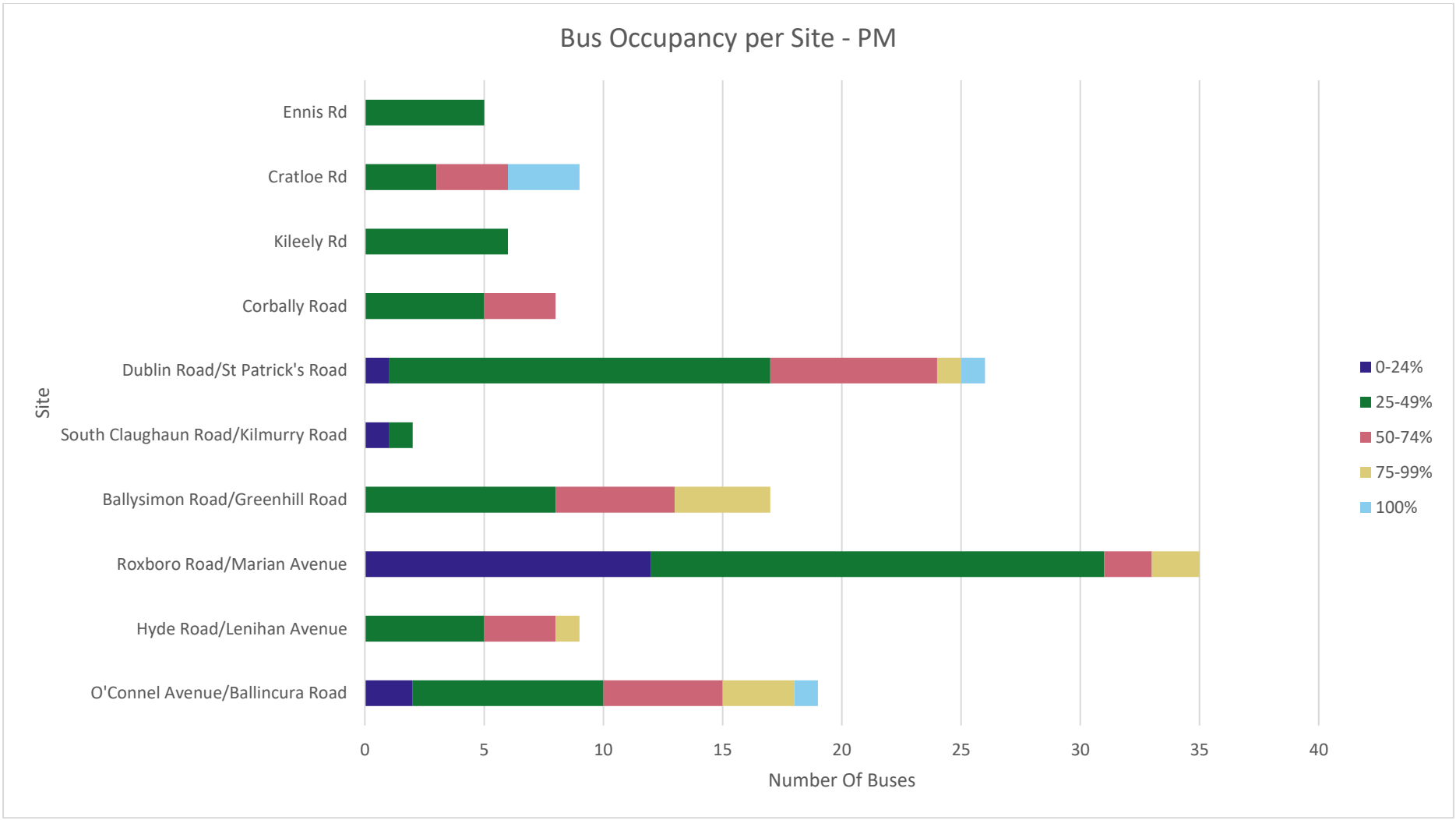


Figure 3-42:Bus Occupancy per Site: PM

4 People Movements

4.1 Methodology

Chapter 3 provided details on the number of vehicles, pedestrians and cyclists crossing the Limerick City Cordon. In order to convert these to total person trips crossing the cordon, it is necessary to estimate the occupancy of each vehicle type. Further details on how this was done is outlined below.

- Road Passenger Movements were calculated in the following ways:
    - Person movements were calculated by applying an occupancy factor of 1.37, derived from the National Household Travel Survey, to the number of vehicles at each equivalent site from the JTC surveys. This value is comparable to the value of 1.38 from table 6.11.34 of the Project Appraisal Guidelines[1].
    - Taxi people movements were calculated by taking the number of taxis in the JTC surveys and multiplying these by a site-specific occupancy factor that was calculated by dividing the number of passengers by the number of vehicles. Where no equivalent site survey was available, an average factor from all sites was used.
    - Total bus passenger movements were calculated by applying average bus occupancy factors (as outlined in Appendix B) to the number of buses observed in the bus occupancy surveys.
    - Cyclist and pedestrian people movements were taken directly from the JTC surveys.
- Rail Passenger Movements were calculated using the following methodology:
    - Rail movements include passengers crossing the cordon inbound from the National Rail Census, which is a boarding and alighting survey conducted by Iarnród Éireann on a single day each year at every rail station throughout the country. The most recent survey was performed on 09/11/2023. While this is different to the dates of the other surveys, the Rail Census is considered representative of rail movements.

The resulting people movements by mode are discussed in detail in the following sections of this Chapter.

4.2 Road Person Movements

Figures 4-1 to 4-5 below show the number of person trips crossing the Cordon by mode over the 12-hour survey period and each of the time periods analysed.

[1] https://www.tiipublications.ie/advanced-search/results/document/?id=3276

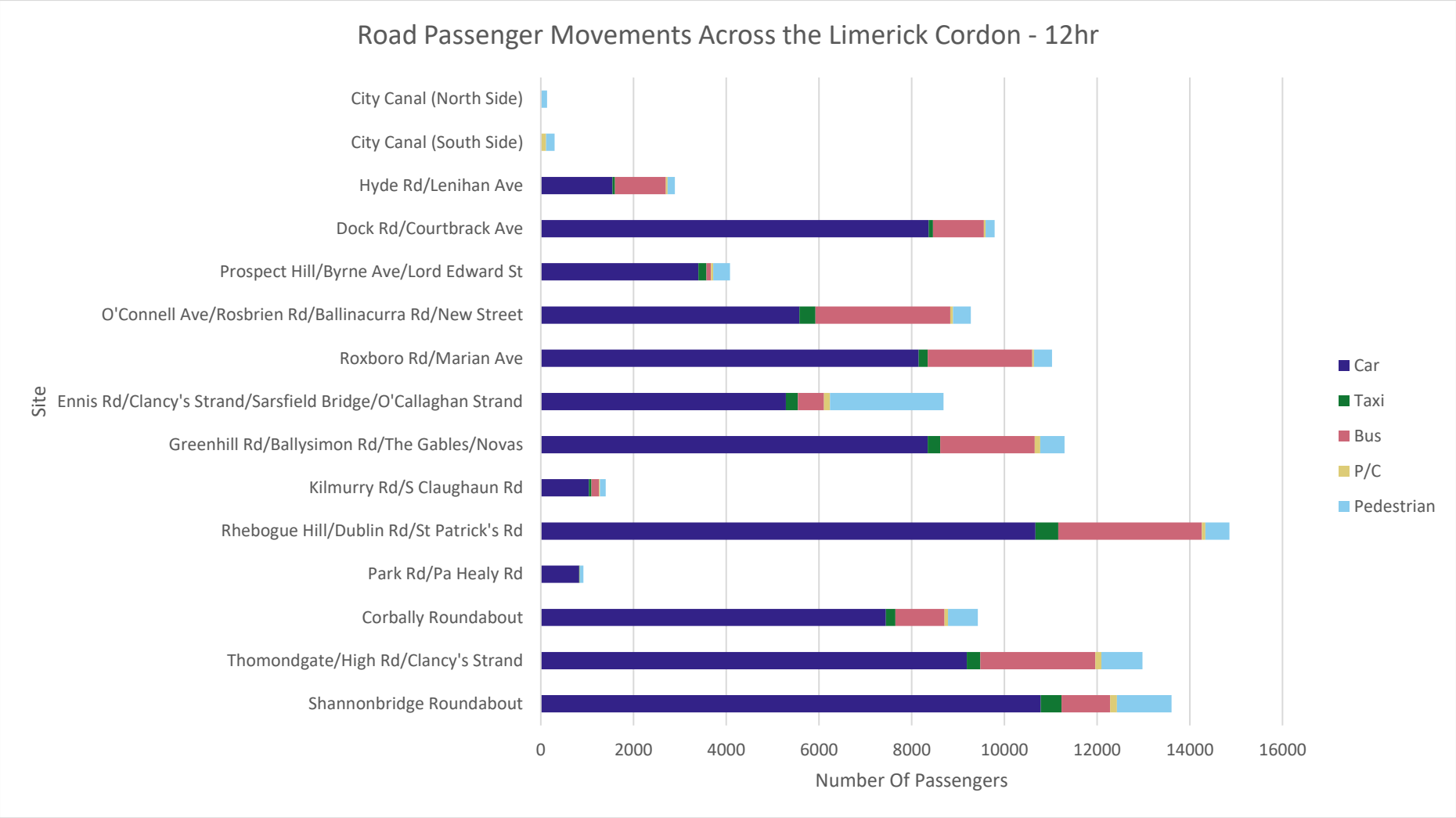


Figure 4-1:Road Passenger Movements per Mode per Site: 12 Hour

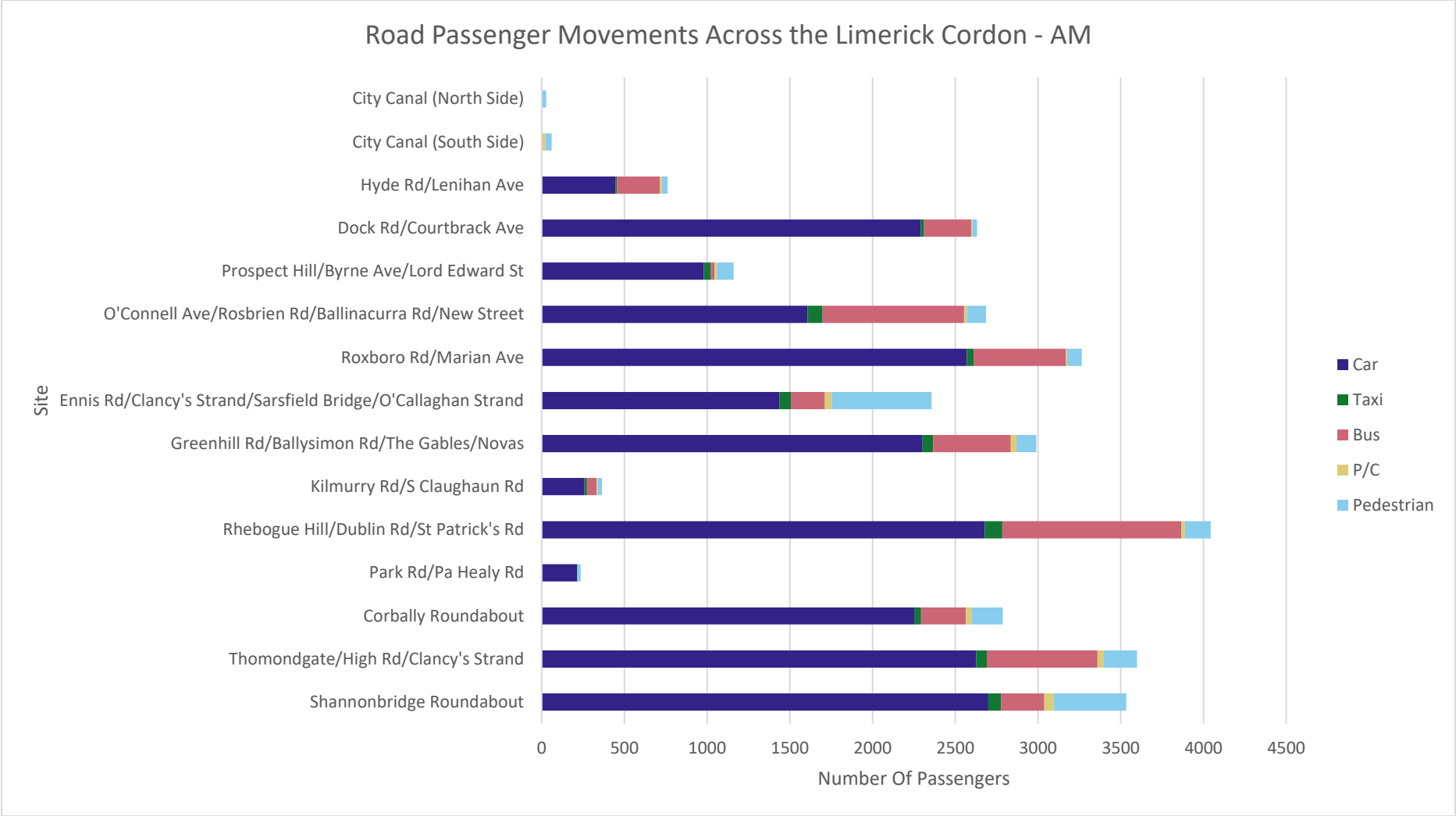


Figure 4-2:Road Passenger Movements per Mode per Site: AM

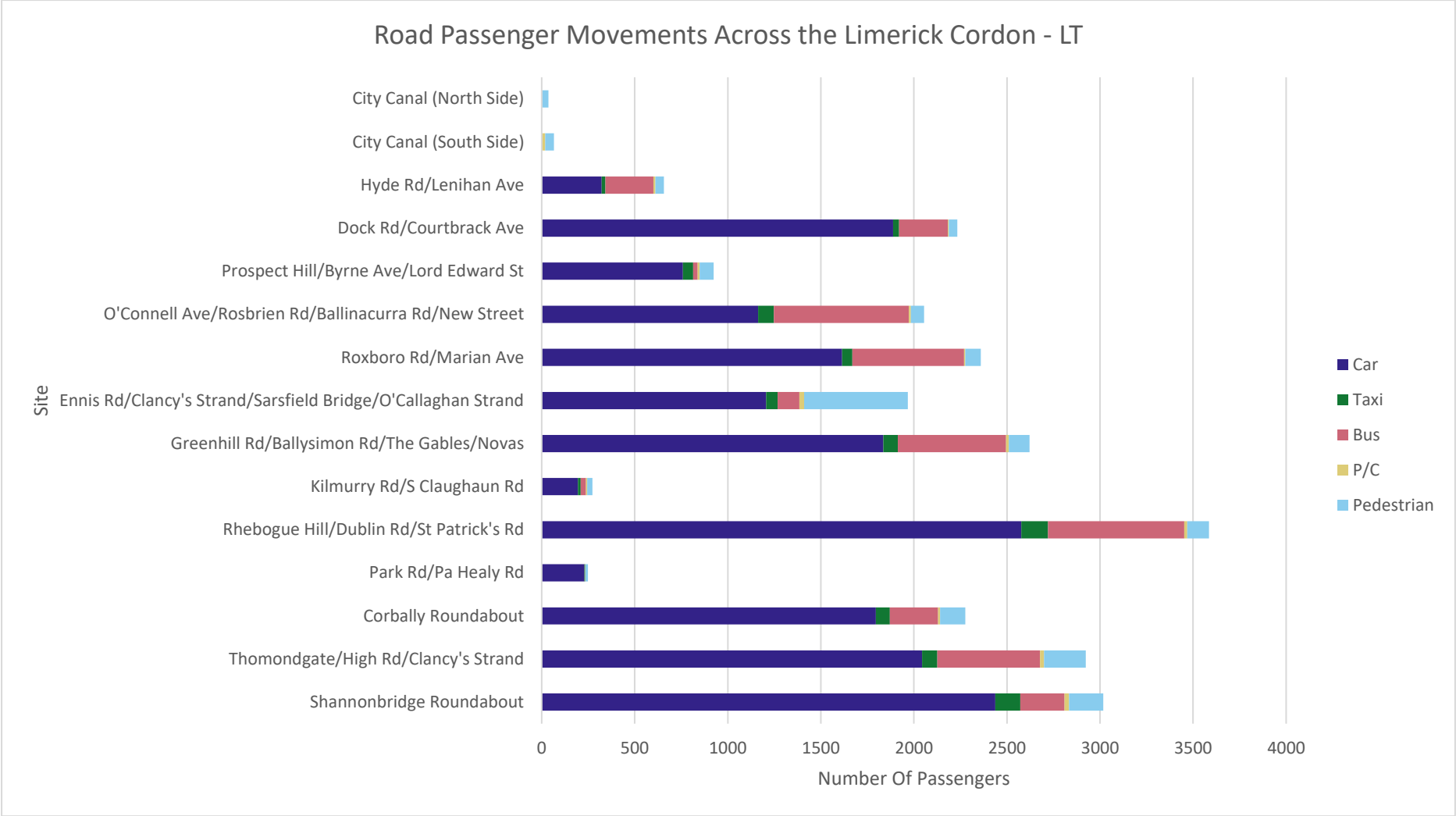


Figure 4-3:Road Passenger Movements per Mode per Site: LT

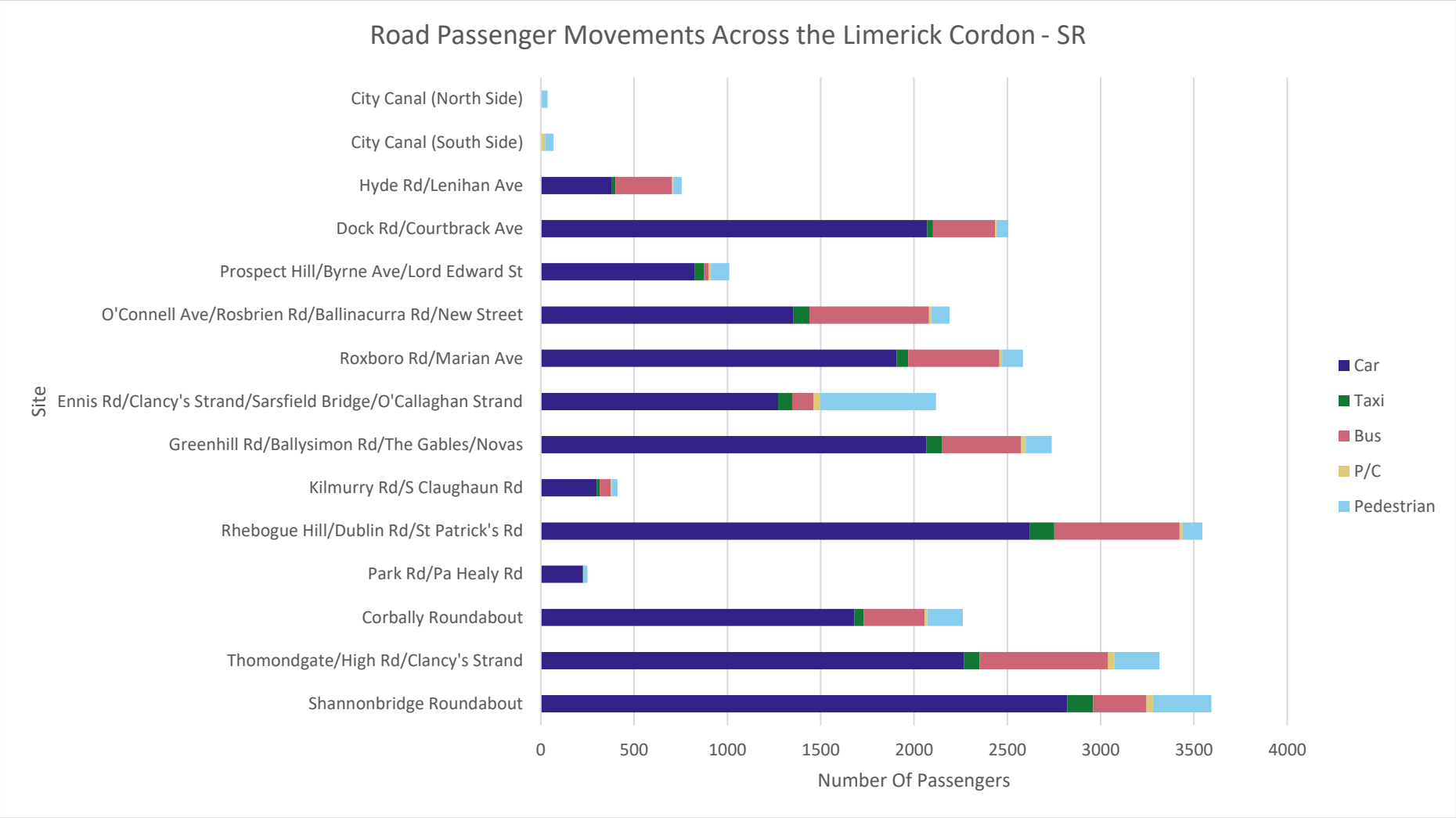


Figure 4-4:Road Passenger Movements per Mode per Site: SR

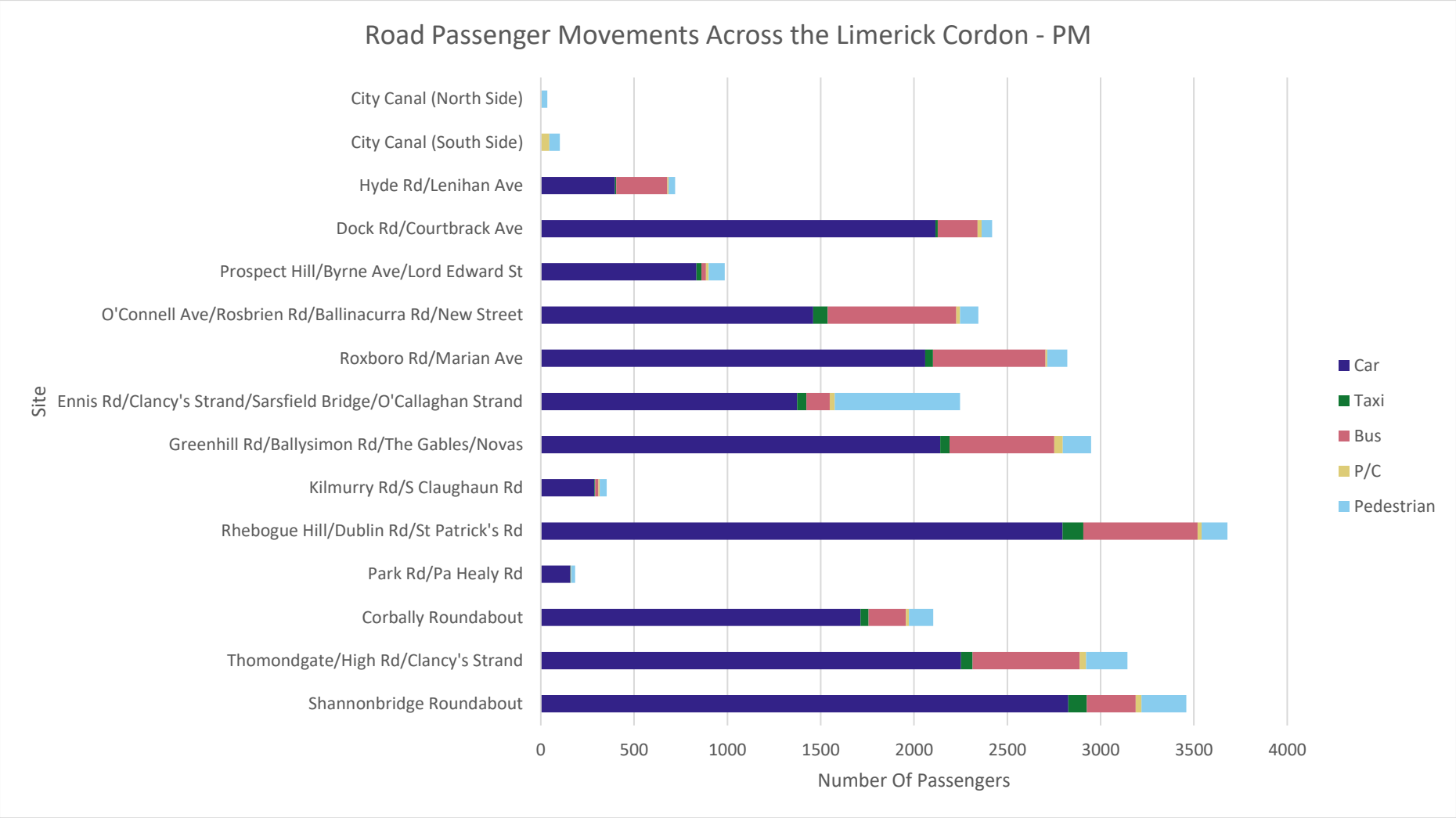


Figure 4-5:Road Passenger Movements per Mode per Site: PM

4.3 Rail Passenger Movements

4.3.1 Heavy Rail Passenger Movements

The National Rail Census is a survey carried out by Iarnród Éireann every year which records the boardings and alightings at every rail station in the country on a 09/11/2023. This report extracts the number alighting passengers at Limerick City Cordon from that survey.

Limerick Colbert Station is served by trains on the Dublin Heuston - Limerick line, Ennis line and Galway Line. There is a regular shuttle service between Limerick Colbert and Limerick Junction allowing transfer to the Waterford and Dublin-Cork lines. Limerick Colbert Station is served by 3 direct trains a day from Heuston, 5 trains a day from Ennis, 17 trains a day from Limerick Junction, 4 trains a day from Galway and 5 trains a day from other stations.

Figure 4-6 shows the total number of passengers alighting at Limerick Colbert Station, grouped by origin of the service, over 12 hours. This shows that, in total, 1,452 people alighted at Limerick Train Station over the 12-hour survey period, the majority of whom were on a Limerick Junction shuttle service.

Appendix D presents the breakdown of heavy rail passenger movements in further detail.

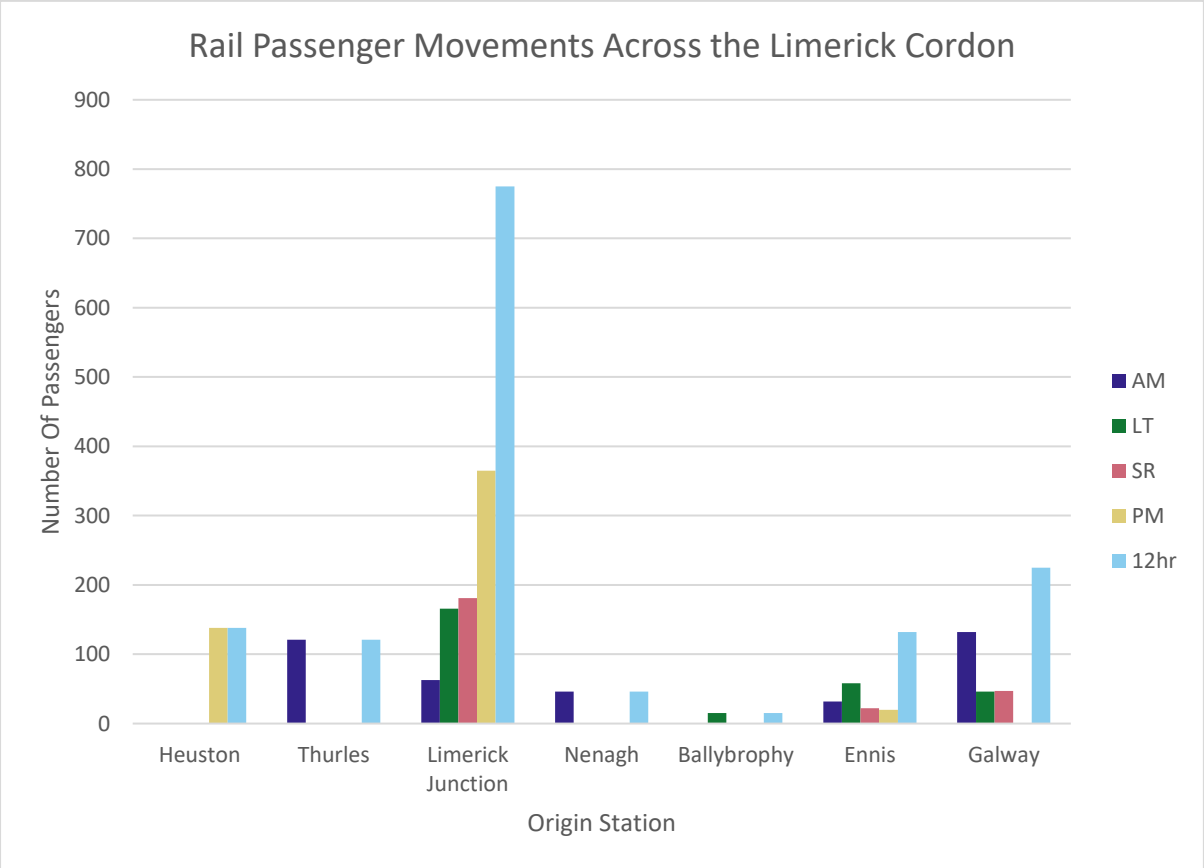


Figure 4-6:Heavy Rail Services - Passengers Inbound

4.4 Total Person Movements

Figure 4-7 and Figure 4-8 display the total number of people crossing the Limerick City Cordon by Pedal Cycle, Pedestrian, Car, Taxi, Bus and Rail for each time period.

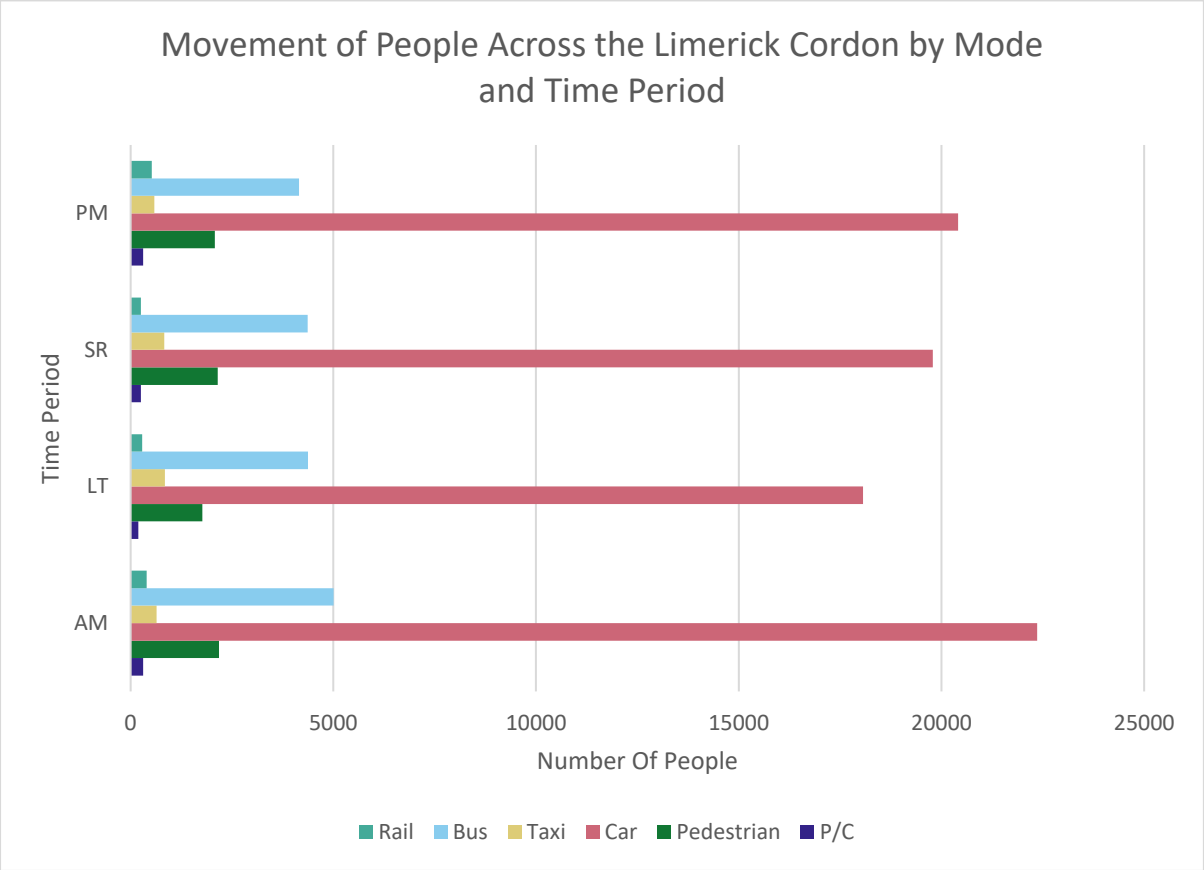


Figure 4-7:Car, Cycle, Taxi, Pedestrian and Rail Trips Inbound Across the Limerick City Cordon During Each Time Period

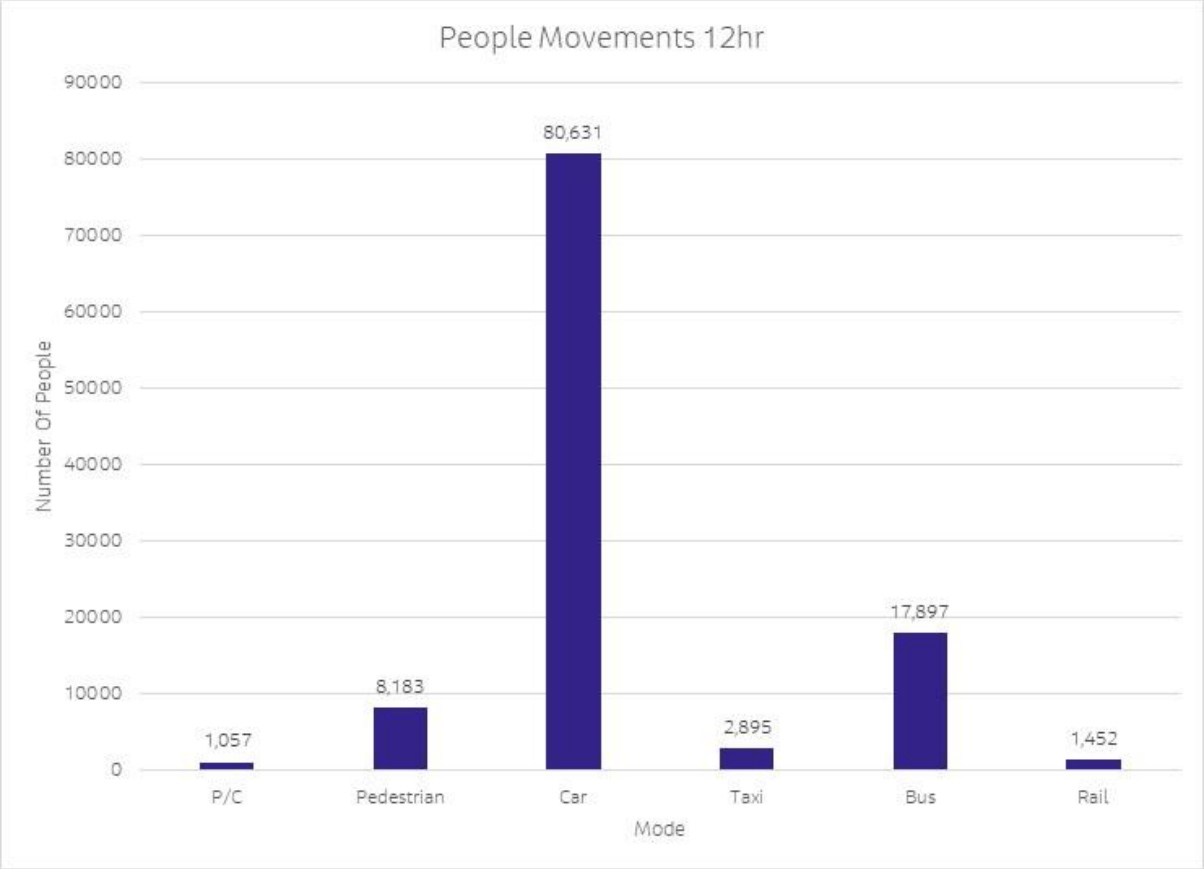


Figure 4-8:Trips Inbound across the Limerick City Cordon: 12 Hour

4.5 Modal Split

Table 4-1 shows the number of sustainable and vehicular modes crossing the Limerick City Cordon during the 12hr period.

Mode	Trips	% Trips
P/C	1,057	1%
Pedestrian	8,183	7%
Car	80,631	72%
Taxi	2,895	3%
Bus	17,897	16%
Rail	1,452	1%

Table 4-1:Number of Journeys Across the Limerick City Cordon by Mode

As can be seen from Figure 4-9, the mode with the highest share over a 12 hr period is Car with 72%.

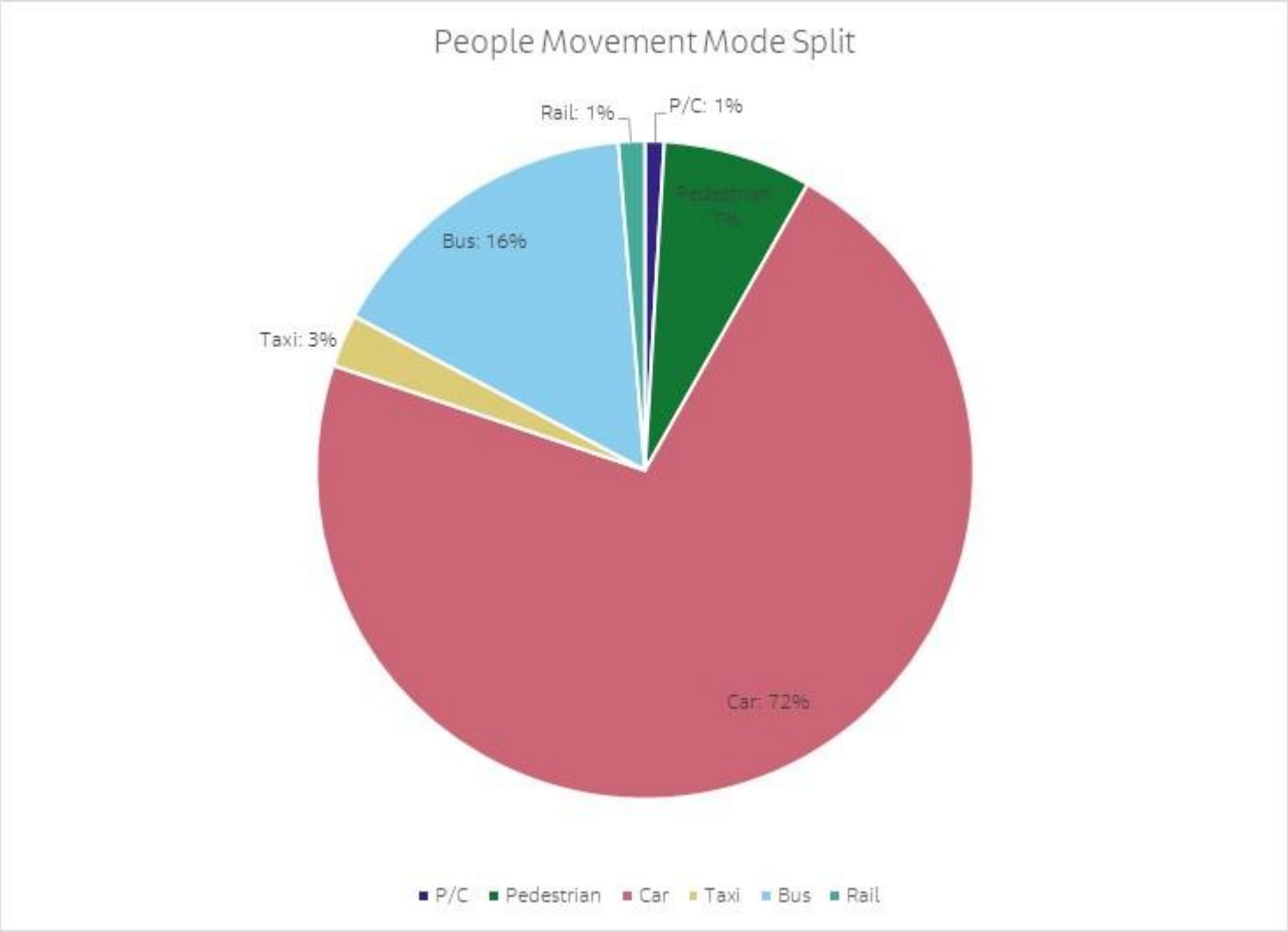


Figure 4-9:Mode share of people crossing the Limerick City Cordon by Sustainable and Vehicular Modes

4.6 Trend Analysis

As the surveys used for this report have been repeated every year since 2022, a historical trend analysis of people movements can be performed.

Table 4-2 and Table 4-3 show the number of people crossing the Limerick Cordon inbound by mode and year for 12-hours (07:00-19:00) and AM period (07:00-10:00), respectively.

Table 4-2 Person trips across the Limerick Cordon by Year - 12-Hours

Mode	2022 Trips	2023 Trips	% Difference
Cycle	838	934	11%
Pedestrian	7,046	8,057	14%
Car	80,800	80,631	0%
Taxi	2,570	2,895	13%
Bus	15,436	17,939	16%
Rail	1,130	1,452	28%
Total	**107,820**	**111,908**	**4%**

Table 4-3 Person Trips across the M50 Cordon by Year – AM

Mode	2022 Trips	2023 Trips	% Difference
Cycle	250	287	15%
Pedestrian	1,934	2,174	12%
Car	22,295	22,365	0%
Taxi	553	636	15%
Bus	4,208	4,925	17%
Rail	305	394	29%
Total	**29,545**	**30,781**	**4%**

As can be seen from the Tables above, there has been a slight increase in people travelling inbound across the Limerick Cordon between 2022 and 2023, specifically a 4% increase over the 12-hour and AM time periods.

Both walking and cycling have increased considerably. Over the 12 hours of the Survey, there were almost 1,000 more walking trips in 2023 compared to 2022 corresponding to an increase of 14%. An additional 98 cycle trips were recorded in 2023 over the 12 hour period corresponding to an 11% increase.

Similarly, the number of public transport users has also increased. The highest increase in people movements for any mode from 2022 to 2023 was bus, with an increase of 2,503 passengers (or 16%) over 12-hours. Over 12-hours, rail increased by 28% (322 passengers in absolute terms).

Table 4-4 and Table 4-5, below, show the percentage mode share by year for people travelling inbound across the Limerick Cordon for 12-hours (07:00-19:00) and AM (07:00-10:00), respectively.

Table 4-4: Mode Share for inbound person trips by Year - 12-Hours

Mode	2022 Trips	2023 Trips
Cycle	1%	1%
Pedestrian	7%	7%
Car	75%	72%
Taxi	2%	3%
Bus	14%	16%
Rail	1%	1%

Table 4-5: Mode Share for inbound person trips by Year - AM

Mode	2022 Trips	2023 Trips
Cycle	1%	1%
Pedestrian	7%	7%
Car	75%	73%
Taxi	2%	2%
Bus	14%	16%
Rail	1%	1%

This analysis shows that, the proportion of trips taken by sustainable modes (cycling, pedestrian, bus, and rail) has increased between 2022 and 2023, with the 12-hour period showing 26% of trips using these modes in 2023.

5 Summary Results

Based on the analysis of the 2023 survey data, the key results are:

- In terms of overall people movements, 28,589 (26%) of a total of 112,115 people travelling inbound towards the City between 07:00 and 19:00 used sustainable modes of travel, i.e. Pedal Cycle, Pedestrian, Bus and Rail. This is an increase from 24% in 2022.
- The total number of vehicles, pedestrians and cyclists that crossed the Limerick Cordon inbound was 99,656 over 24 hours on the day of the survey.
- The busiest time period for vehicles and cyclists was the AM peak with 19,633 crossing the Limerick City Cordon inbound towards the city. The busiest time period for Pedestrians was the AM peak with 2,182 crossing the Limerick City Cordon inbound.
- Between the hours of 07:00 and 19:00, cars were recorded to have the highest vehicular traffic split, with 74% of the total inbound flows. Light Goods Vehicles (LGVs) recorded 9%, Ordinary Goods Vehicles 1 (OGV1) recorded 2%, Ordinary Goods Vehicles 2 (OGV2) recorded 1% and taxis recorded 2%. The remaining vehicle classifications recorded 2% or less of the total flows.
- In terms of vehicle occupancy over the 12-hour survey period:
    - 59% of taxis recorded single occupancy (i.e. driver-only)
- Between 07:00 and 19:00, 53% of buses were at 25-49% capacity. Approximately 12% of buses were at 0-24%. 26% were at 50-74% capacity, 6% were at 75-99% capacity and 2% were at 100% capacity.

Appendix A - Additional Graphs

Car Movements by Site and Period

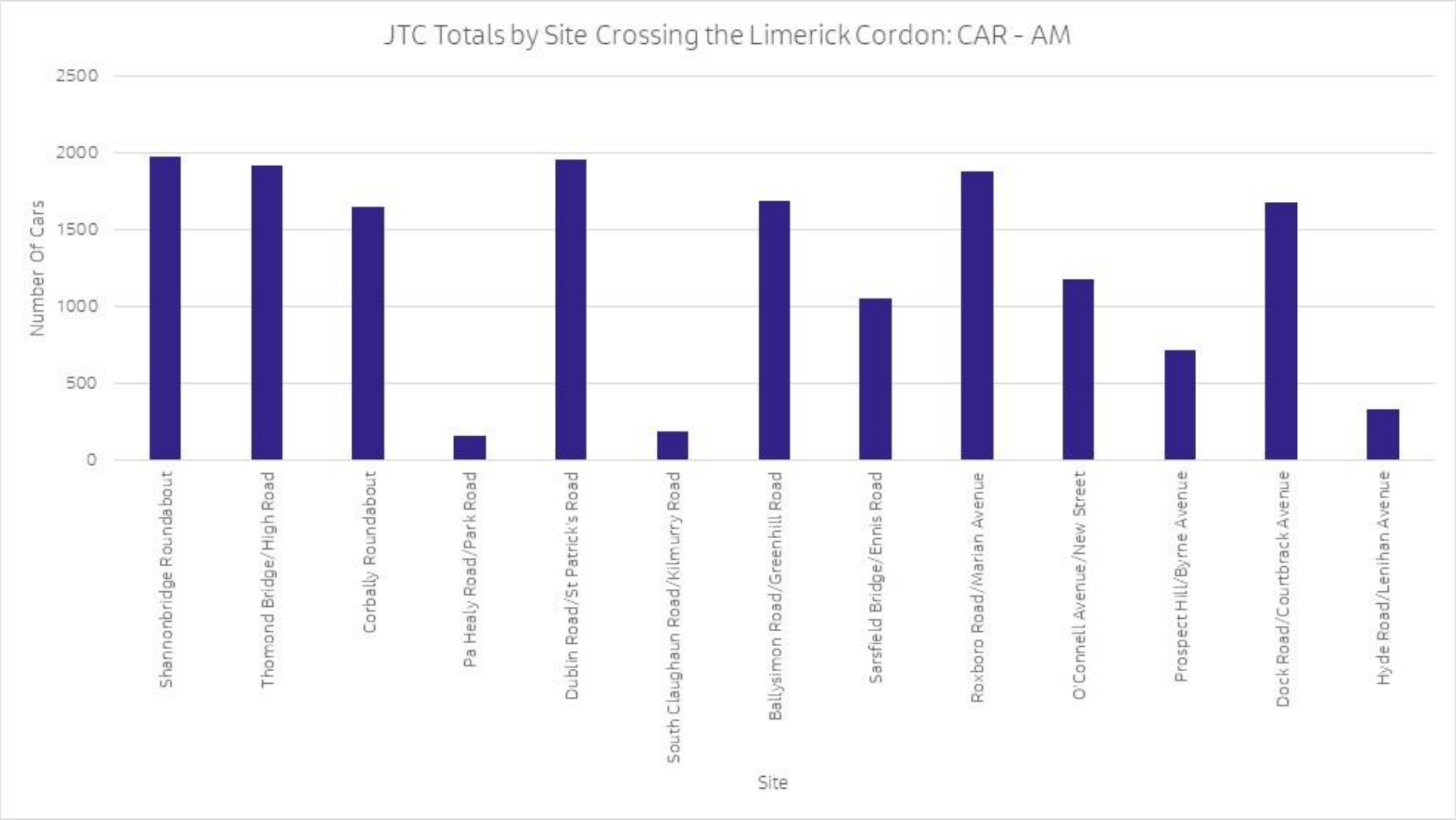


Figure 0-1:Number of Car Journeys for JTC Surveys for AM per Site

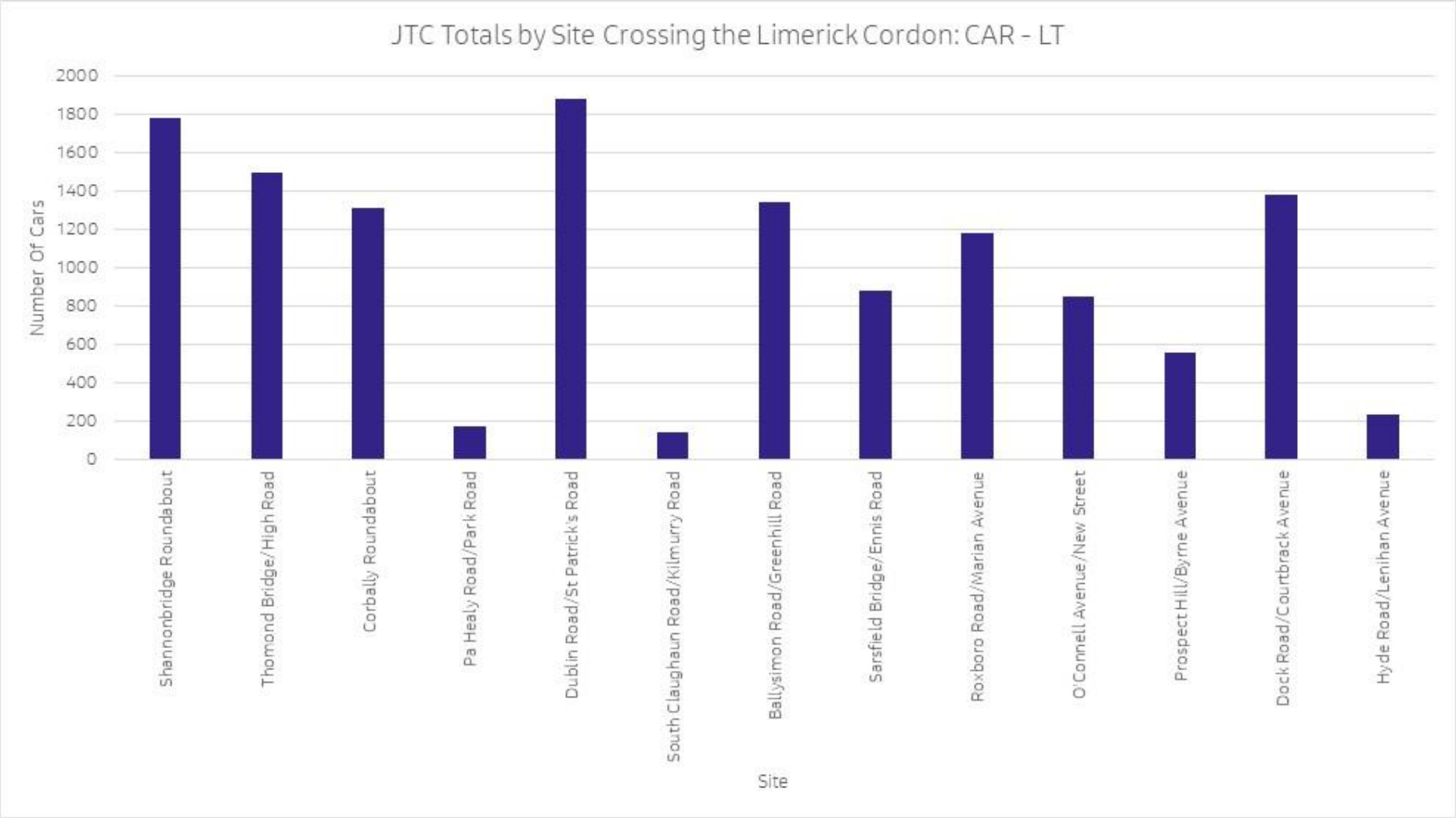


Figure 0-2:Number of Car Journeys for JTC Surveys for LT per Site

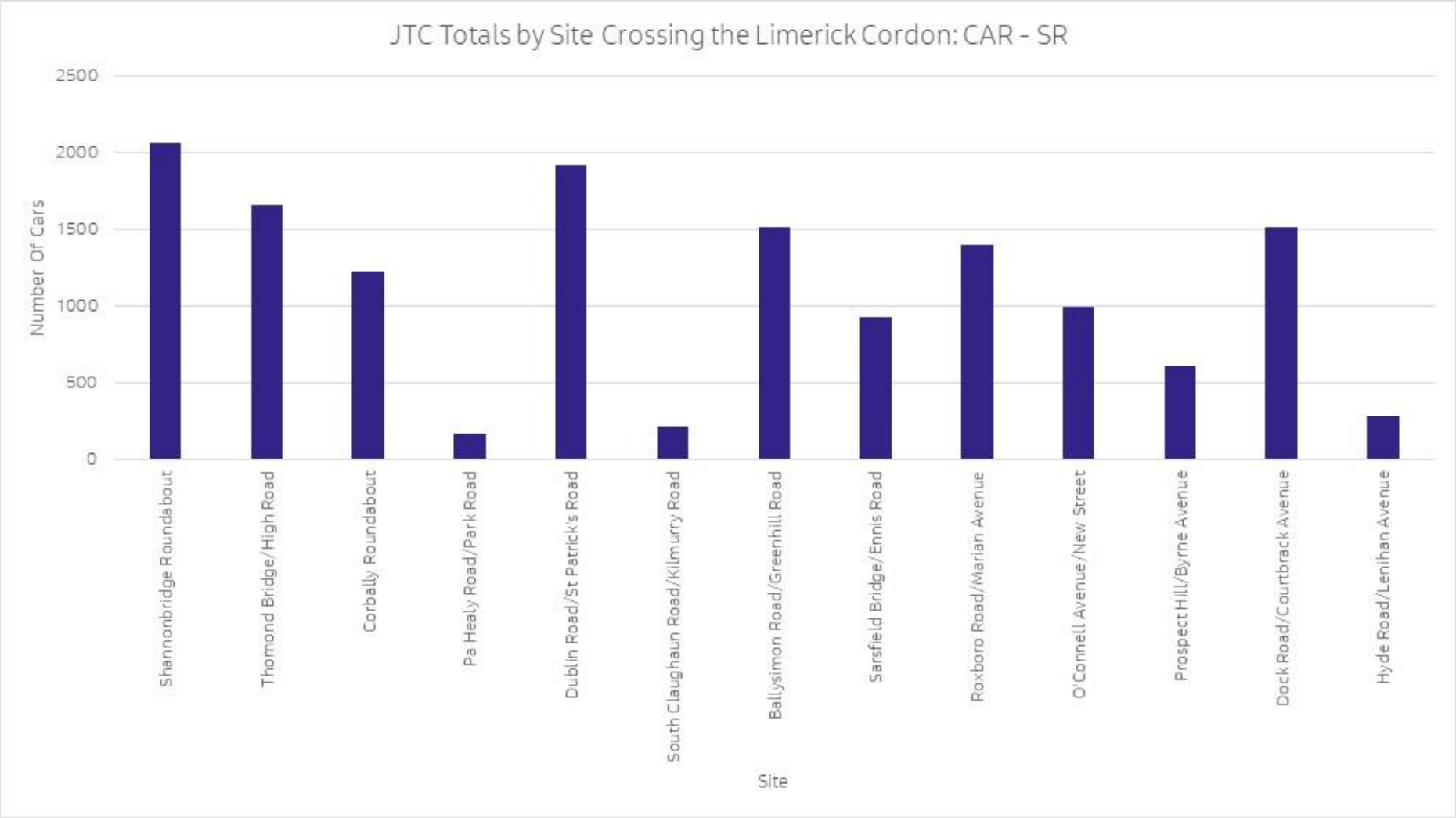


Figure 0-3:Number of Car Journeys for JTC Surveys for SR per Site

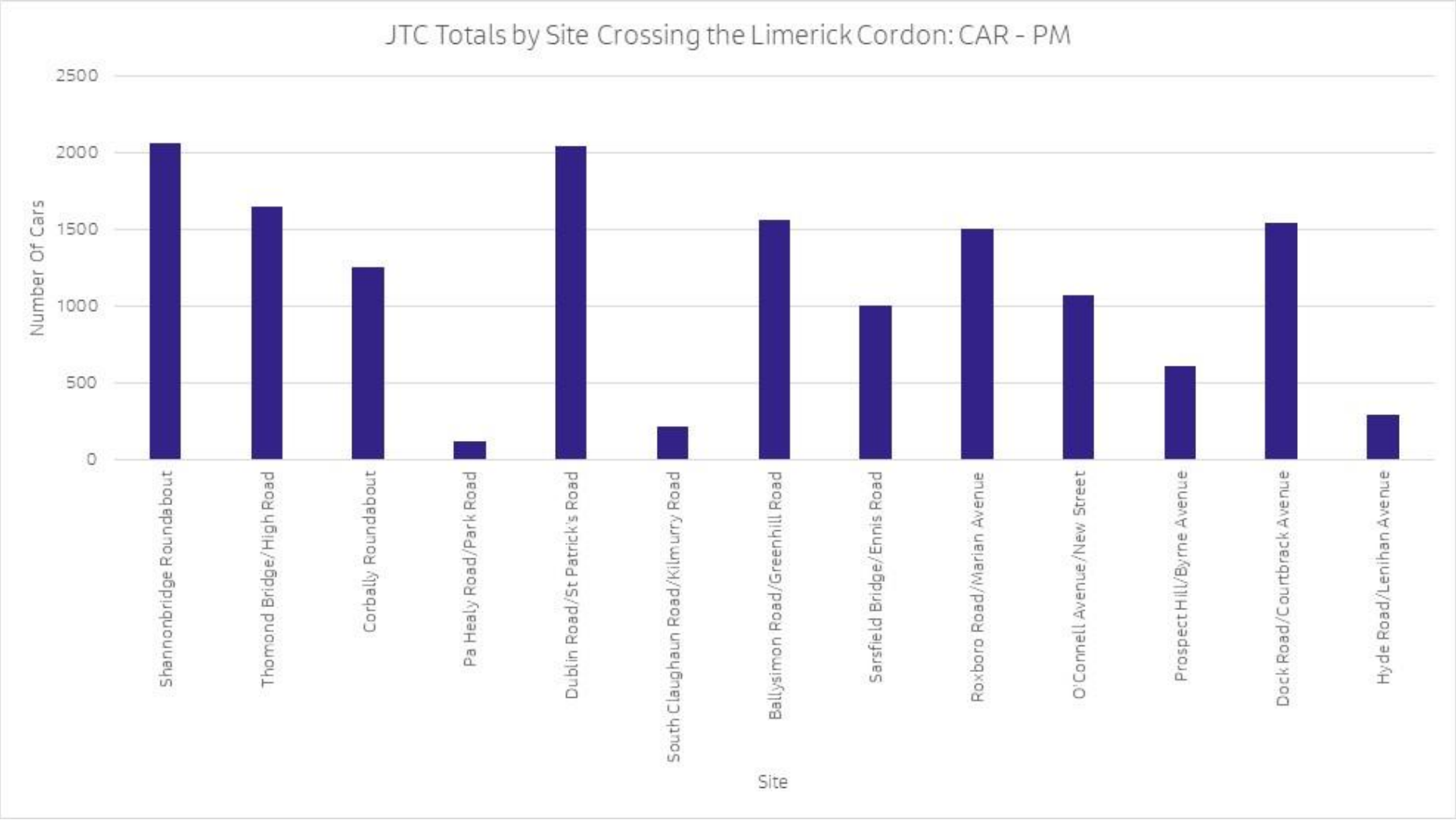


Figure 0-4:Number of Car Journeys for JTC Surveys for PM per Site

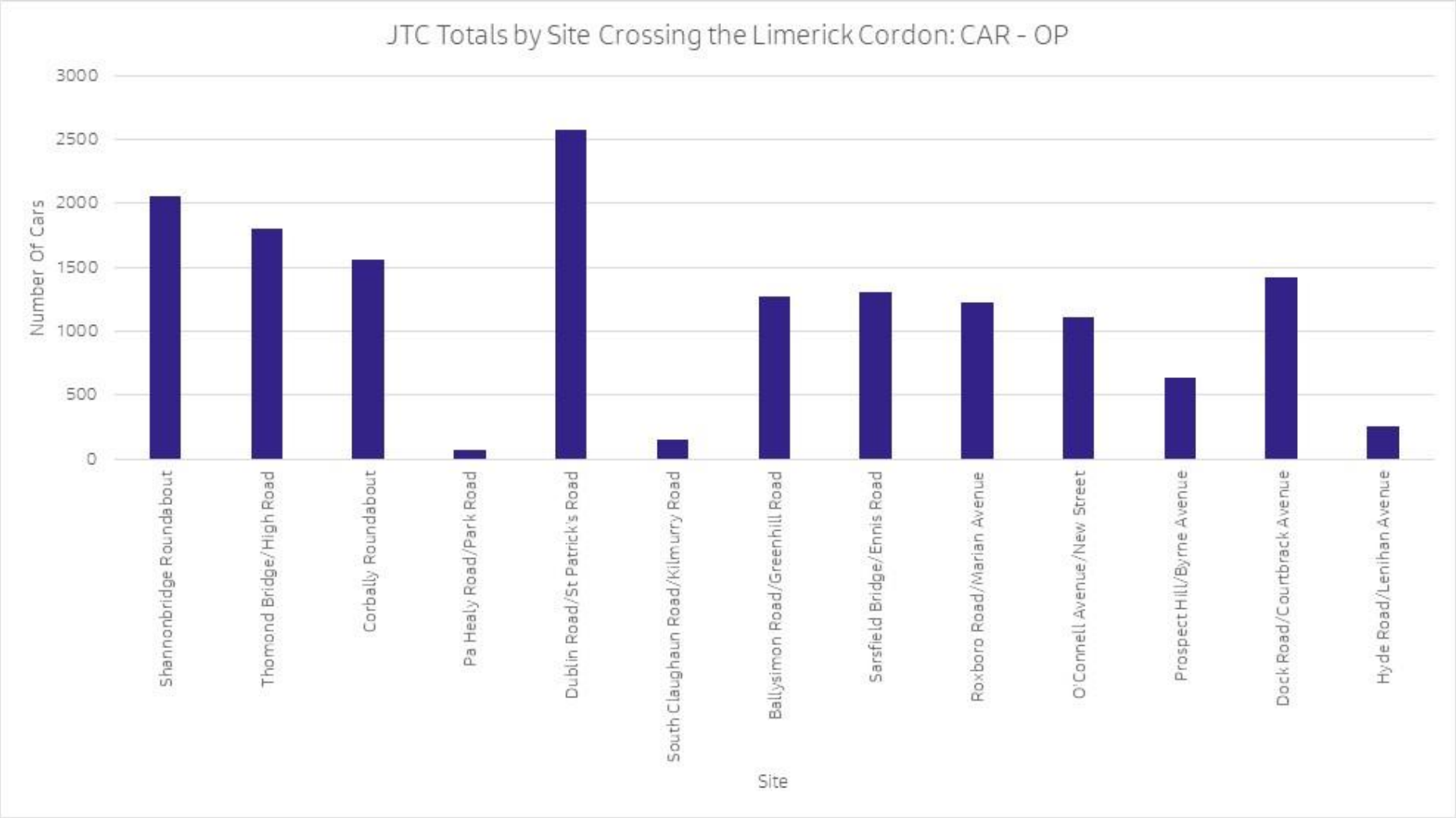


Figure 0-5:Number of Car Journeys for JTC Surveys for OP per Site

Light Goods Vehicle Movements by Site and Period

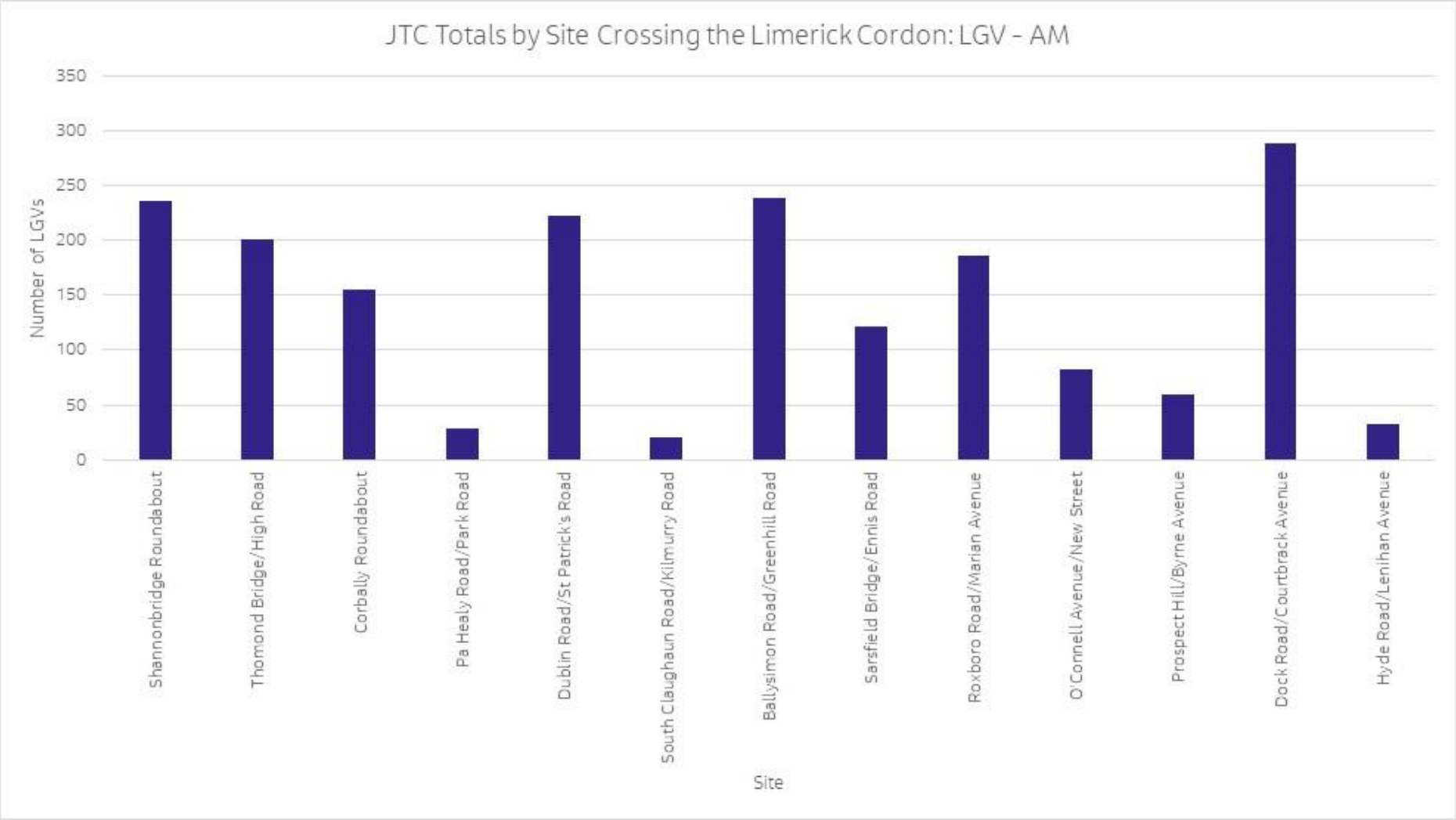


Figure 0-6:Number of Light Goods Vehicle Journeys for JTC Surveys for AM per Site

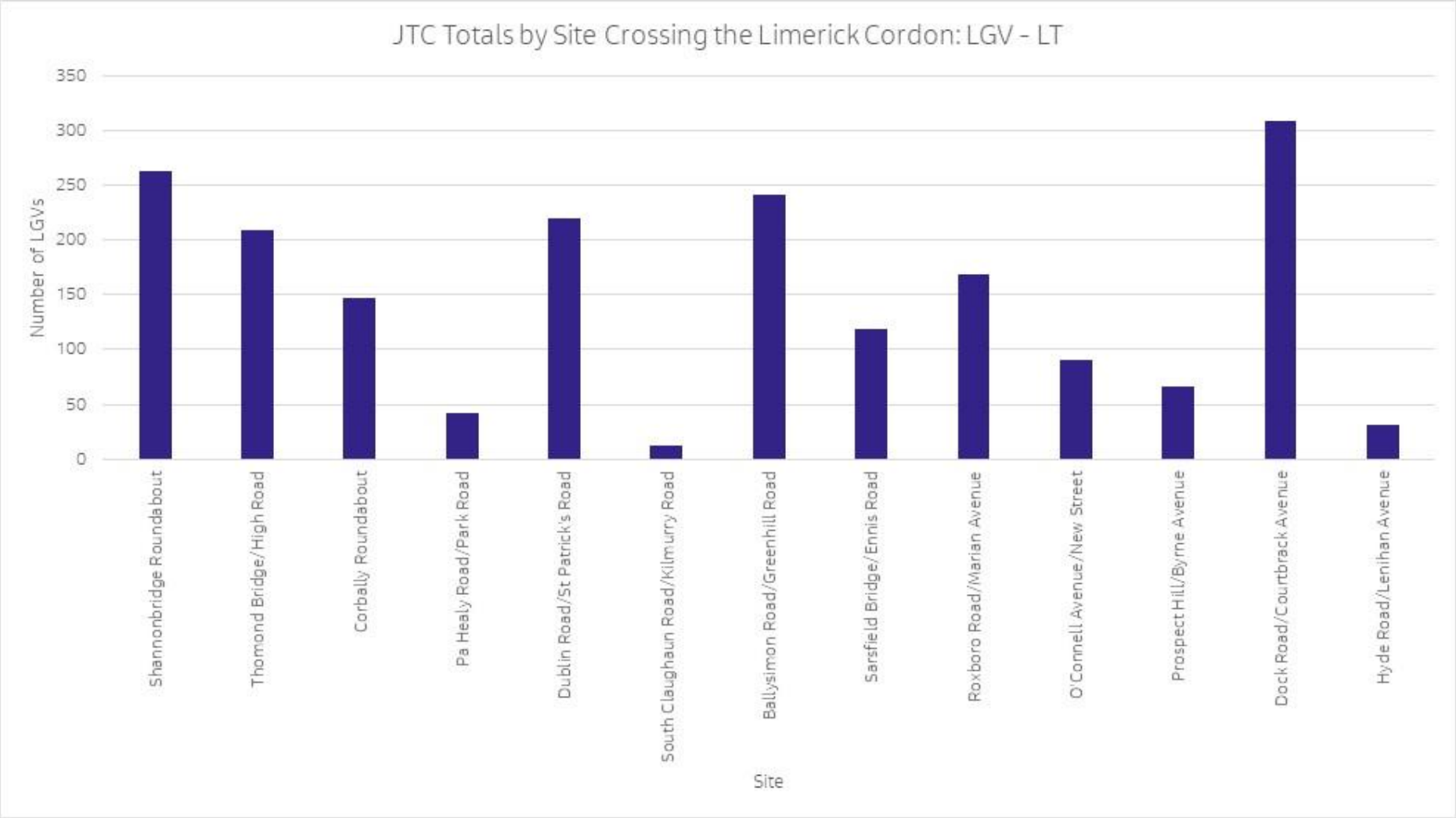


Figure 0-7:Number of Light Goods Vehicle Journeys for JTC Surveys for LT per Site

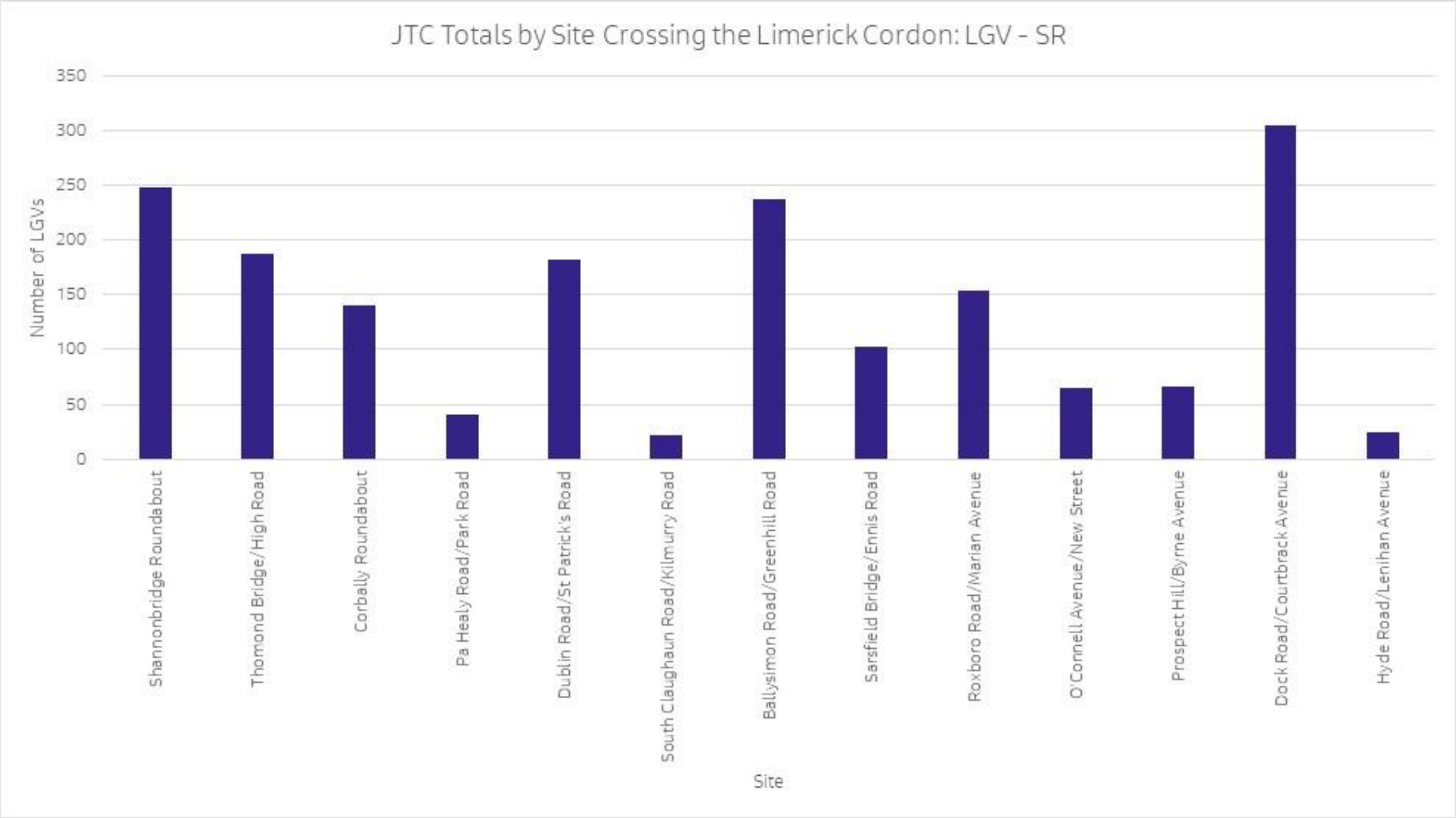


Figure 0-8:Number of Light Goods Vehicle Journeys for JTC Surveys for SR per Site

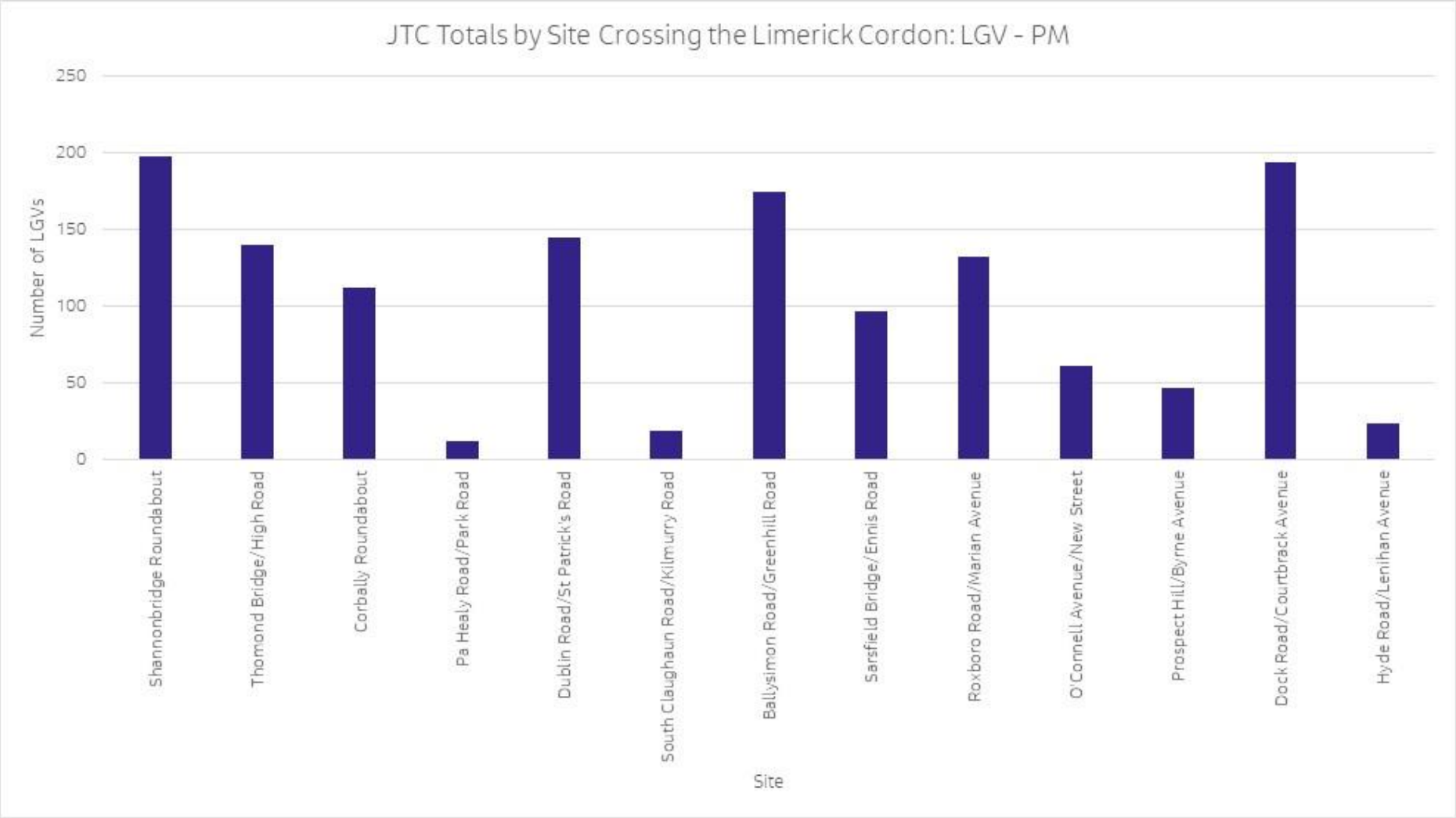


Figure 0-9:Number of Light Goods Vehicle Journeys for JTC Surveys for PM per Site

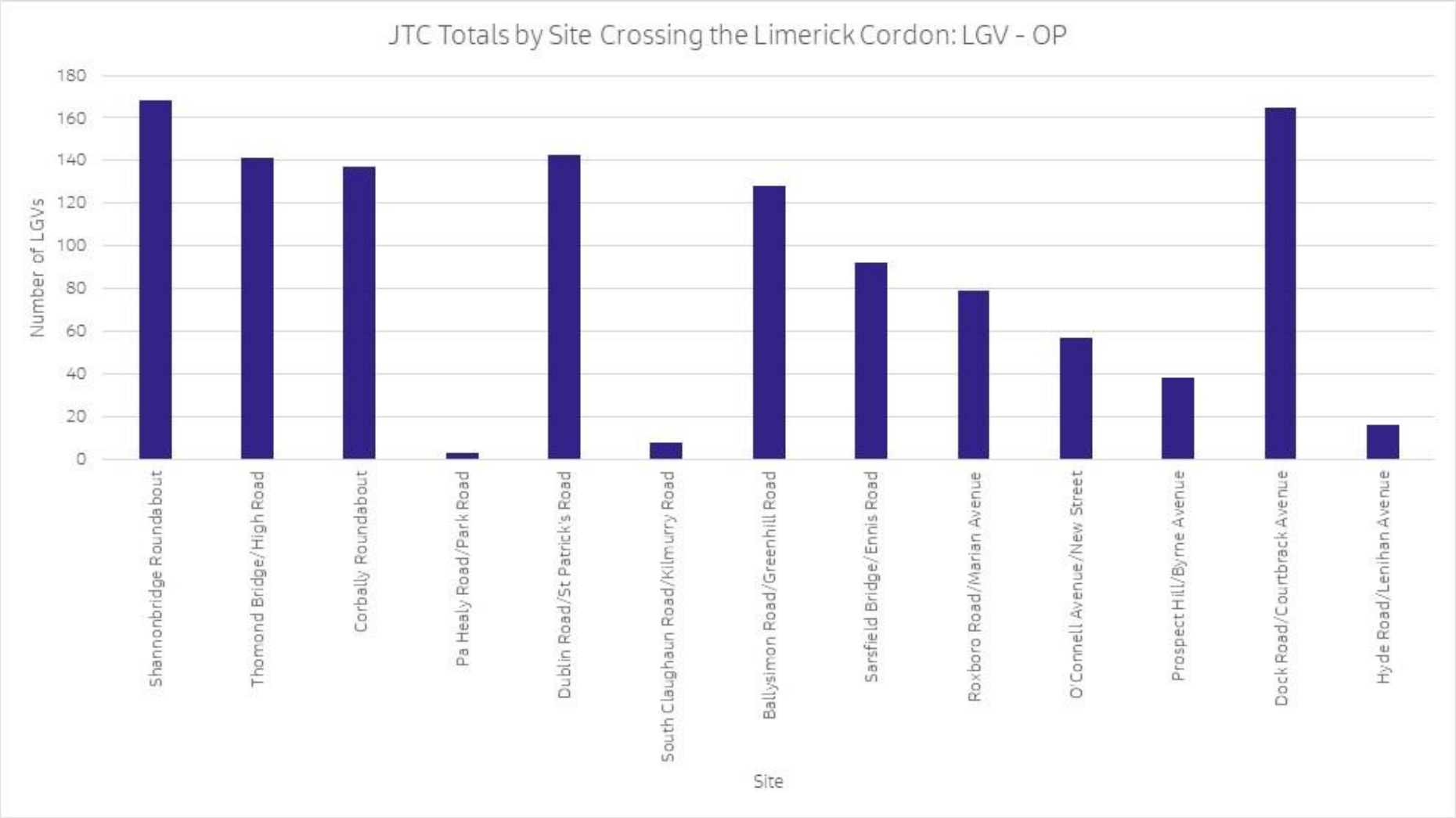


Figure 0-10:Number of Light Goods Vehicle Journeys for JTC Surveys for OP per Site

Ordinary Goods Vehicle 1 Movements by Site and Period

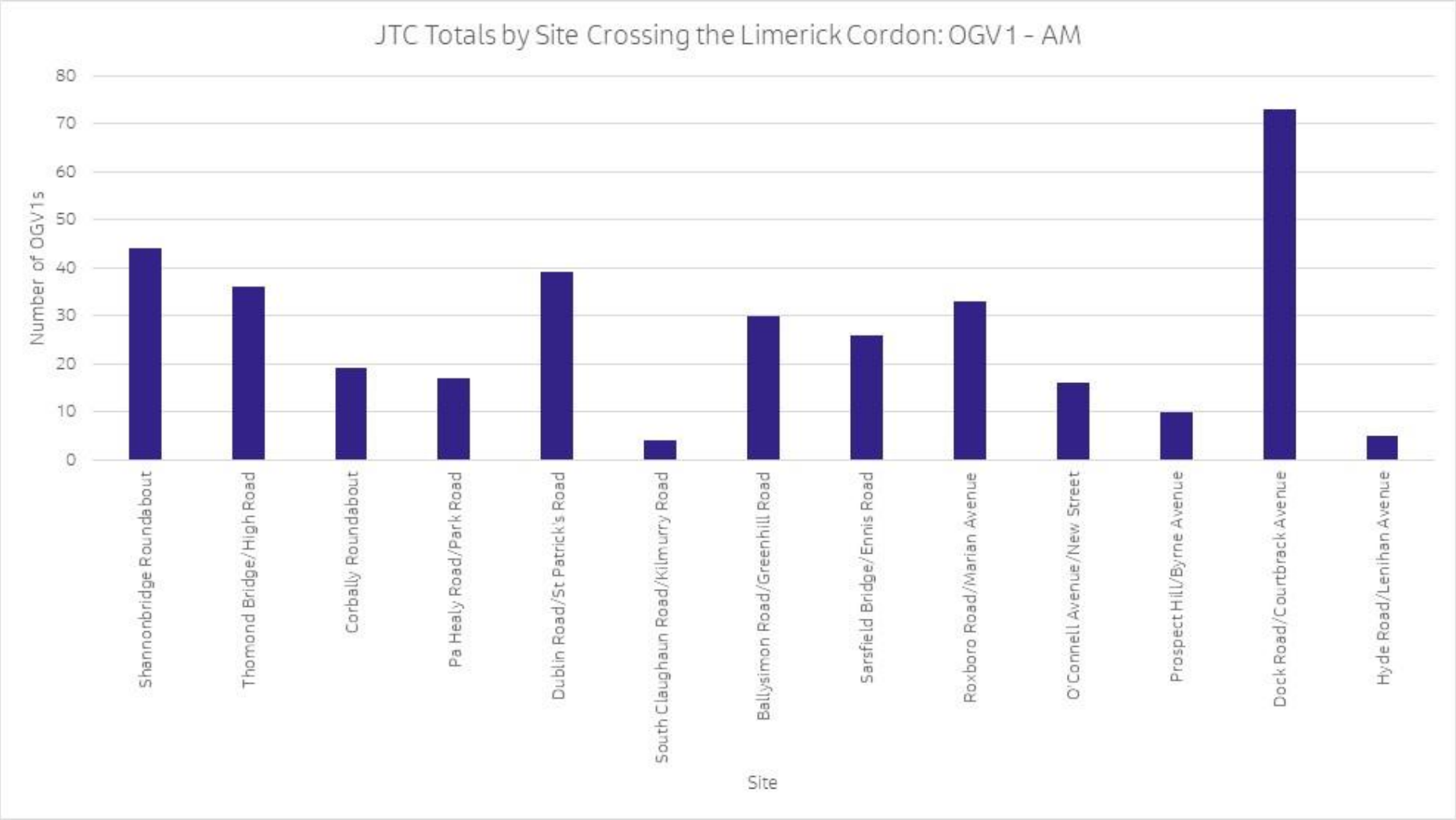


Figure 0-11:Number of Ordinary Goods Vehicle 1 Journeys for JTC Surveys for AM per Site

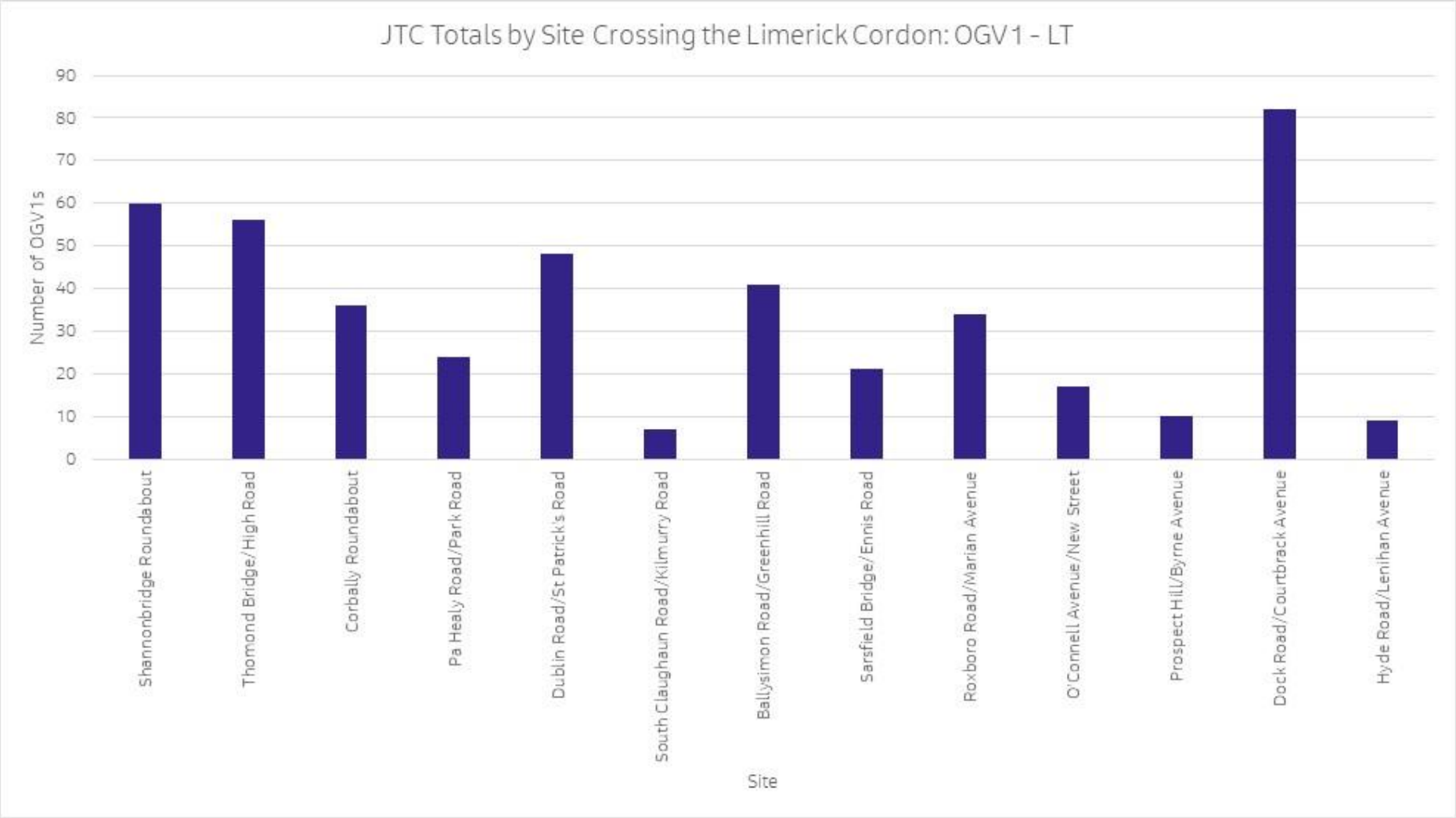


Figure 0-12:Number of Ordinary Goods Vehicle 1 Journeys for JTC Surveys for LT per Site

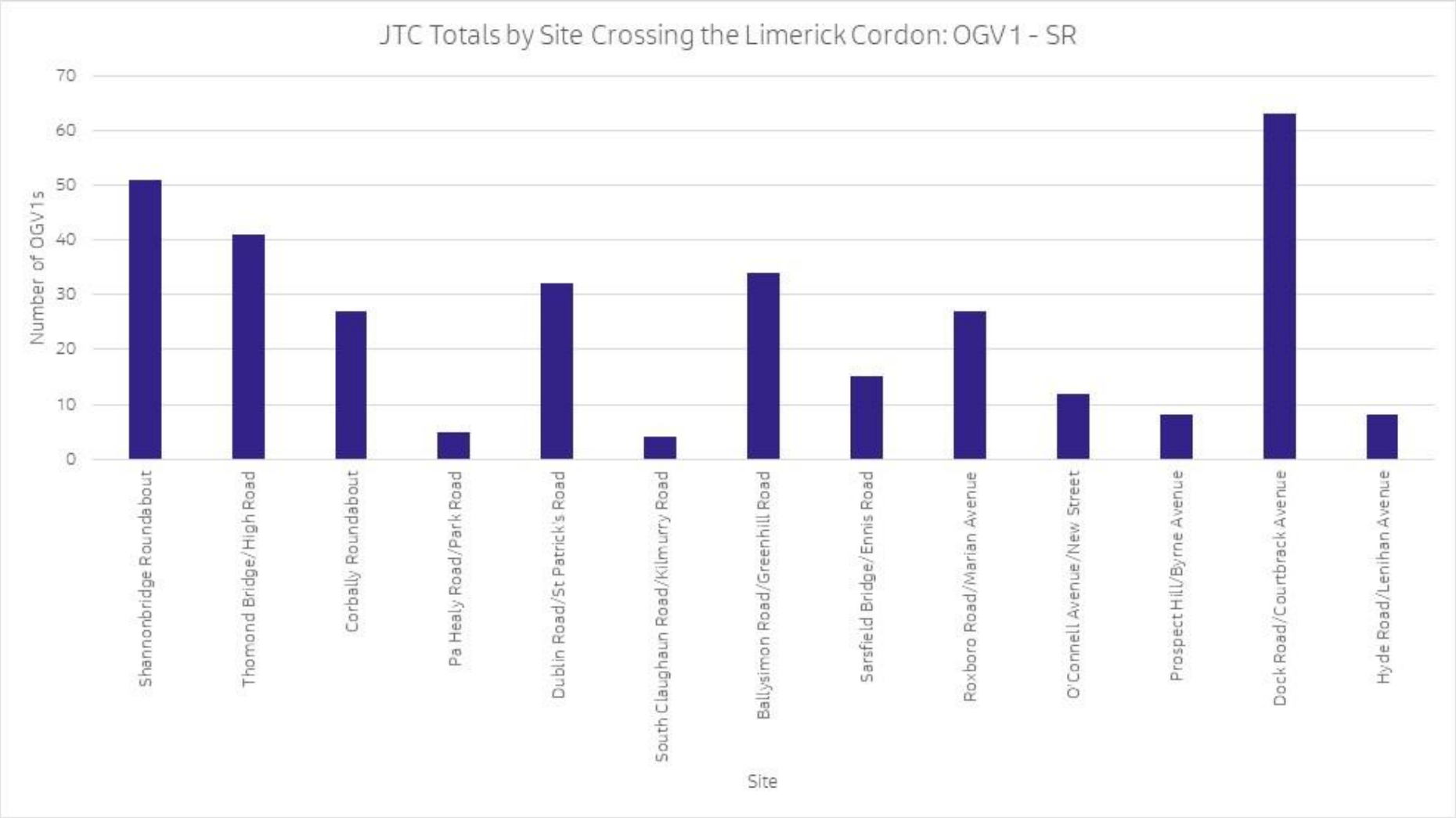


Figure 0-13:Number of Ordinary Goods Vehicle 1 Journeys for JTC Surveys for SR per Site

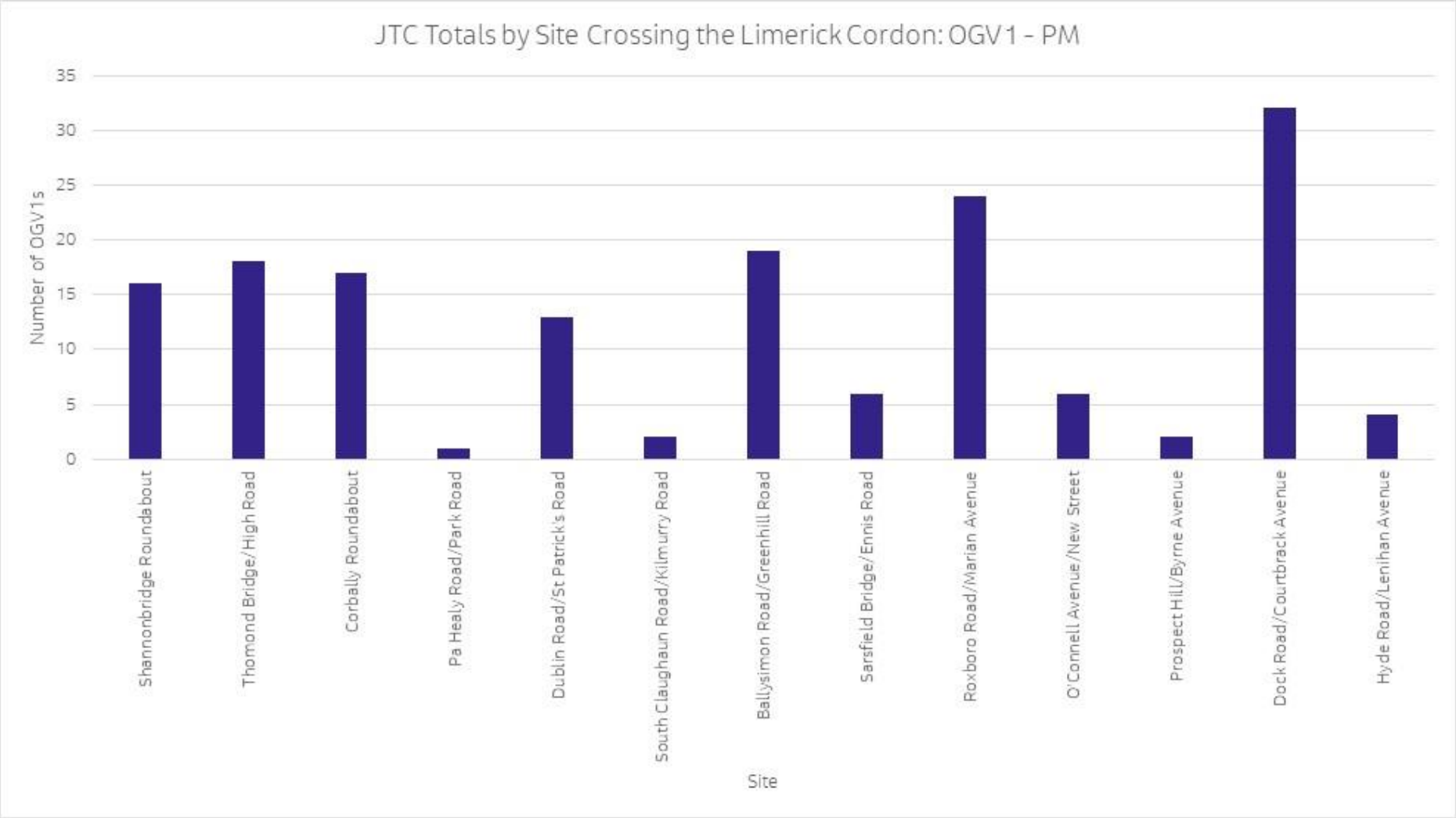


Figure 0-14:Number of Ordinary Goods Vehicle 1 Journeys for JTC Surveys for PM per Site

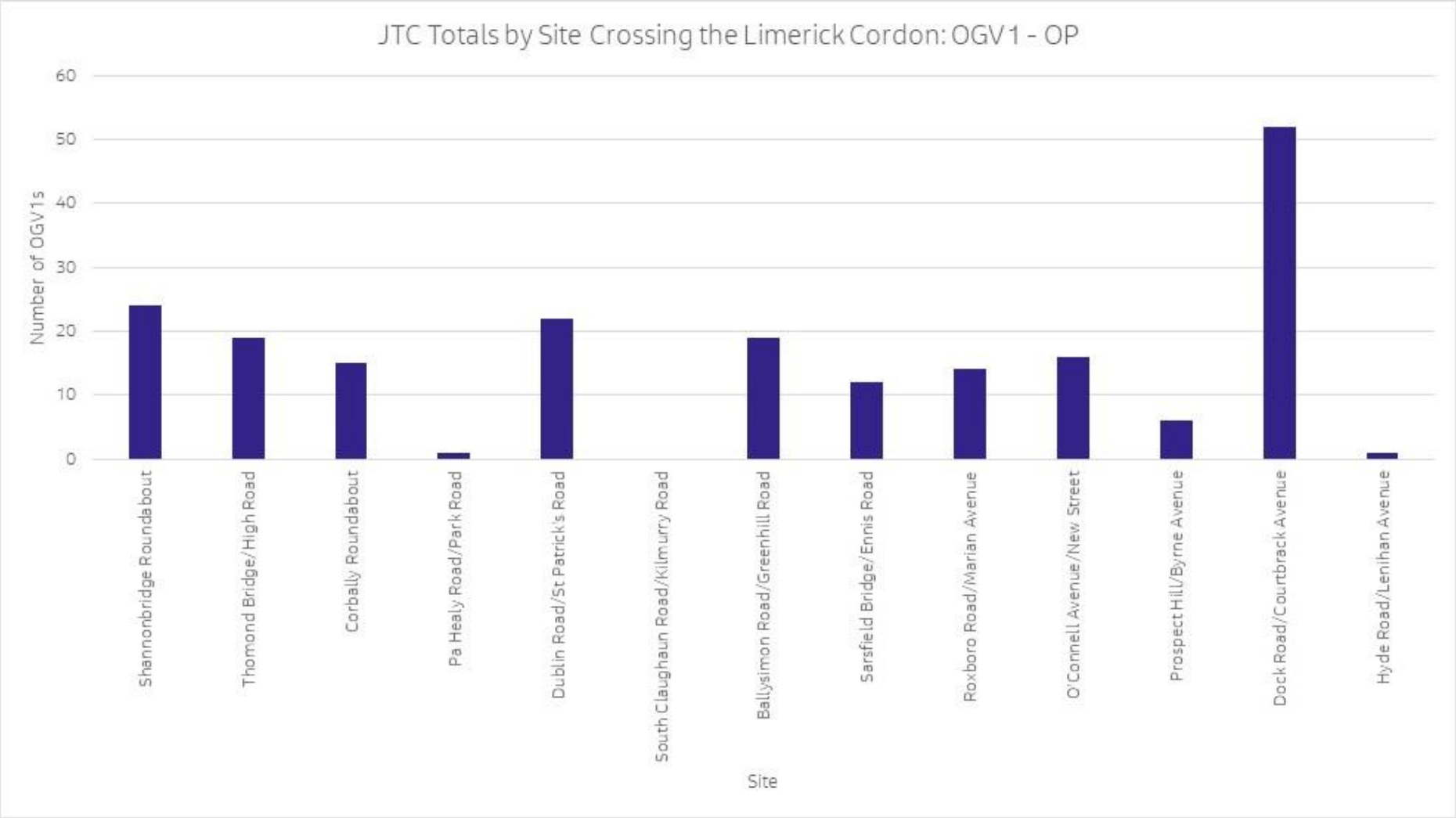


Figure 0-15:Number of Ordinary Goods Vehicle 1 Journeys for JTC Surveys for OP per Site

Ordinary Goods Vehicle 2 Movements by Site and Period

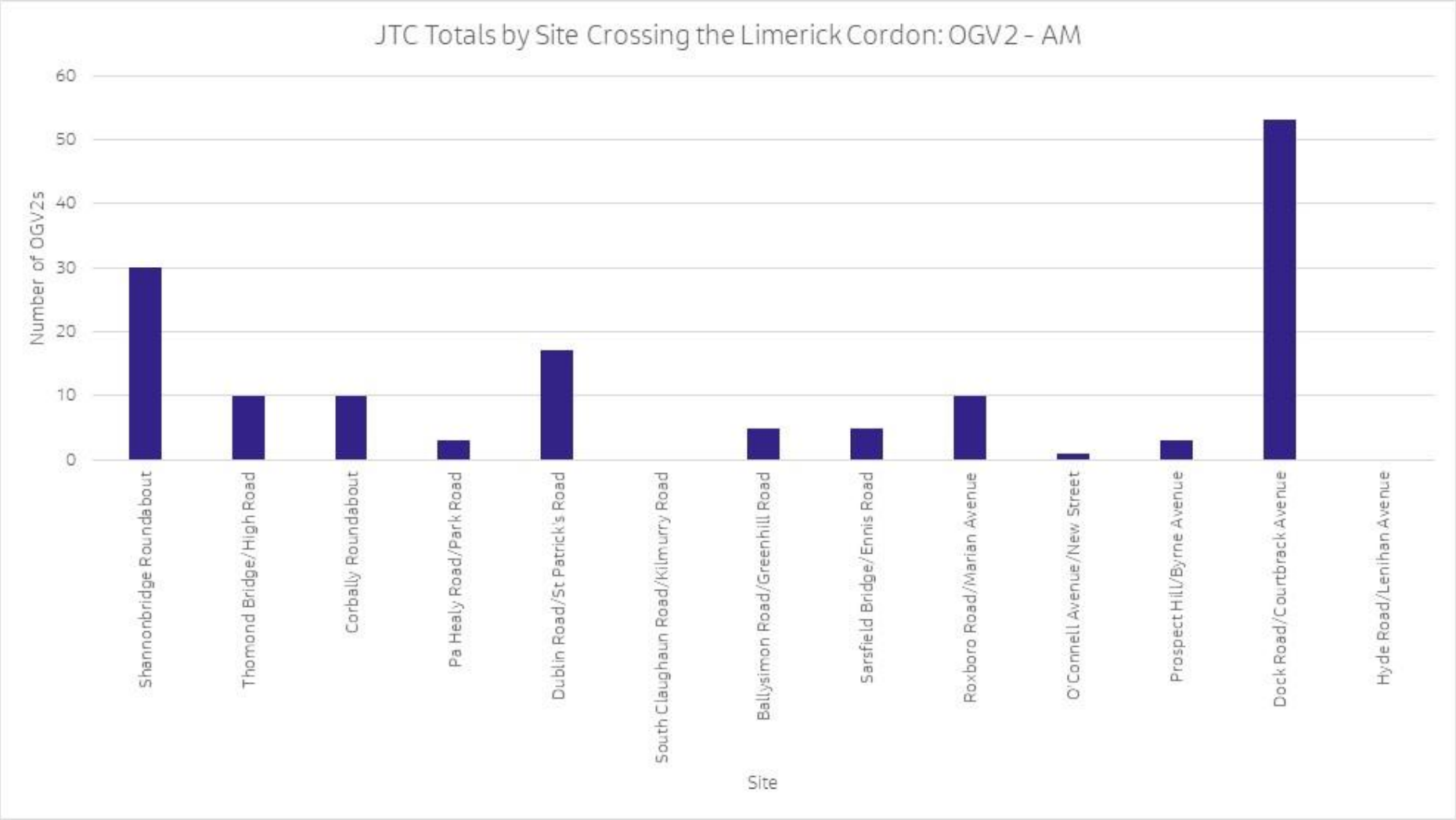


Figure 0-16:Number of Ordinary Goods Vehicle 2 Journeys for JTC Surveys for AM per Site

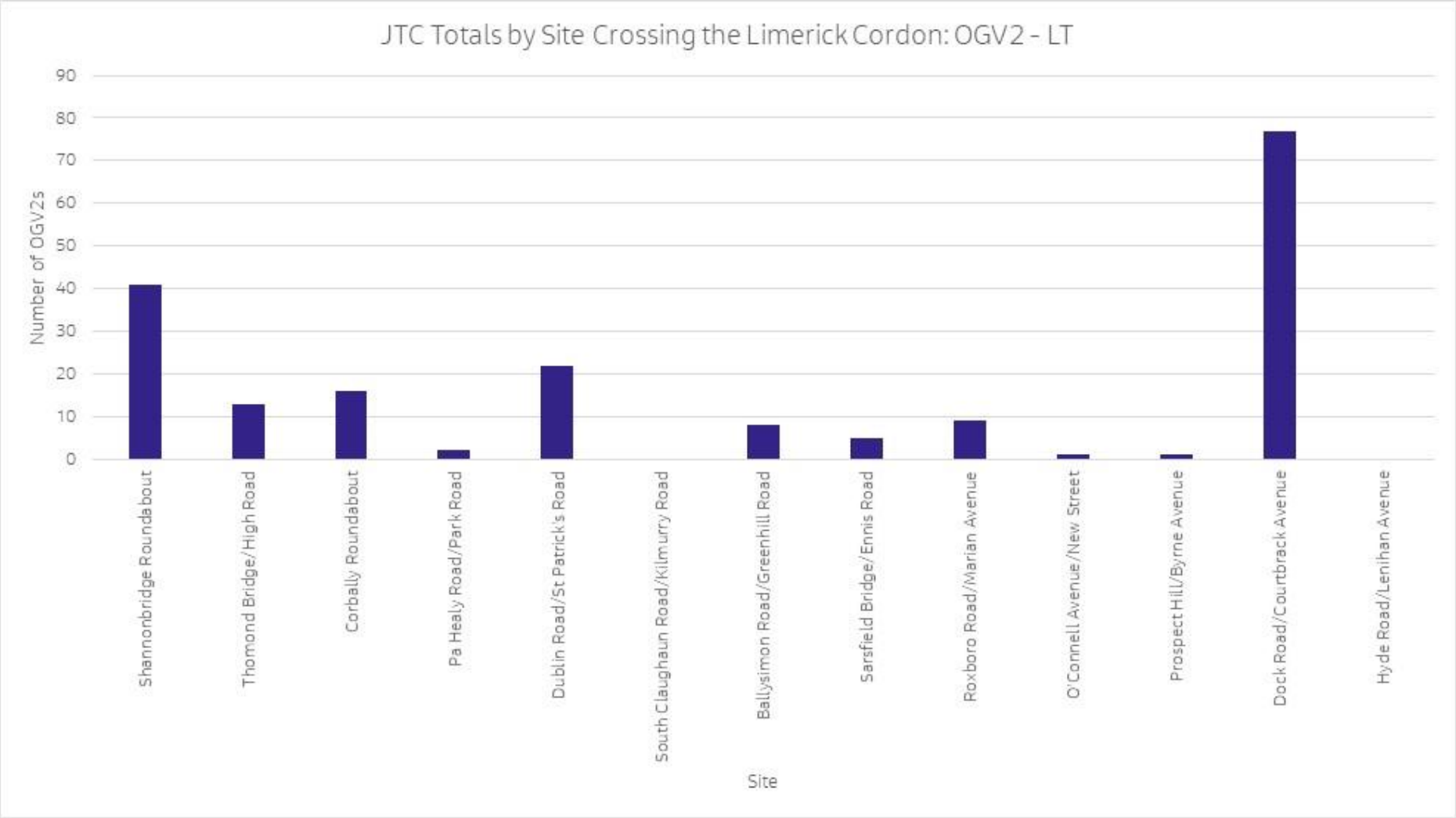


Figure 0-17:Number of Ordinary Goods Vehicle 2 Journeys for JTC Surveys for LT per Site

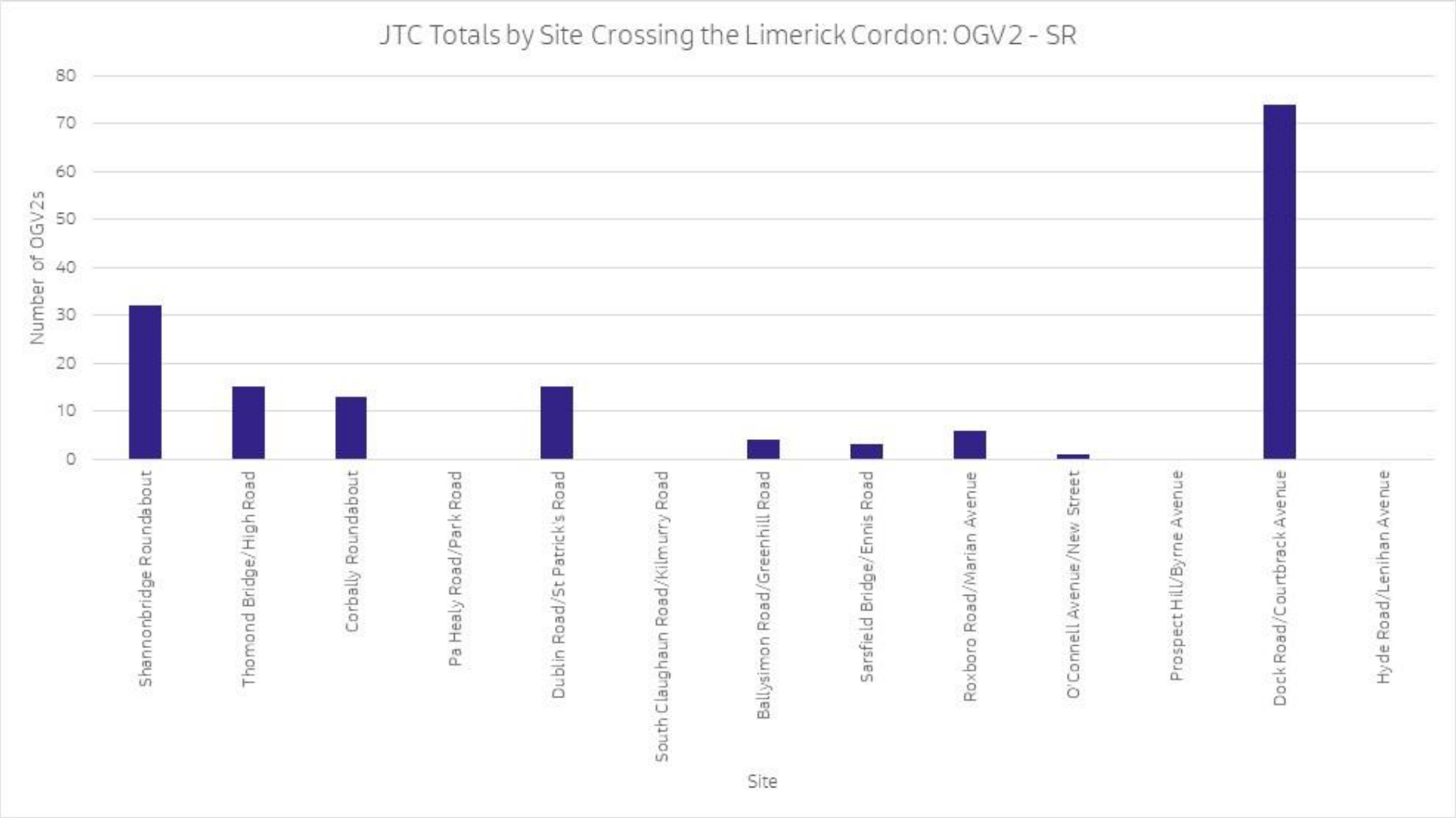


Figure 0-18:Number of Ordinary Goods Vehicle 2 Journeys for JTC Surveys for SR per Site

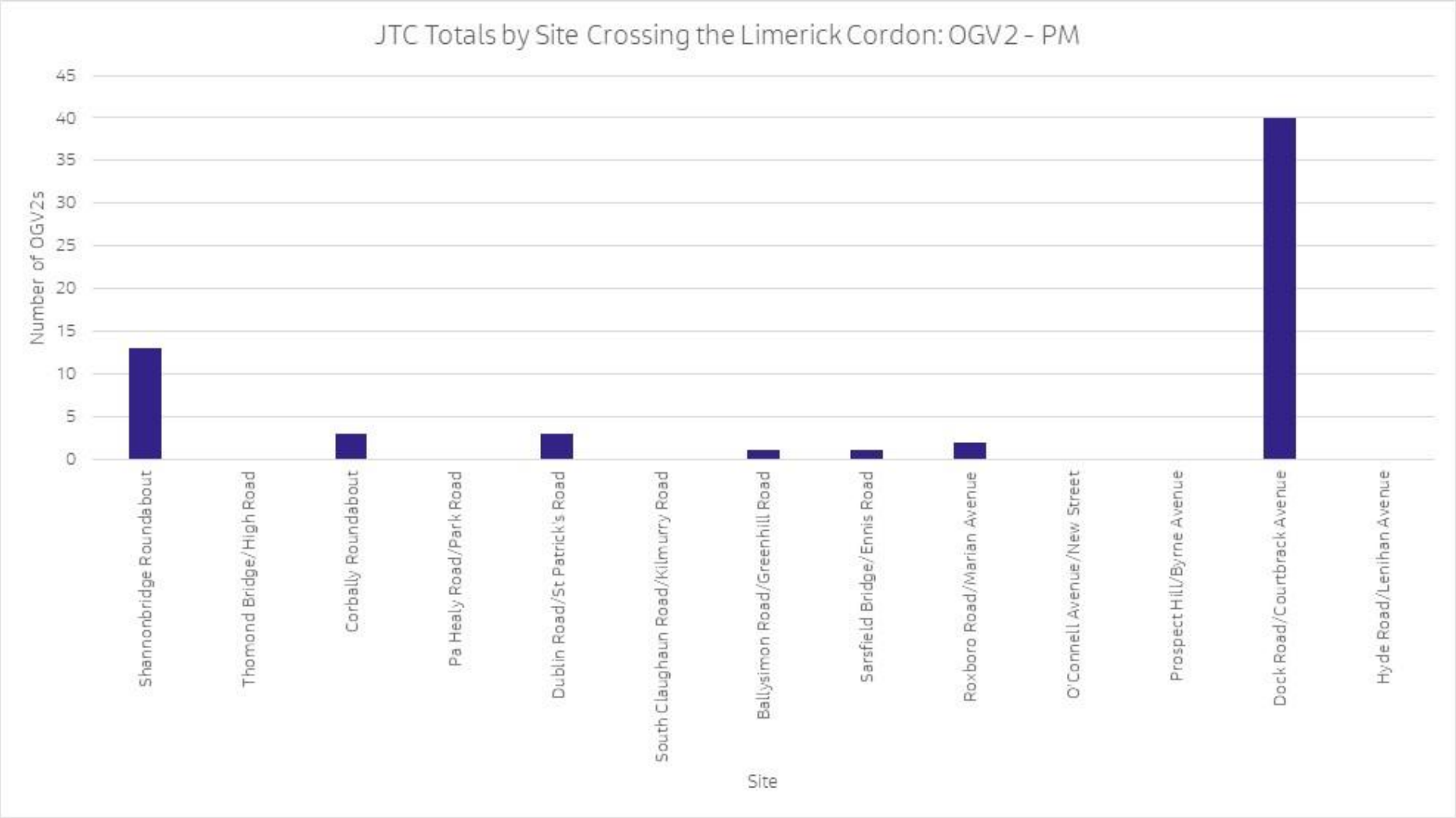


Figure 0-19:Number of Ordinary Goods Vehicle 2 Journeys for JTC Surveys for PM per Site

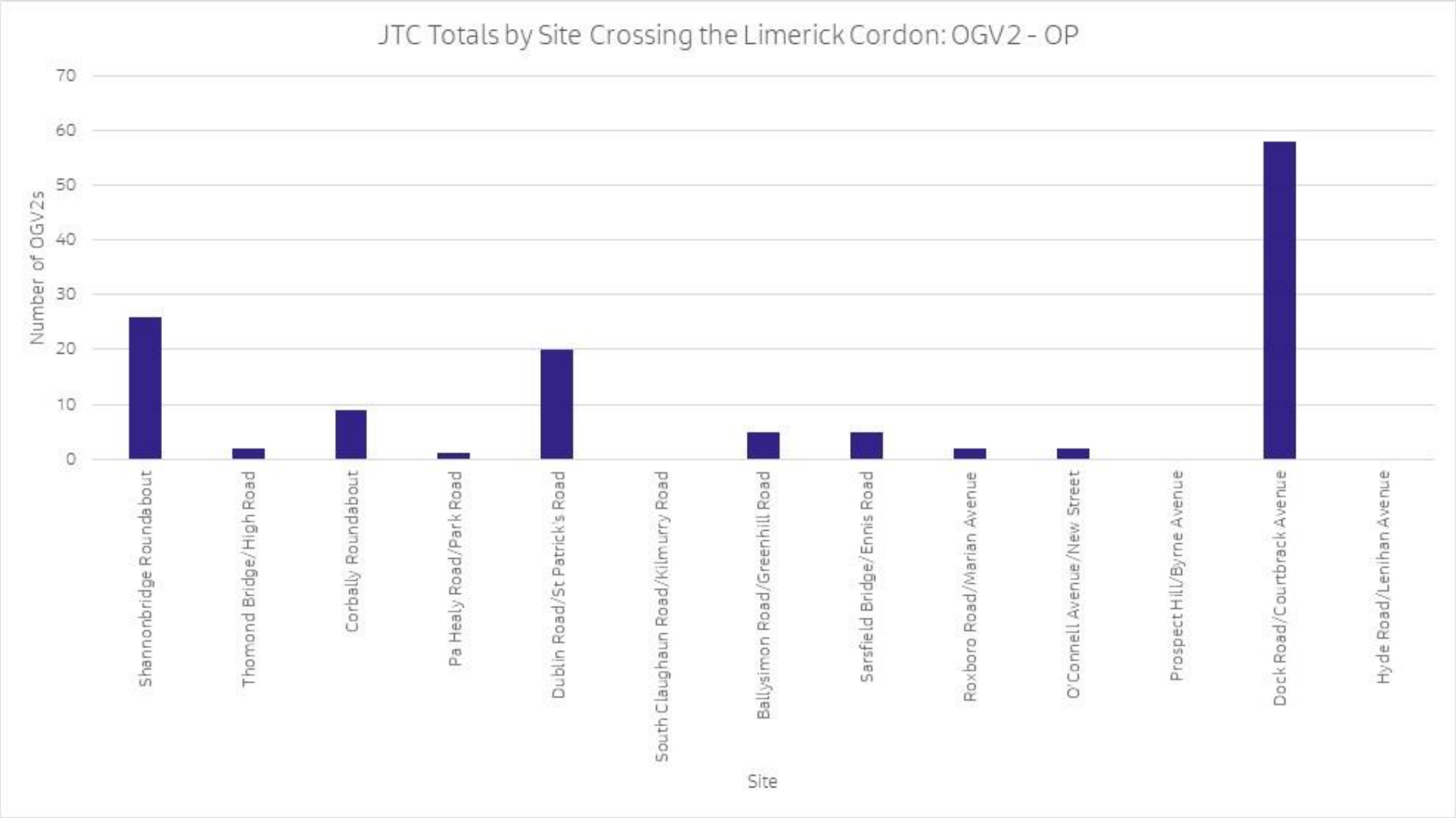


Figure 0-20:Number of Ordinary Goods Vehicle 2 Journeys for JTC Surveys for OP per Site

Motorcycle Movements by Site and Period

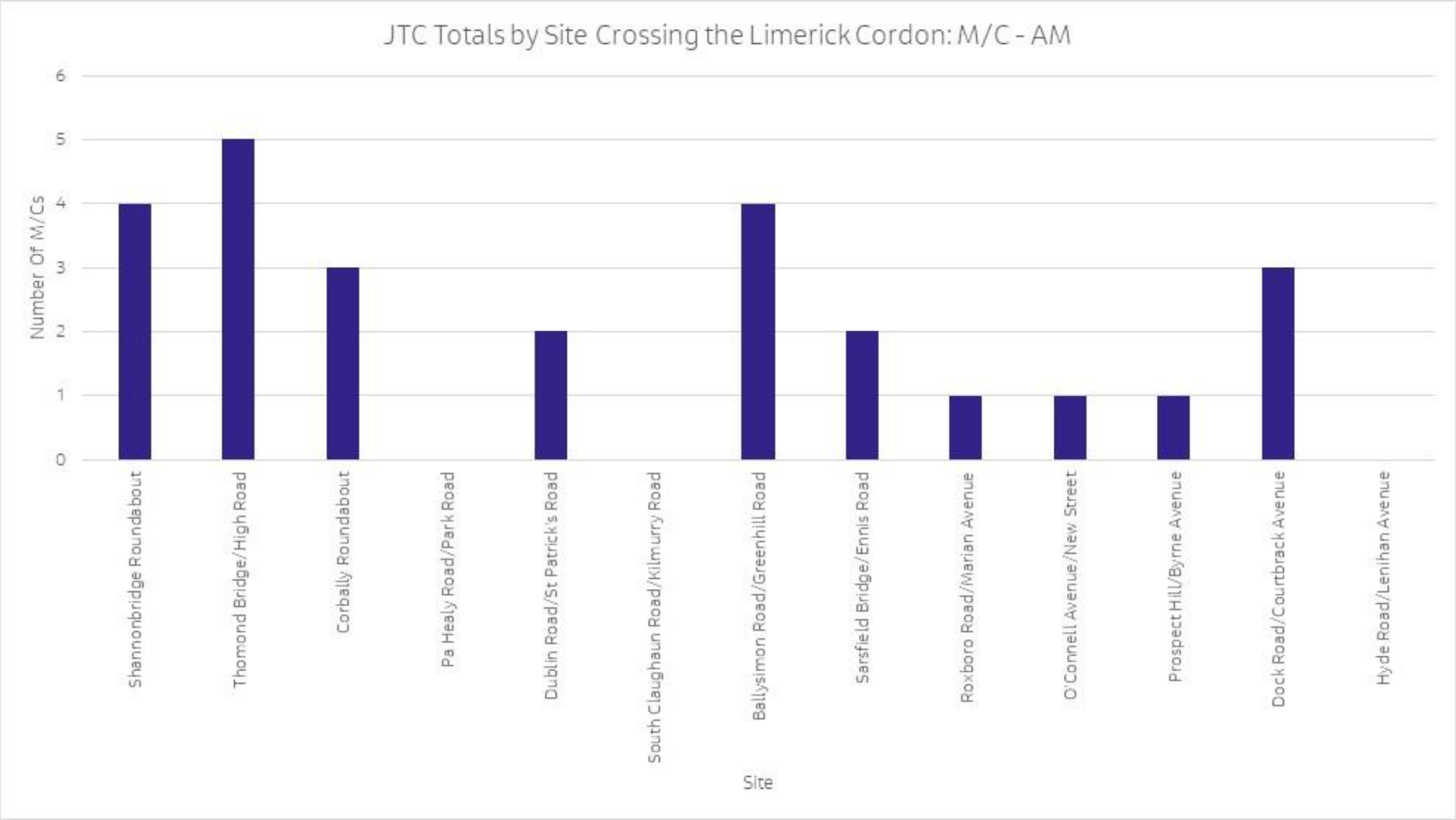


Figure 0-21:Number of Motorcycle Journeys for JTC Surveys for AM per Site

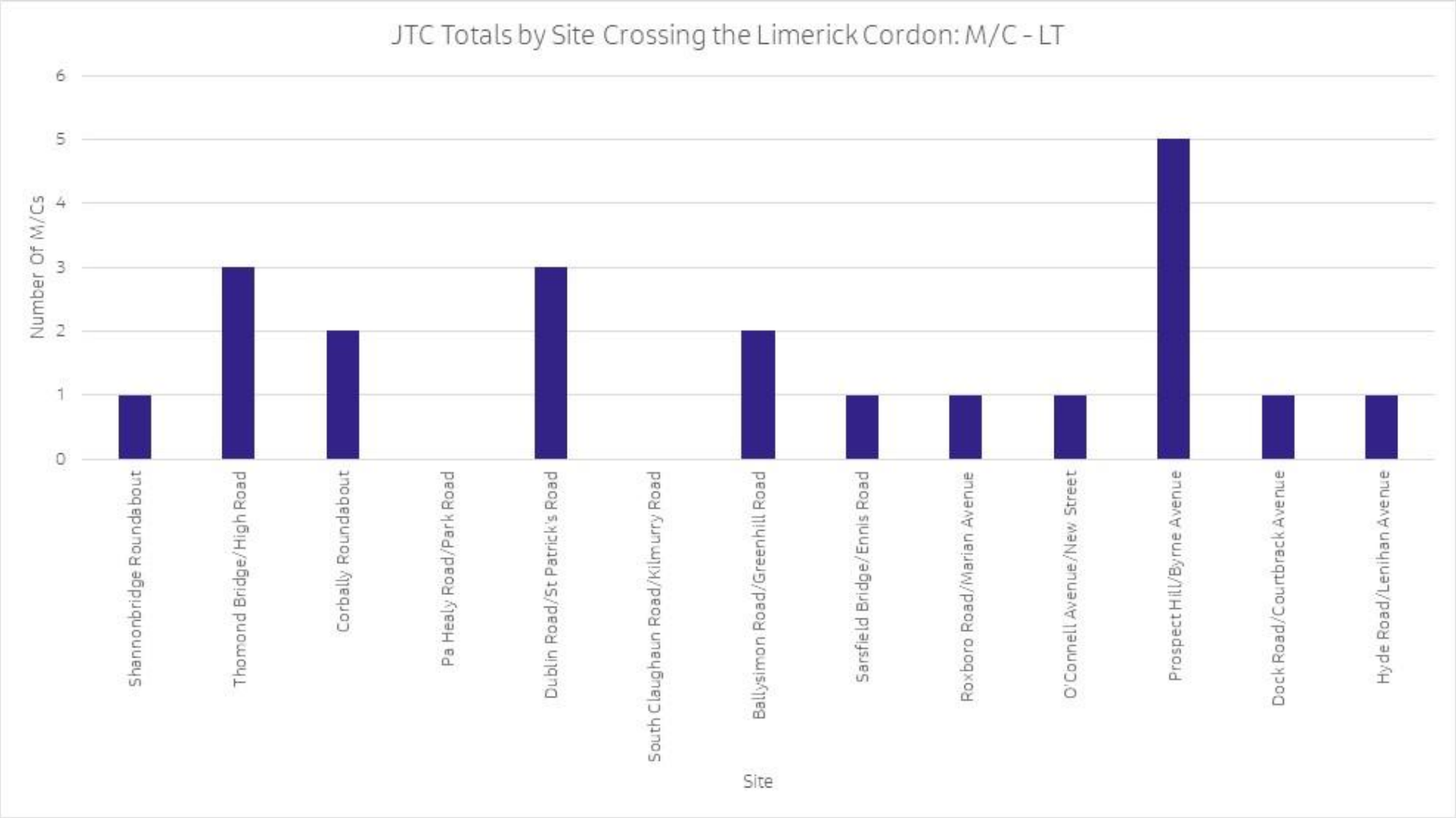


Figure 0-22:Number of Motorcycle Journeys for JTC Surveys for LT per Site

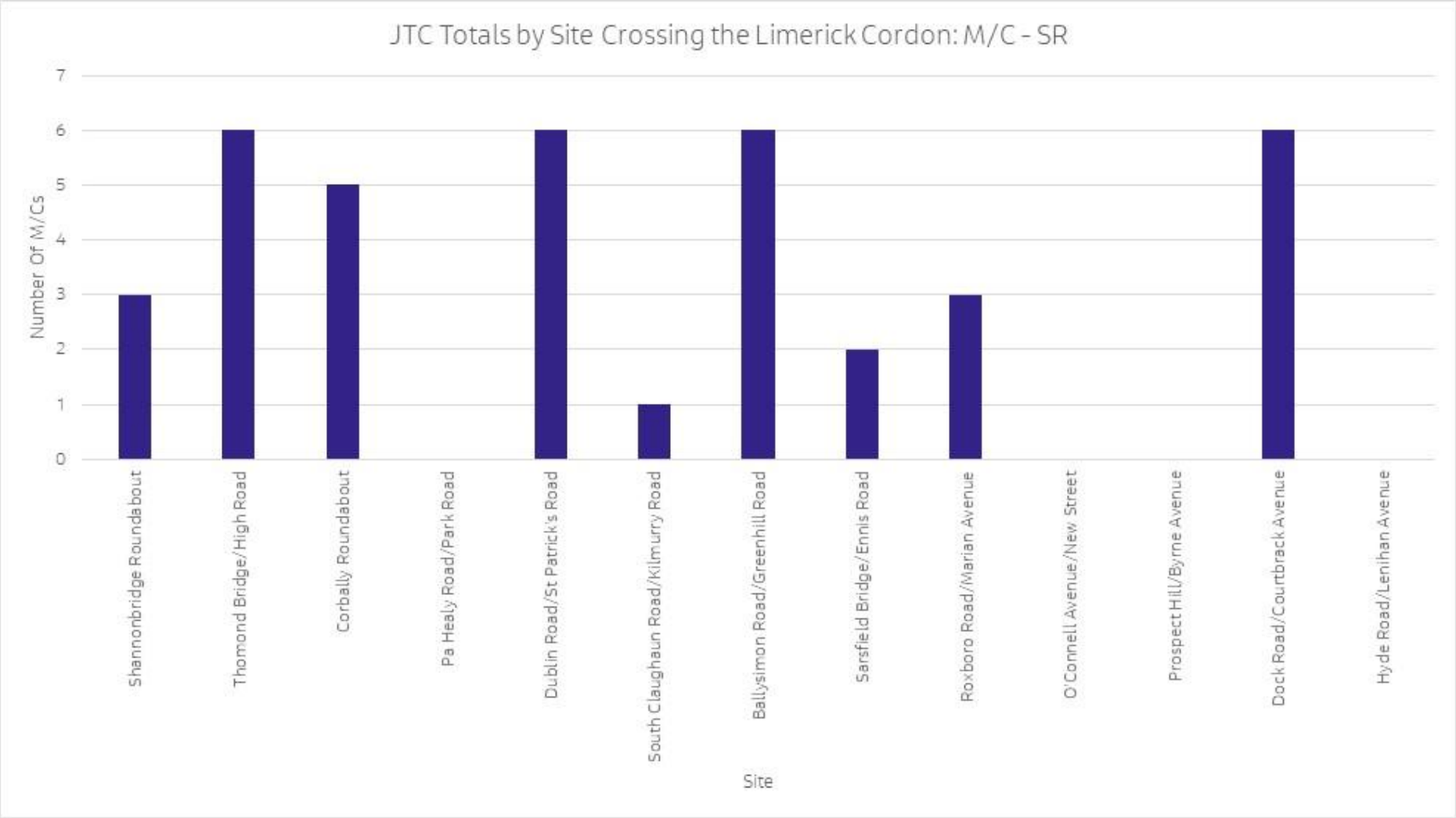


Figure 0-23:Number of Motorcycle Journeys for JTC Surveys for SR per Site

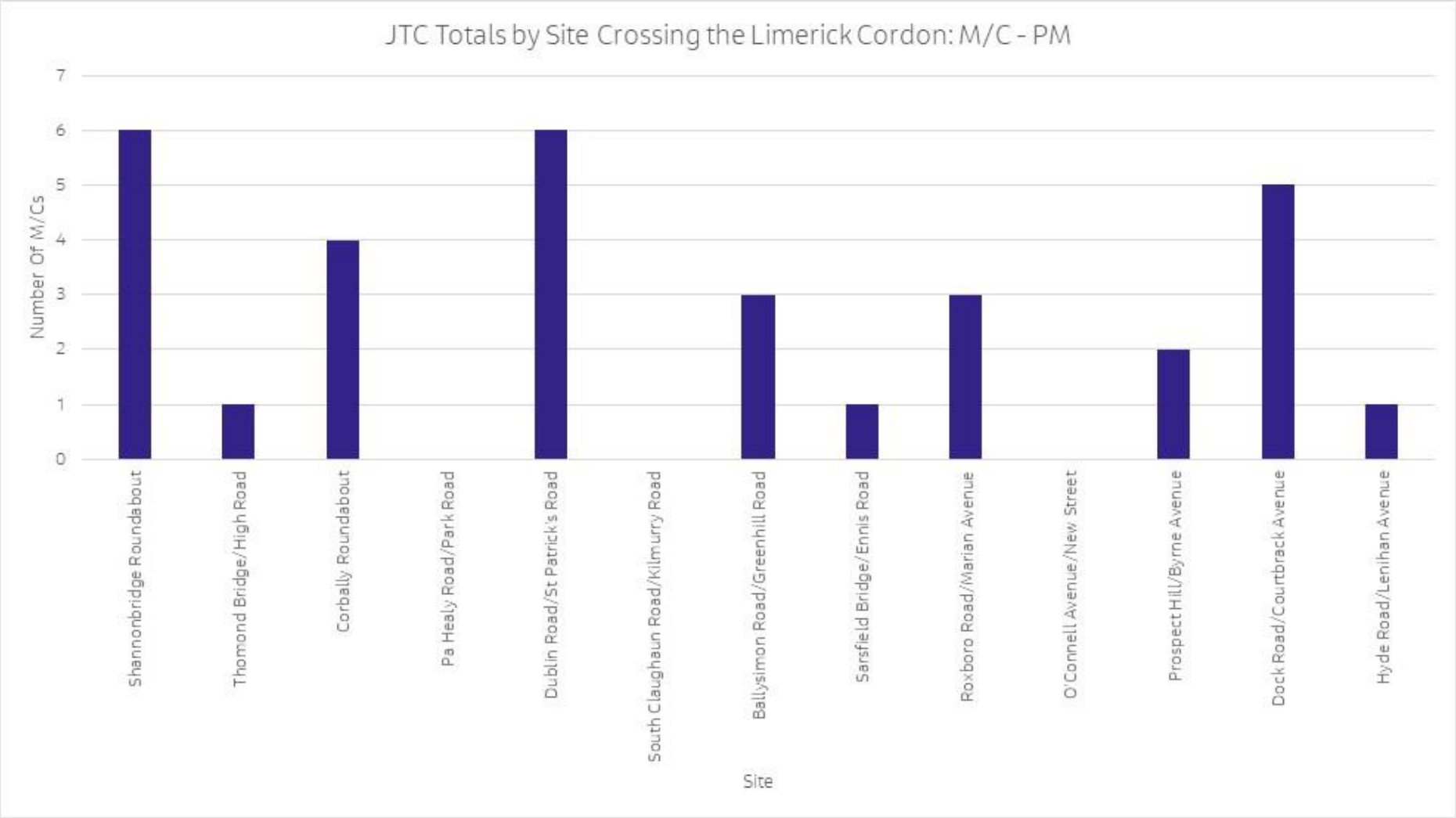


Figure 0-24:Number of Motorcycle Journeys for JTC Surveys for PM per Site

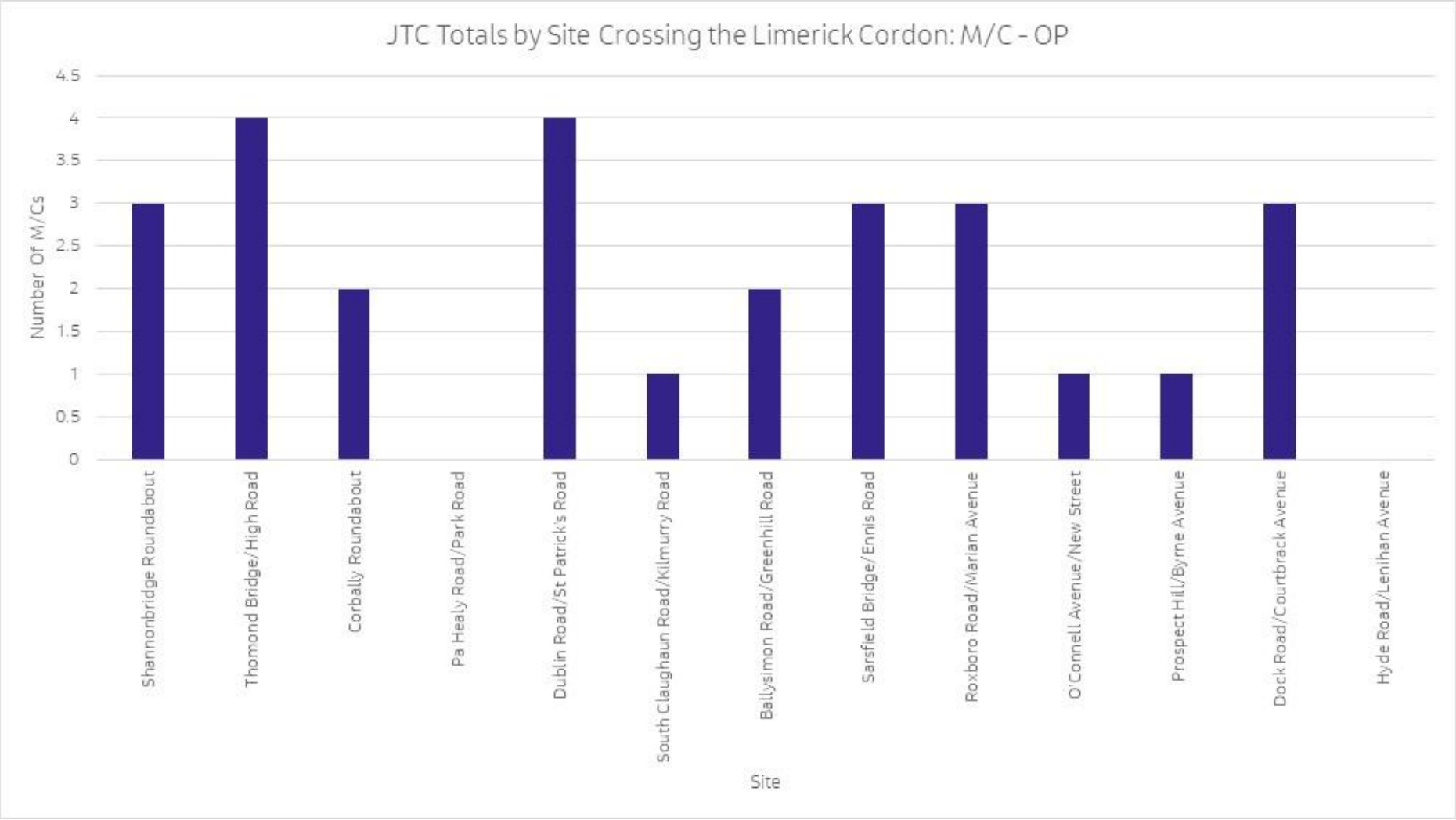


Figure 0-25:Number of Motorcycle Journeys for JTC Surveys for OP per Site

Pedal Cycle Movements by Site and Period

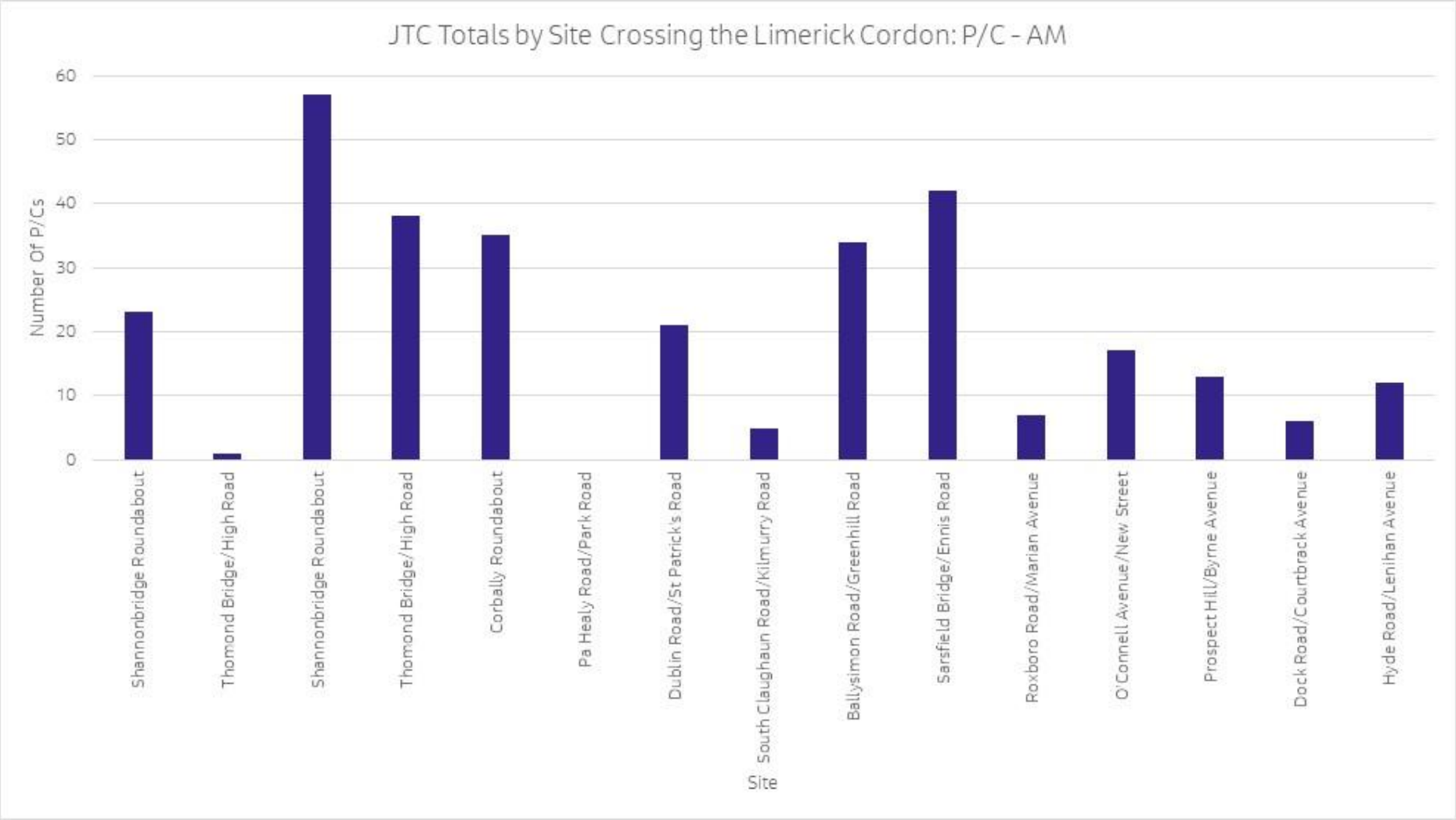


Figure 0-26:Number of Pedal Cycle Journeys for JTC Surveys for AM per Site

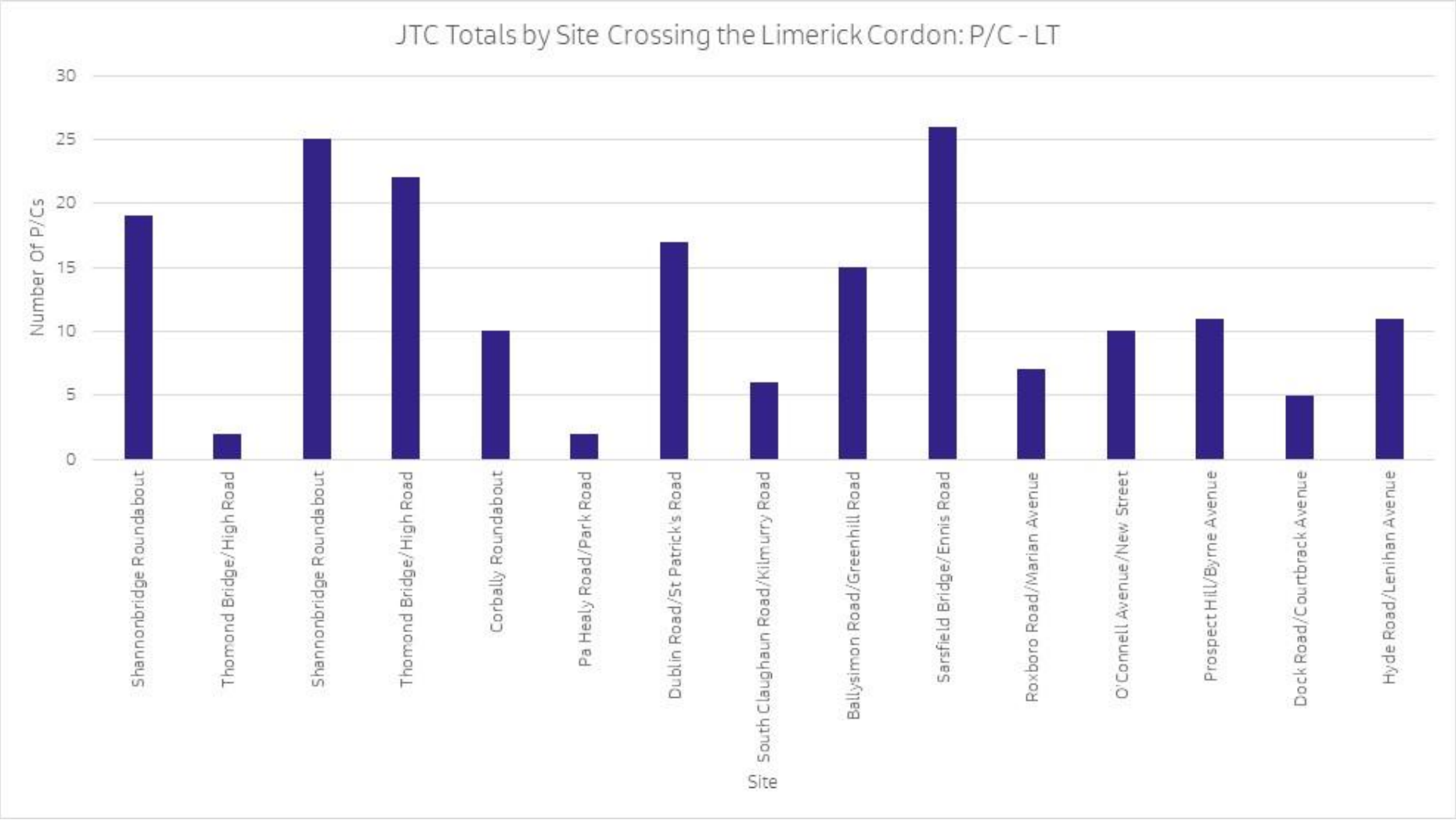


Figure 0-27:Number of Pedal Cycle Journeys for JTC Surveys for LT per Site

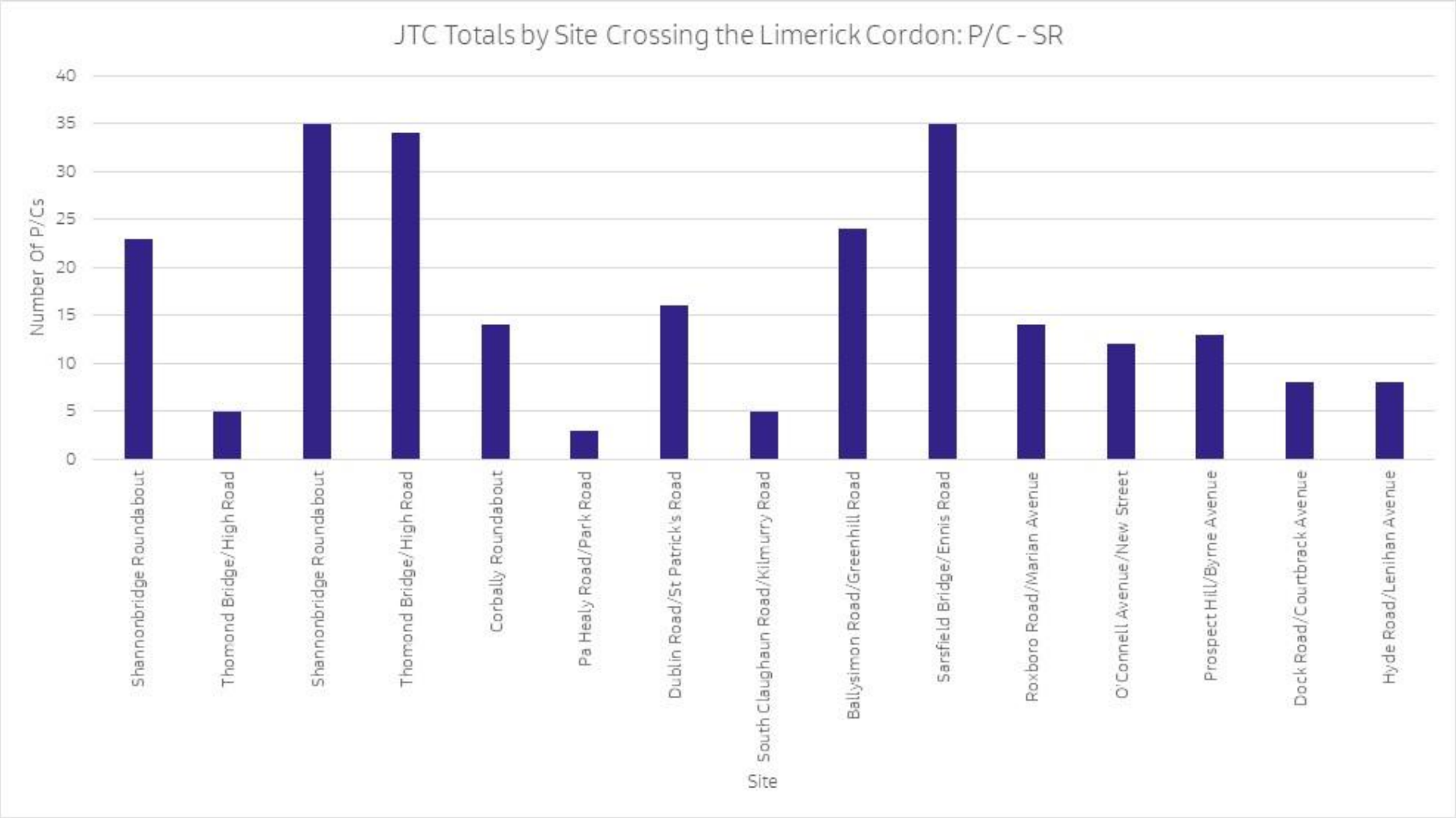


Figure 0-28:Number of Pedal Cycle Journeys for JTC Surveys for SR per Site

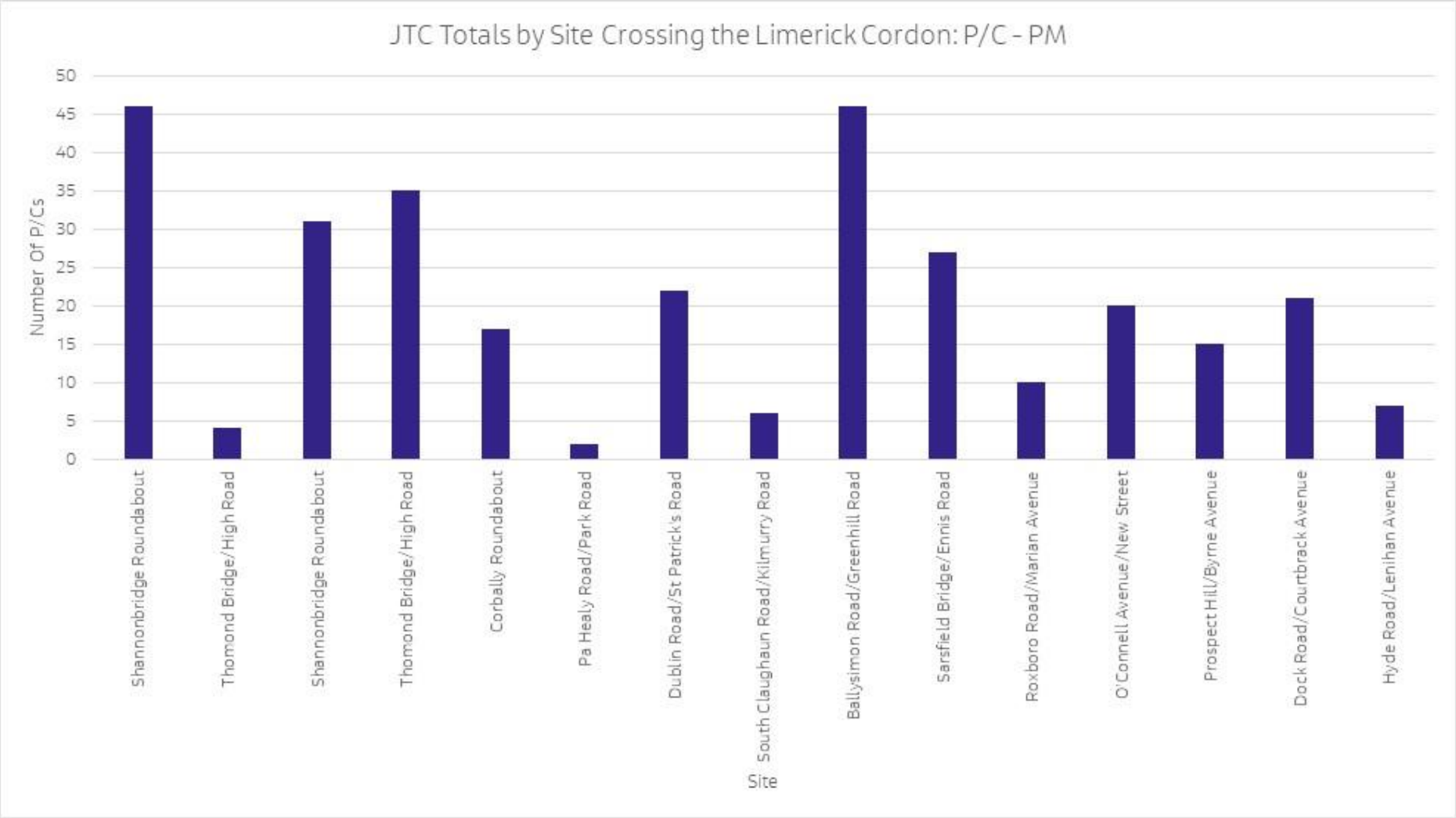


Figure 0-29:Number of Pedal Cycle Journeys for JTC Surveys for PM per Site

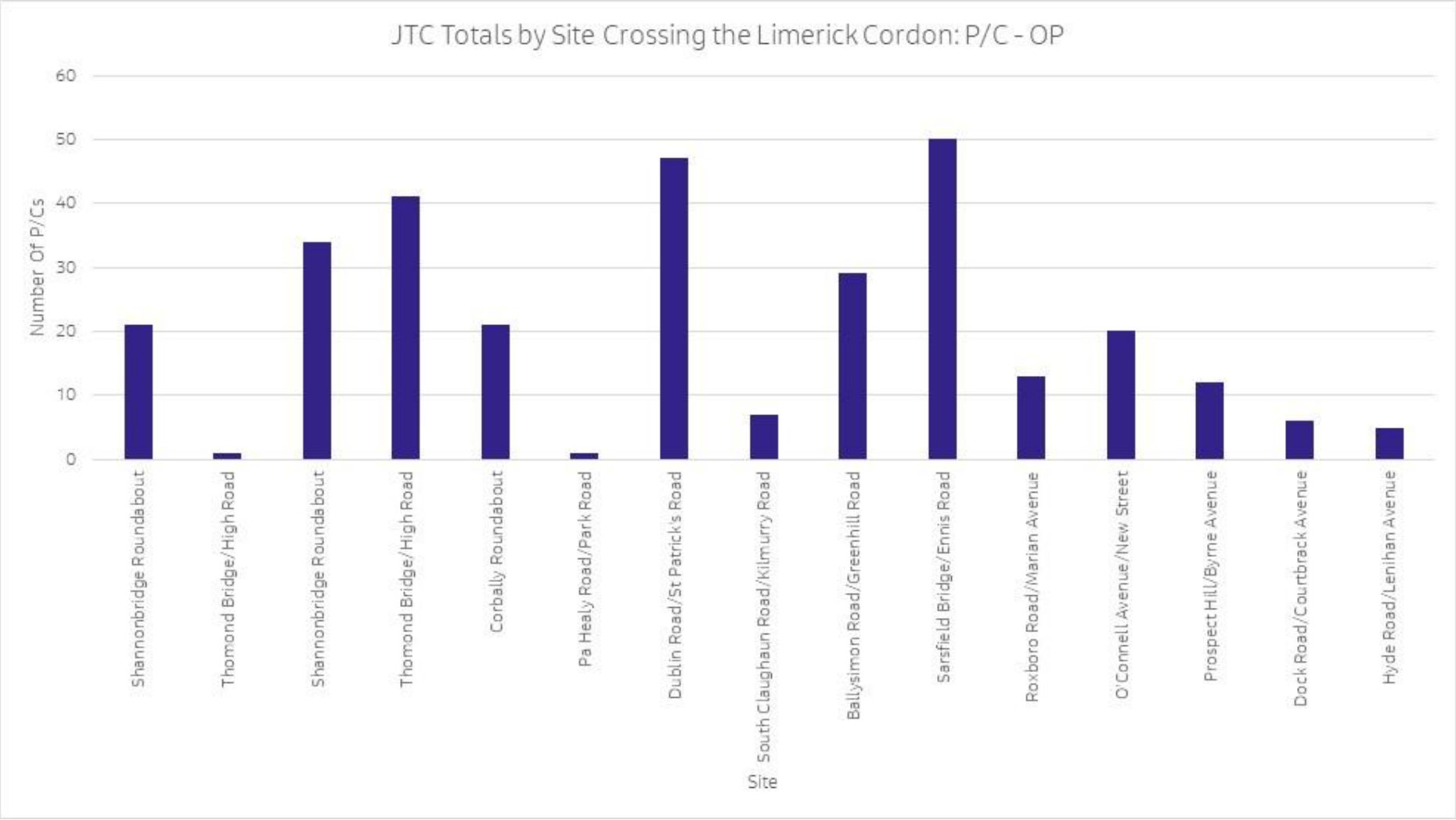


Figure 0-30:Number of Pedal Cycle Journeys for JTC Surveys for OP per Site

Taxi Movements by Site and Period

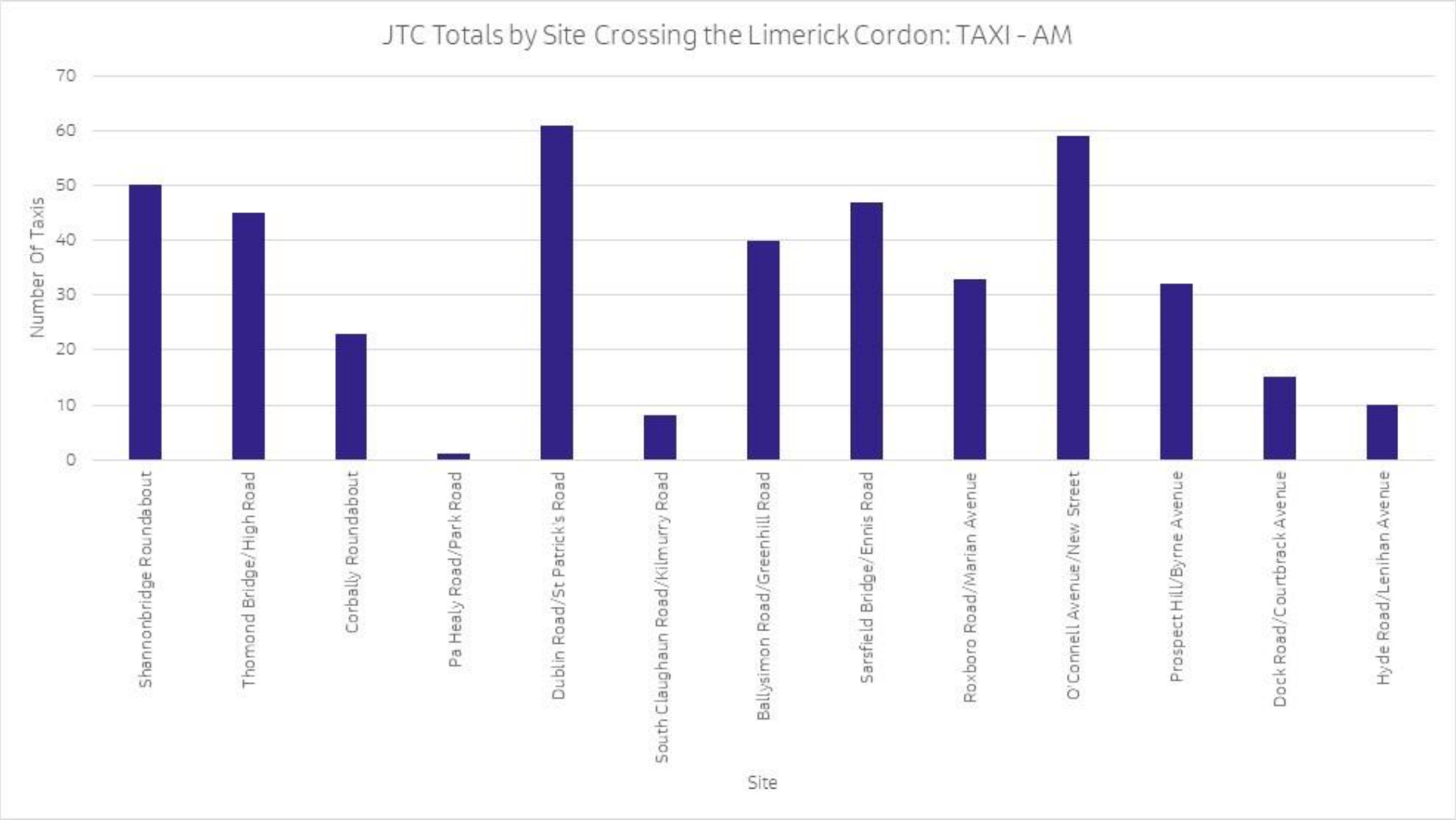


Figure 0-31:Number of Taxi Journeys for JTC Surveys for AM per Site

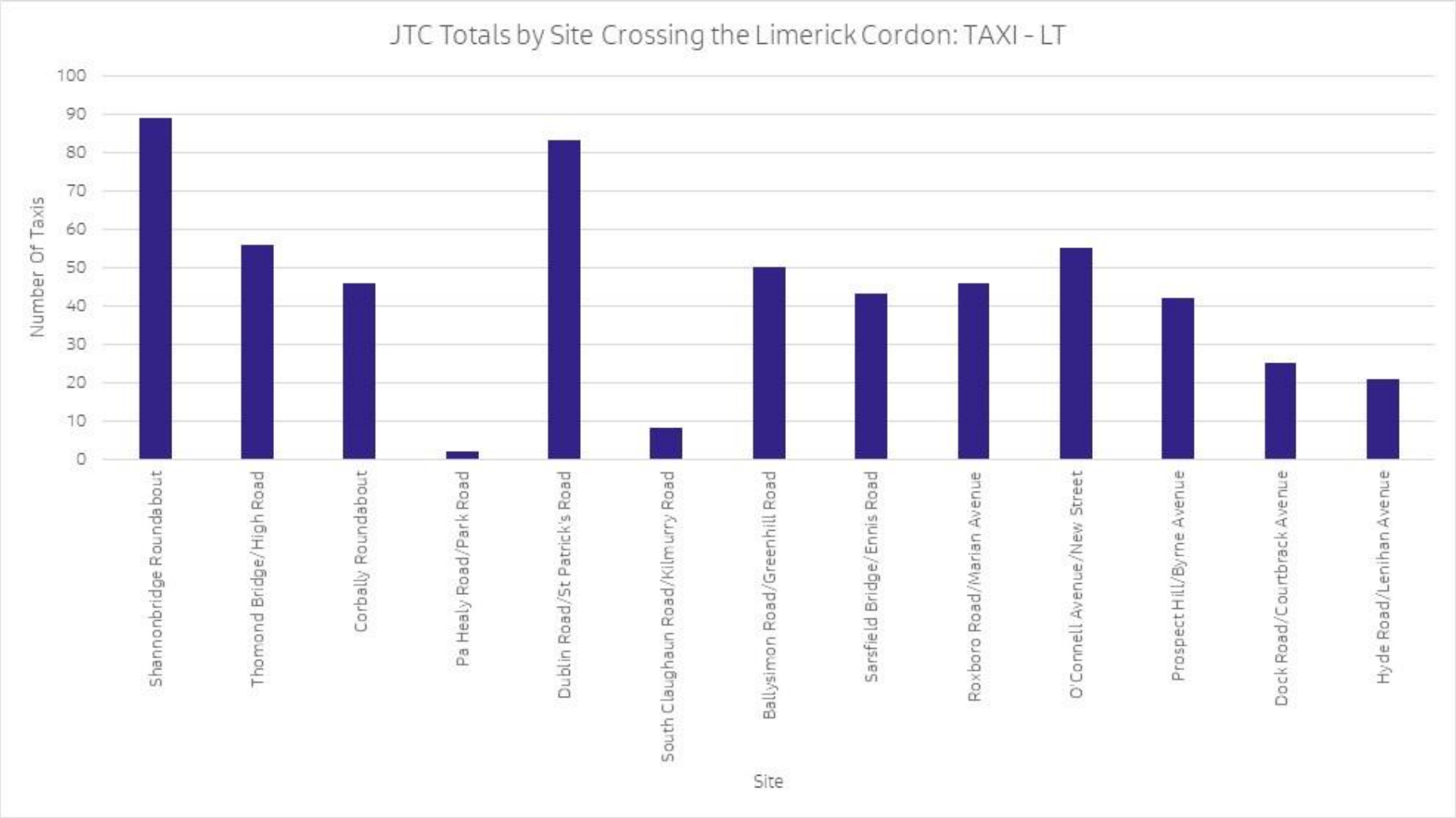


Figure 0-32:Number of Taxi Journeys for JTC Surveys for LT per Site

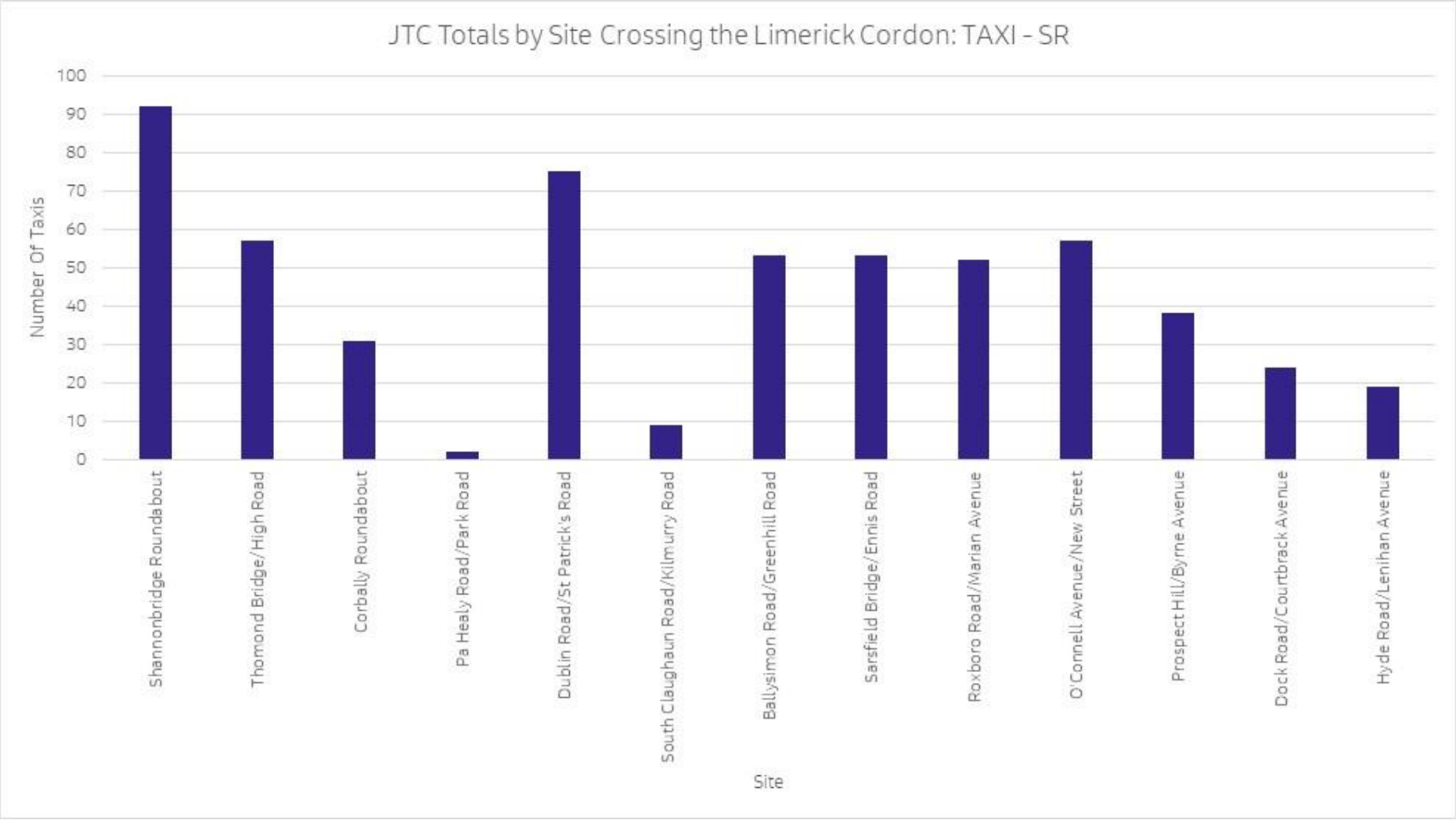


Figure 0-33:Number of Taxi Journeys for JTC Surveys for SR per Site

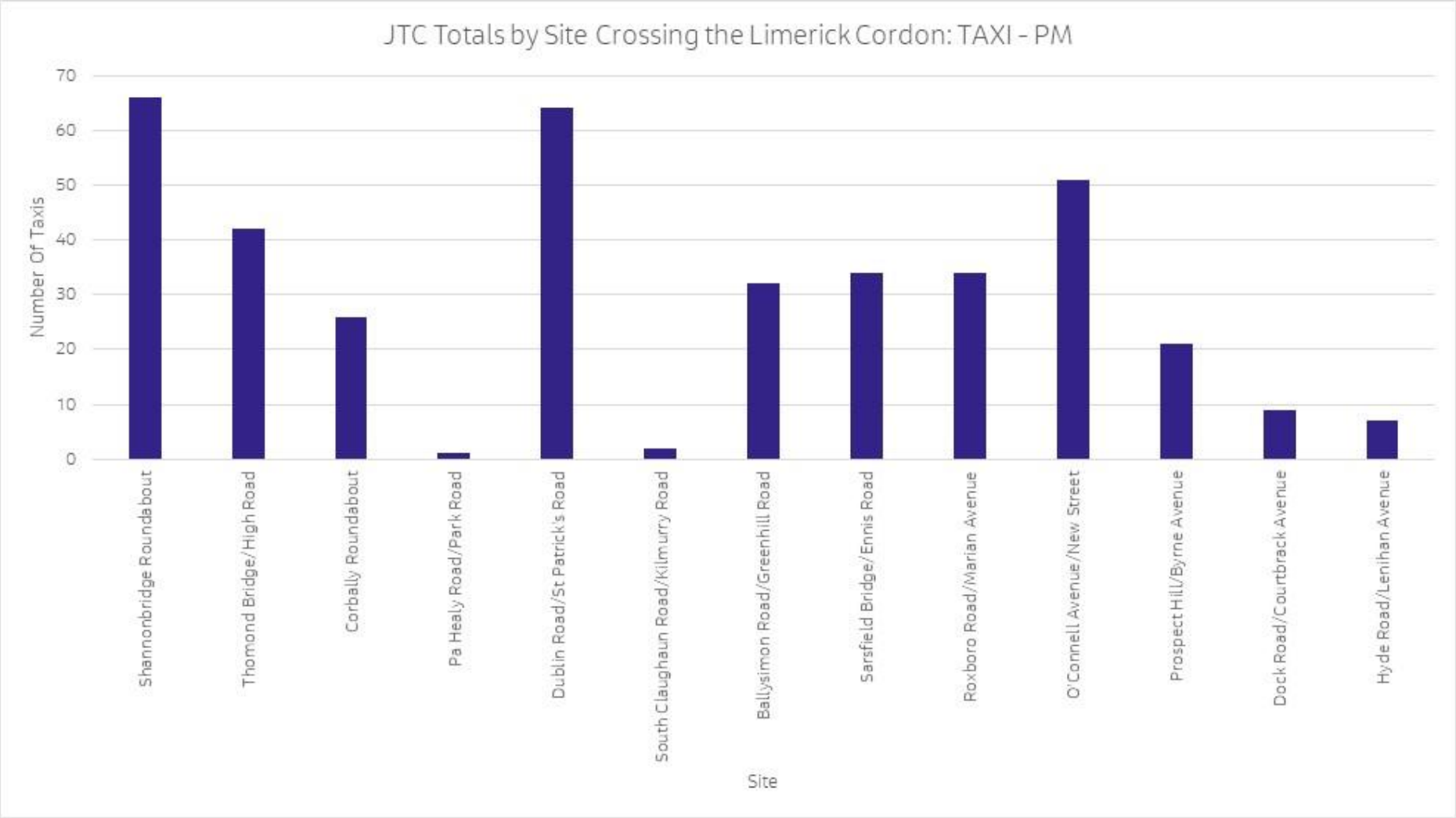


Figure 0-34:Number of Taxi Journeys for JTC Surveys for PM per Site

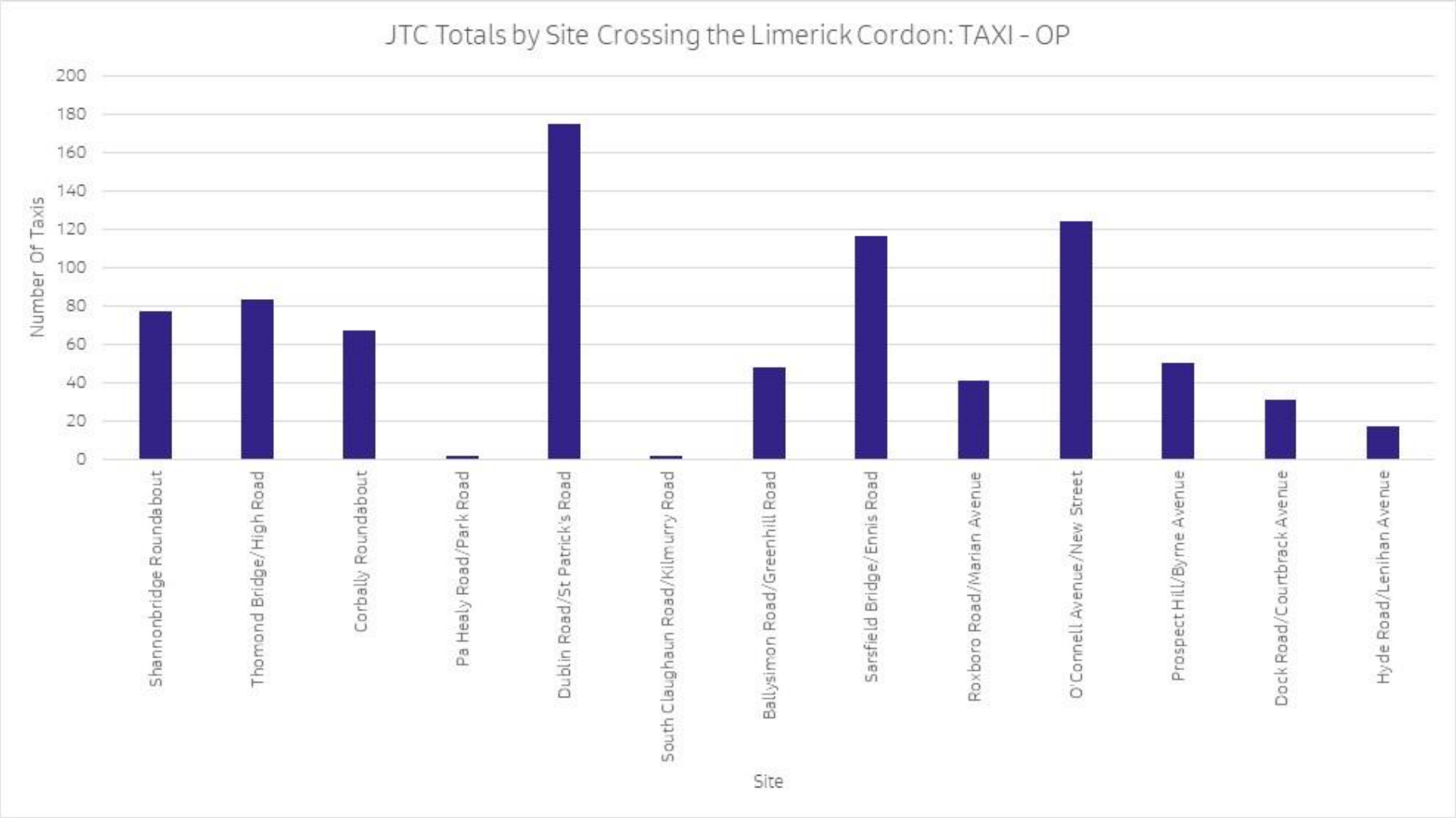


Figure 0-35:Number of Taxi Journeys for JTC Surveys for OP per Site

Bus Movements by Site and Period

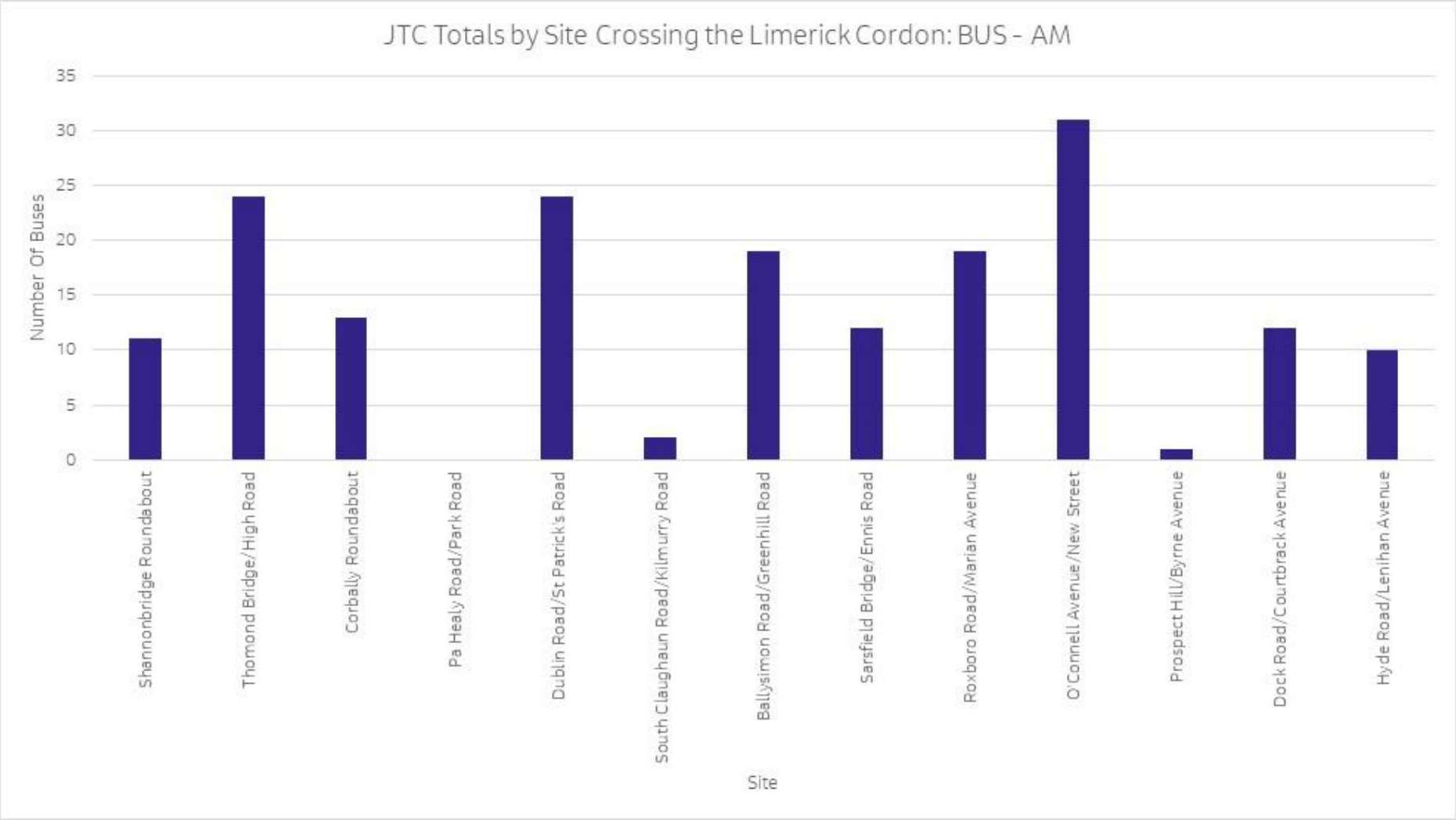


Figure 0-36:Number of Bus Journeys for JTC Surveys for AM per Site

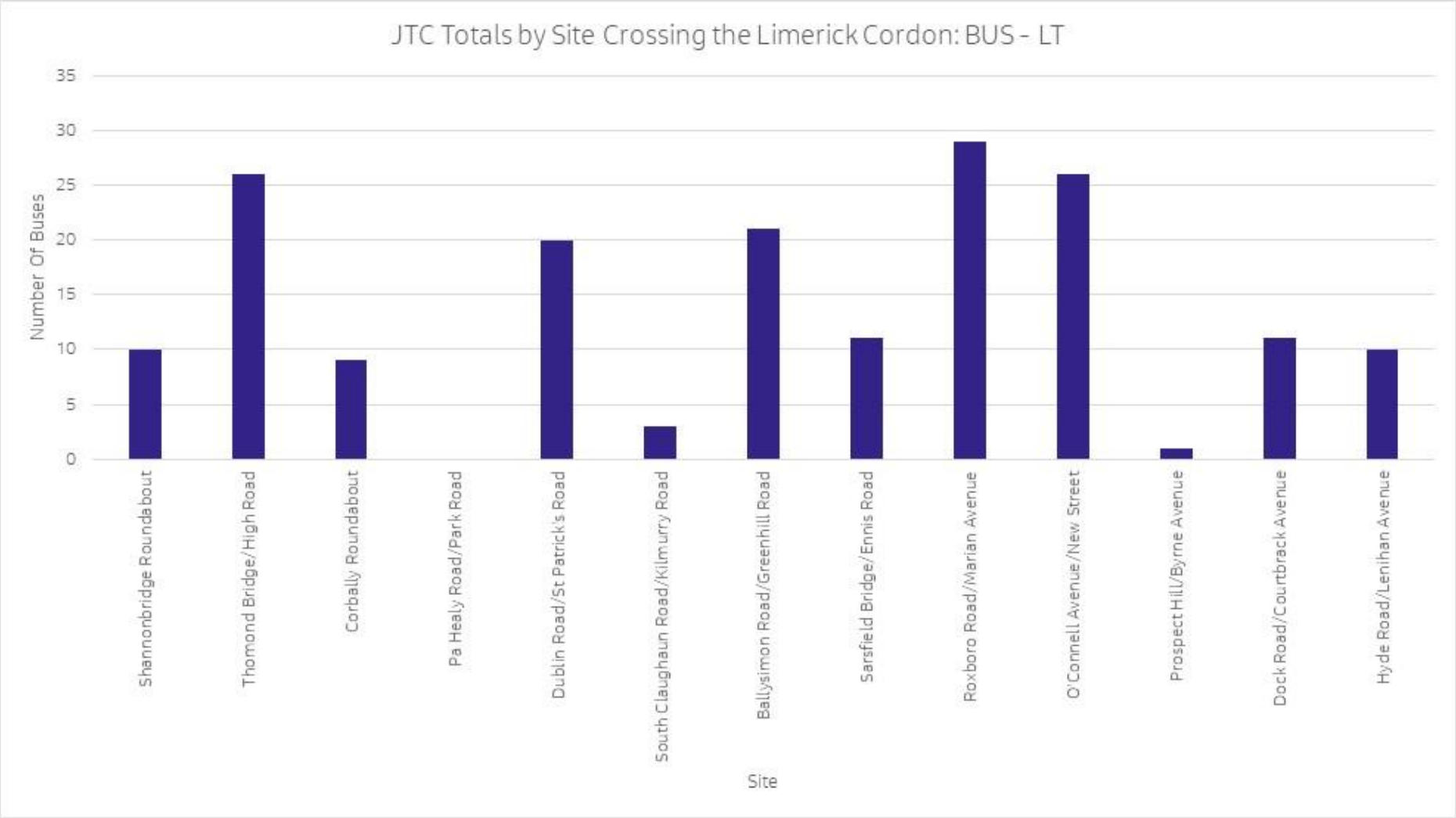


Figure 0-37:Number of Bus Journeys for JTC Surveys for LT per Site

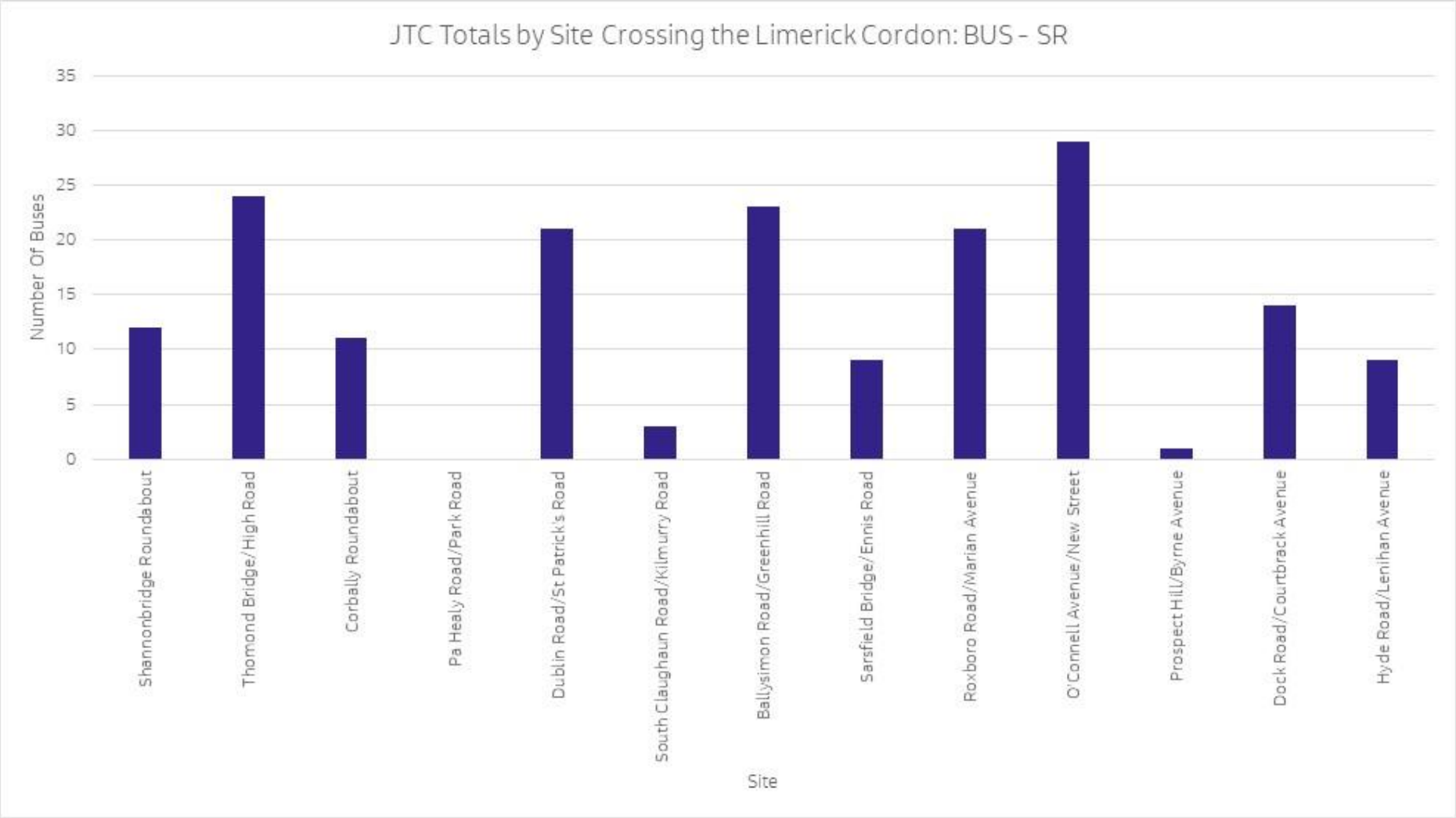


Figure 0-38:Number of Bus Journeys for JTC Surveys for SR per Site

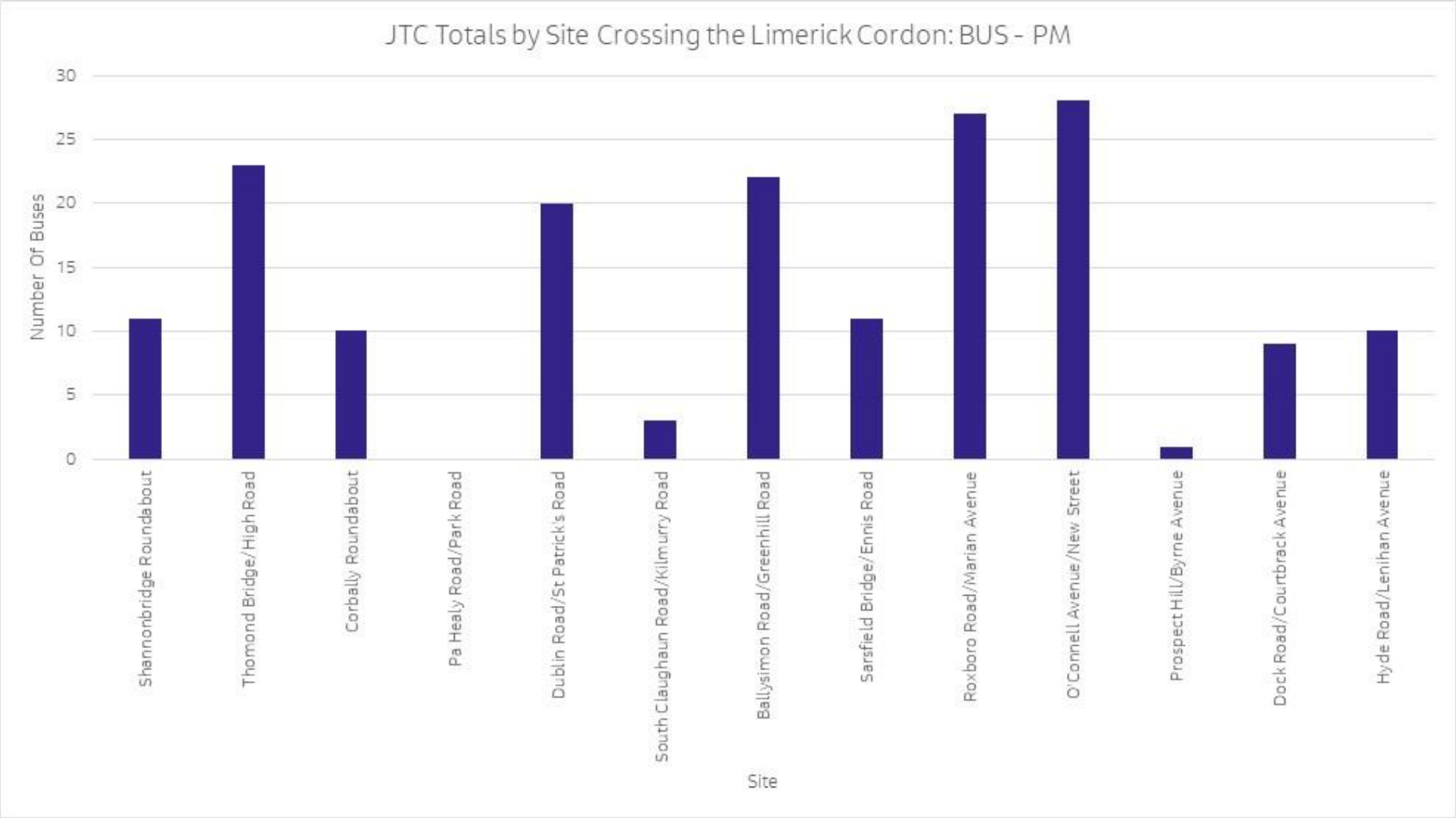


Figure 0-39:Number of Bus Journeys for JTC Surveys for PM per Site

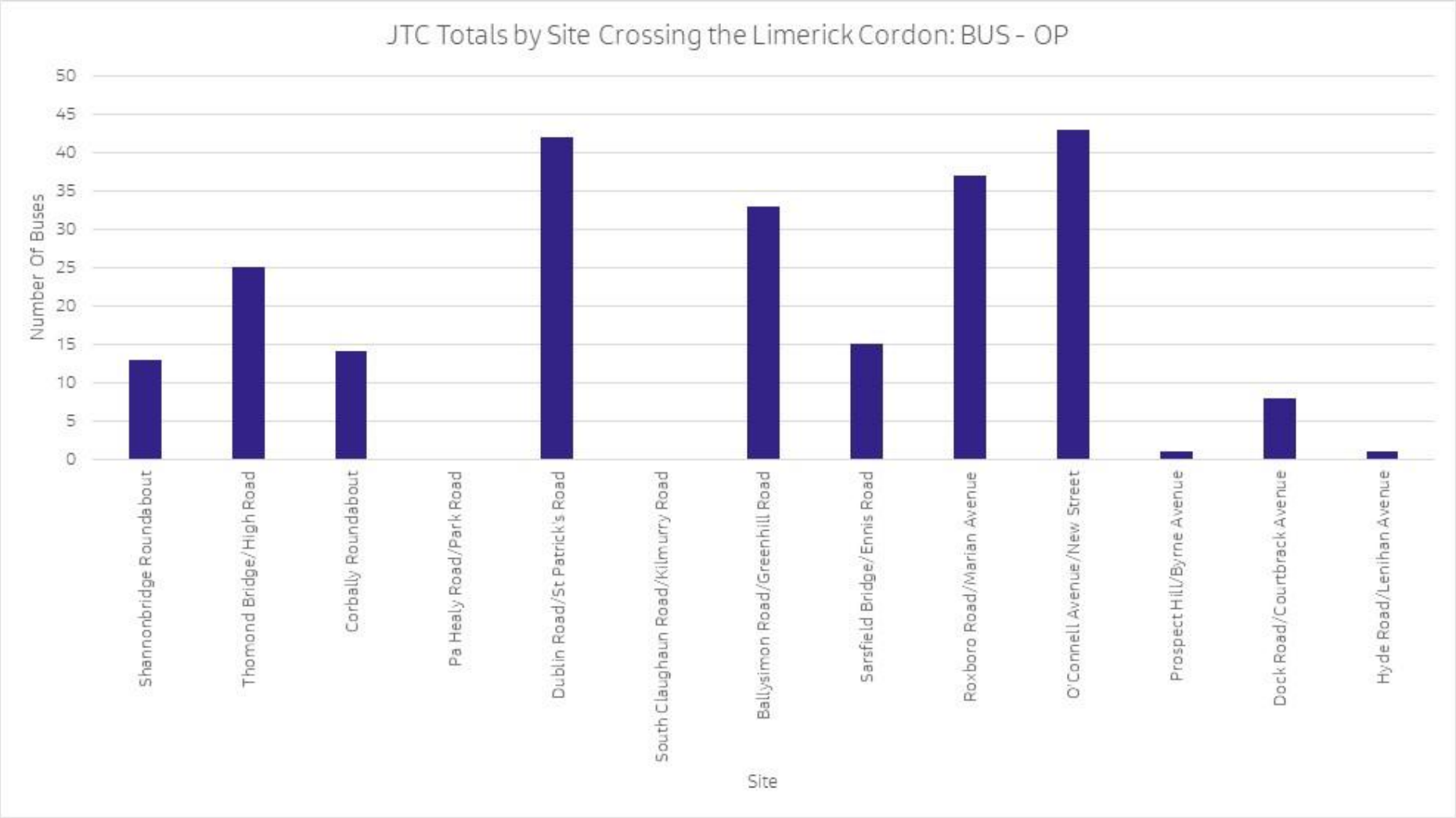


Figure 0-40:Number of Bus Journeys for JTC Surveys for OP per Site

Pedestrian Movements by Site and Period

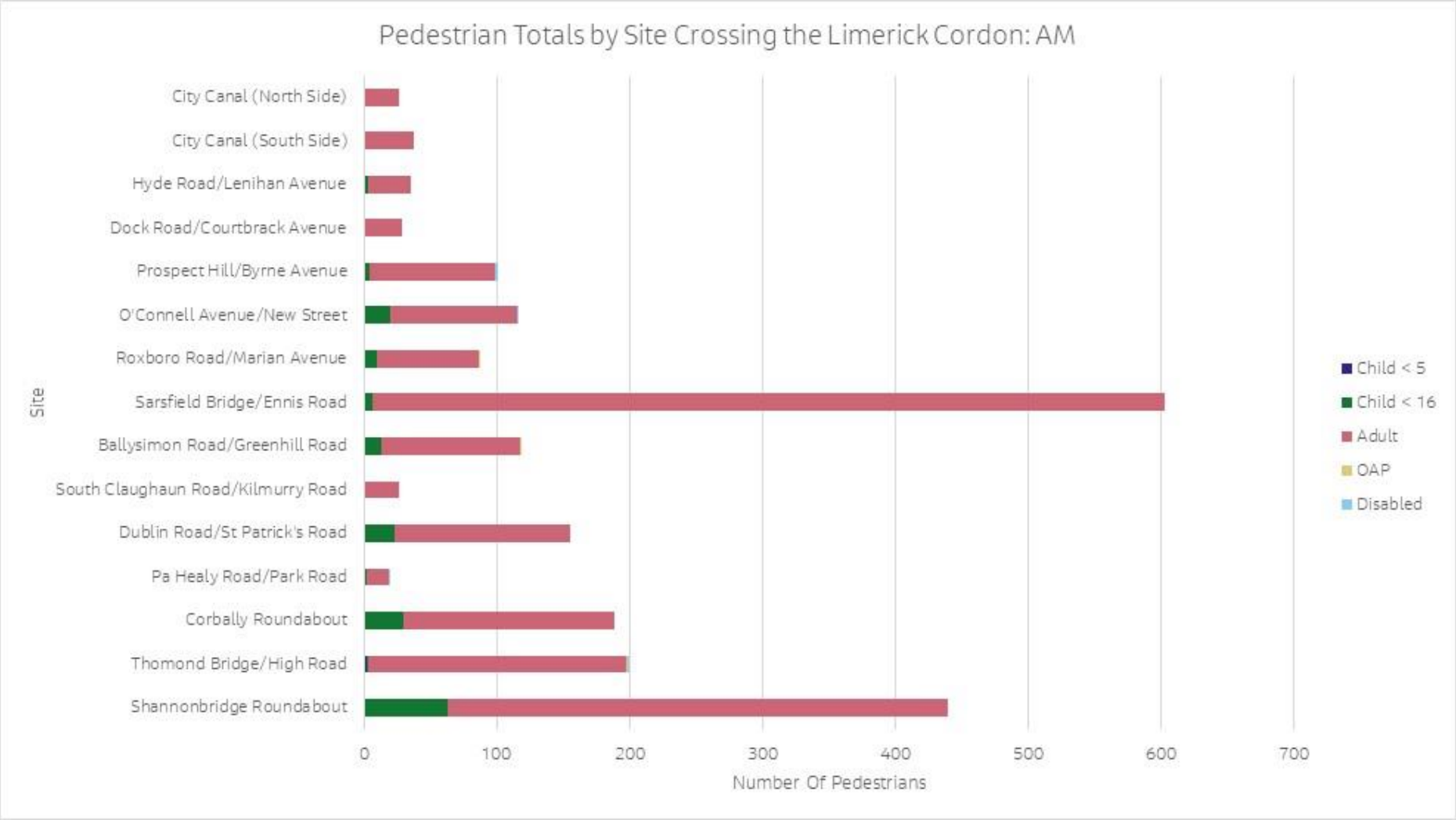


Figure 0-41:Number of Pedestrian Journeys for Ped Surveys for AM per Site

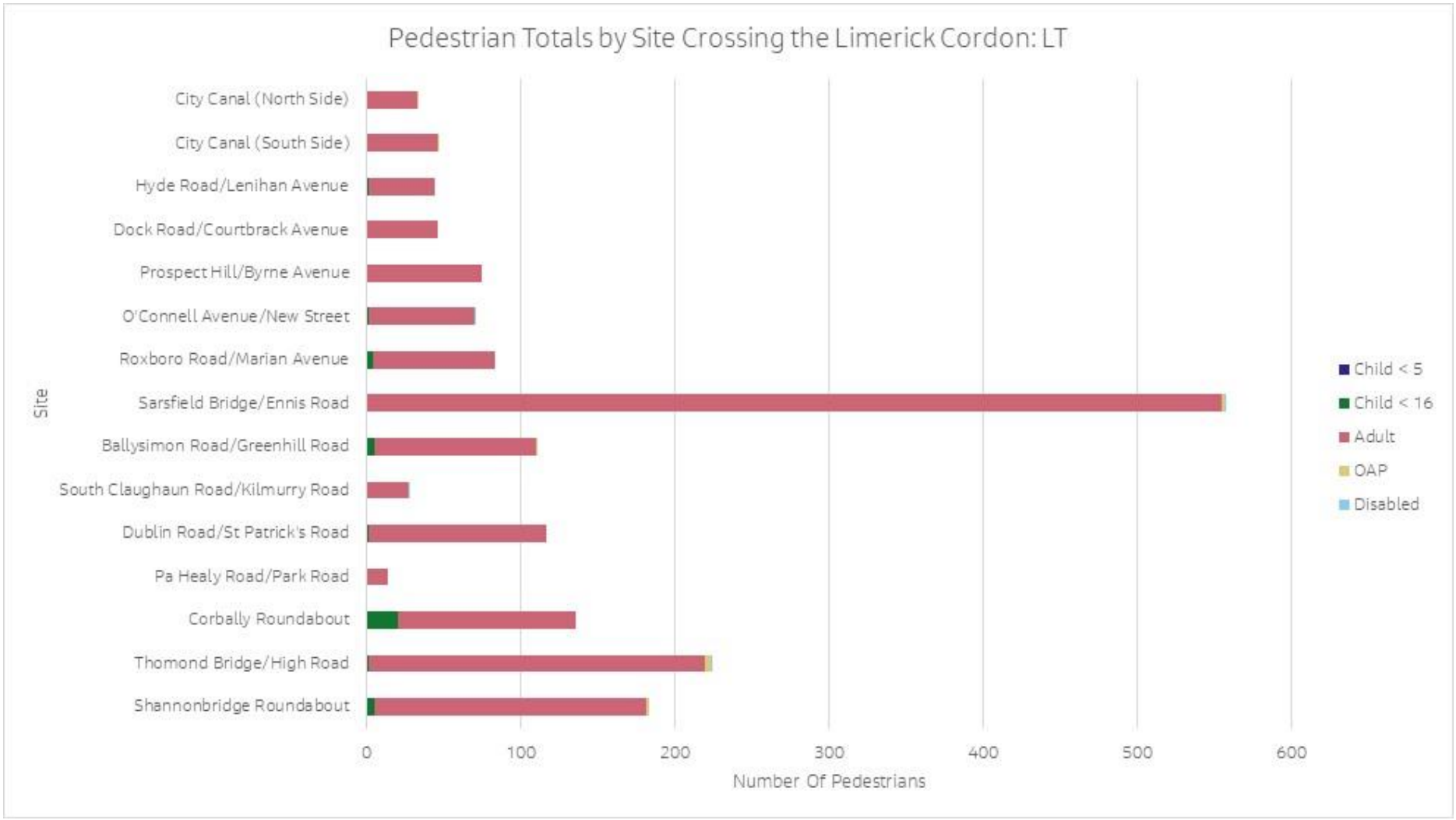


Figure 0-42:Number of Pedestrian Journeys for Ped Surveys for LT per Site

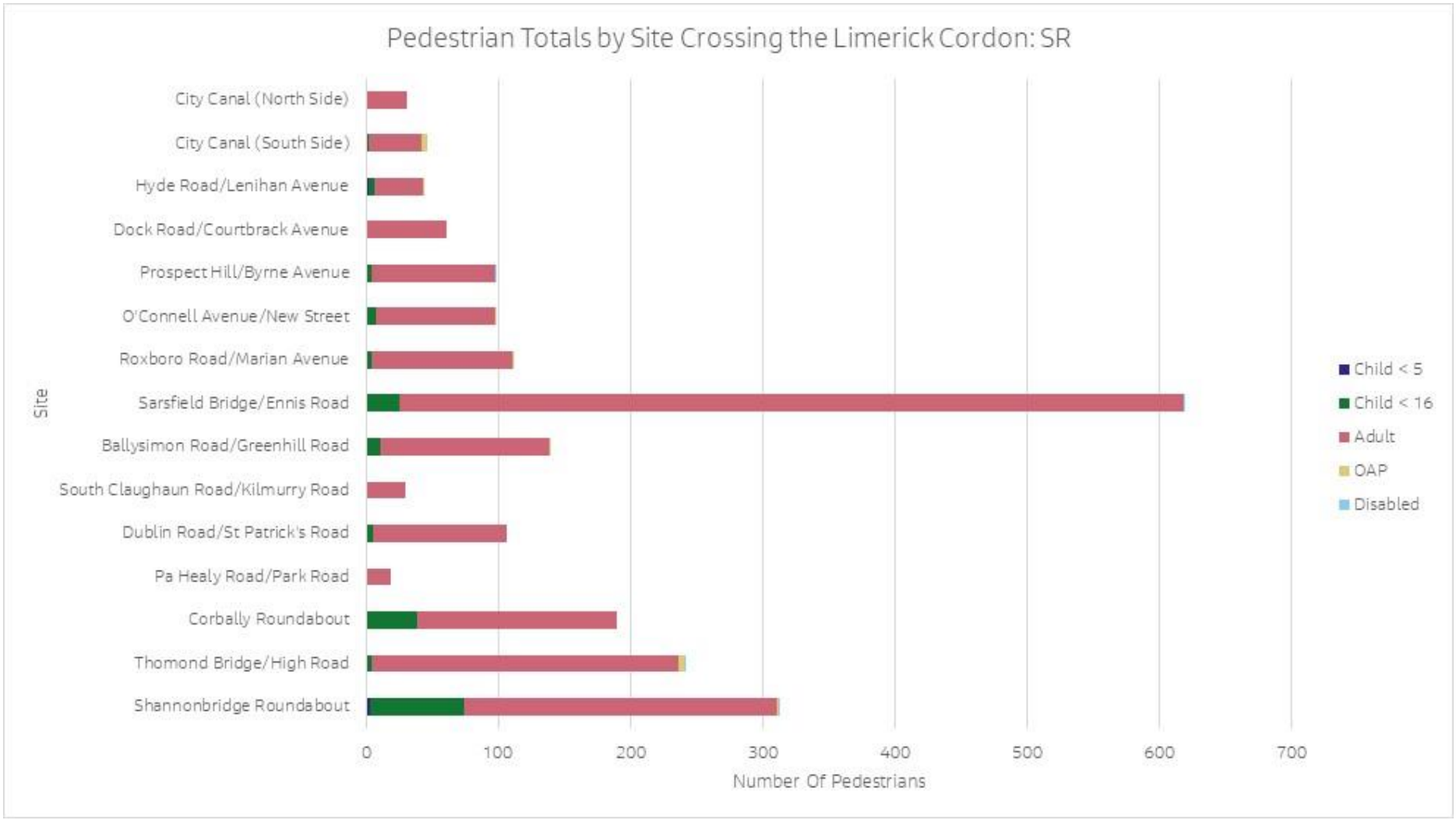


Figure 0-43:Number of Pedestrian Journeys for Ped Surveys for SR per Site

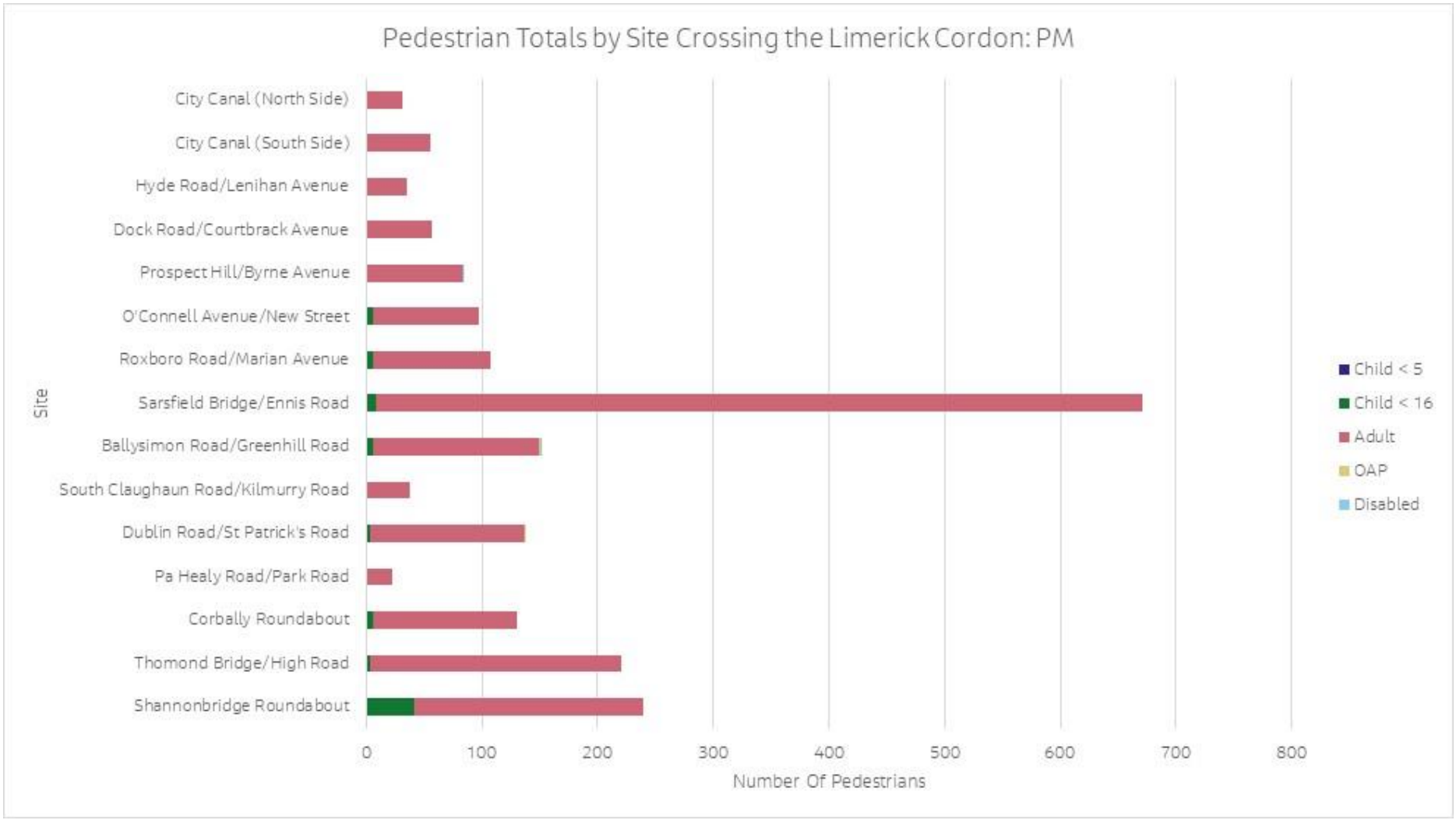


Figure 0-44:Number of Pedestrian Journeys for Ped Surveys for PM per Site

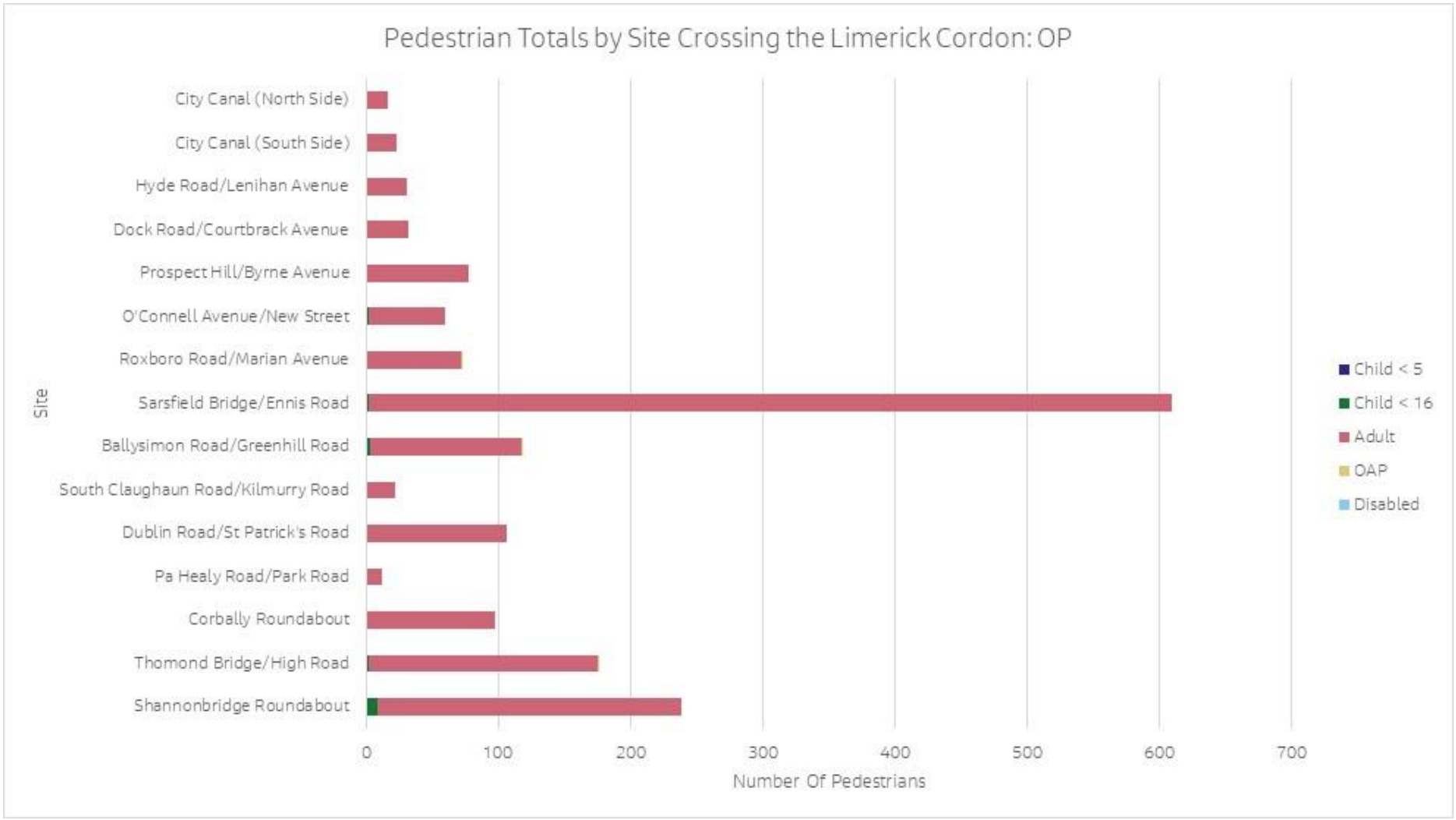


Figure 0-45:Number of Pedestrian Journeys for Ped Surveys for OP per Site

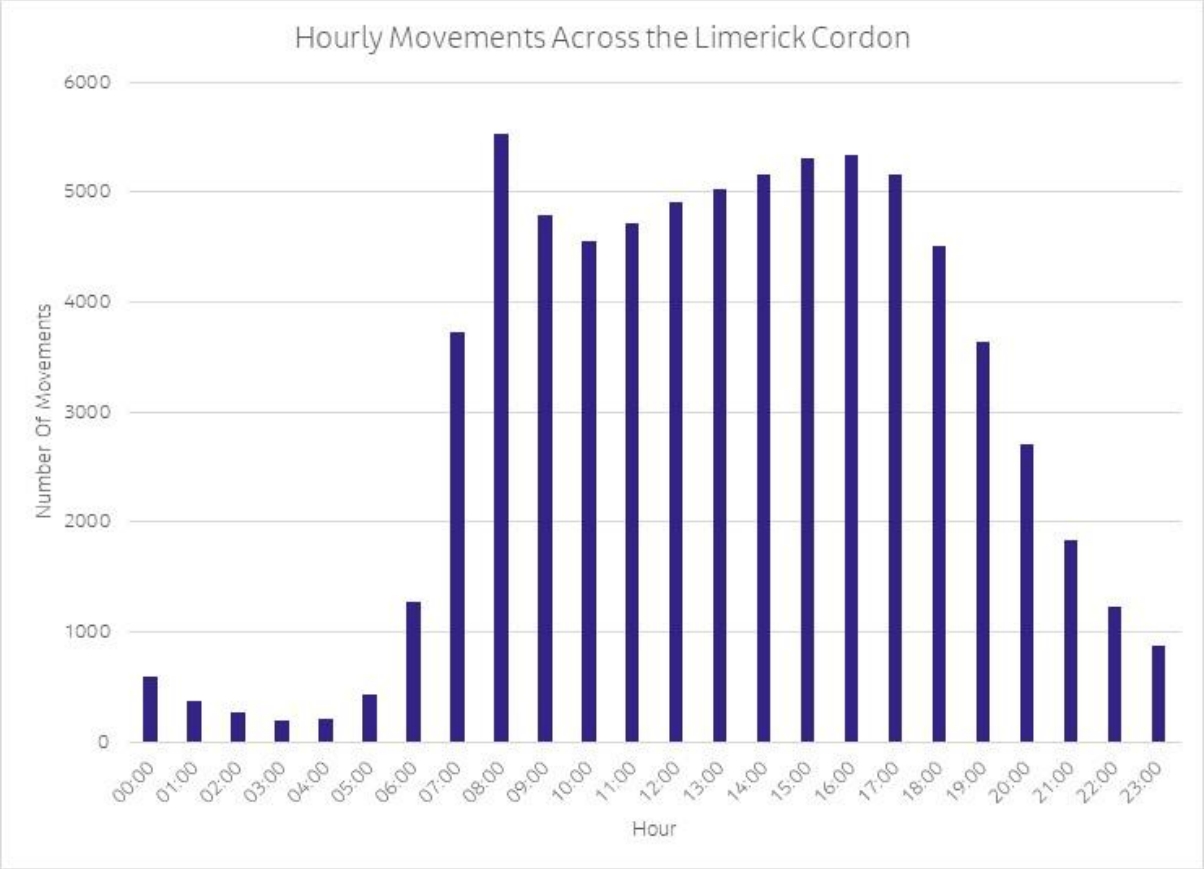


Figure 0-46:Daily Movements by Hour

Total Movements by Time Period

Mode	Trips	% Trips
P/C	311	1%
Pedestrian	2,182	7%
Car	22,365	72%
Taxi	636	2%
Bus	5,007	16%
Rail	394	1%

Table 0-1:AM Period Total Movements - Limerick Cordon

Mode	Trips	% Trips
P/C	188	1%
Pedestrian	1,772	7%
Car	18,067	72%
Taxi	841	2%
Bus	4,372	16%
Rail	285	1%

Table 0-2:LT Period Total Movements - Limerick Cordon

Mode	Trips	% Trips
P/C	249	1%
Pedestrian	2,149	7%
Car	19,787	72%
Taxi	831	2%
Bus	4,364	16%
Rail	250	1%

Table 0-3:SR Period Total Movements - Limerick Cordon

Mode	Trips	% Trips
P/C	309	1%
Pedestrian	2,080	7%
Car	20,412	72%
Taxi	587	2%
Bus	4,154	16%
Rail	523	1%

Table 0-4:PM Period Total Movements - Limerick Cordon

Appendix B - Additional Bus Stop Survey Data

Bus Stop Flow Data

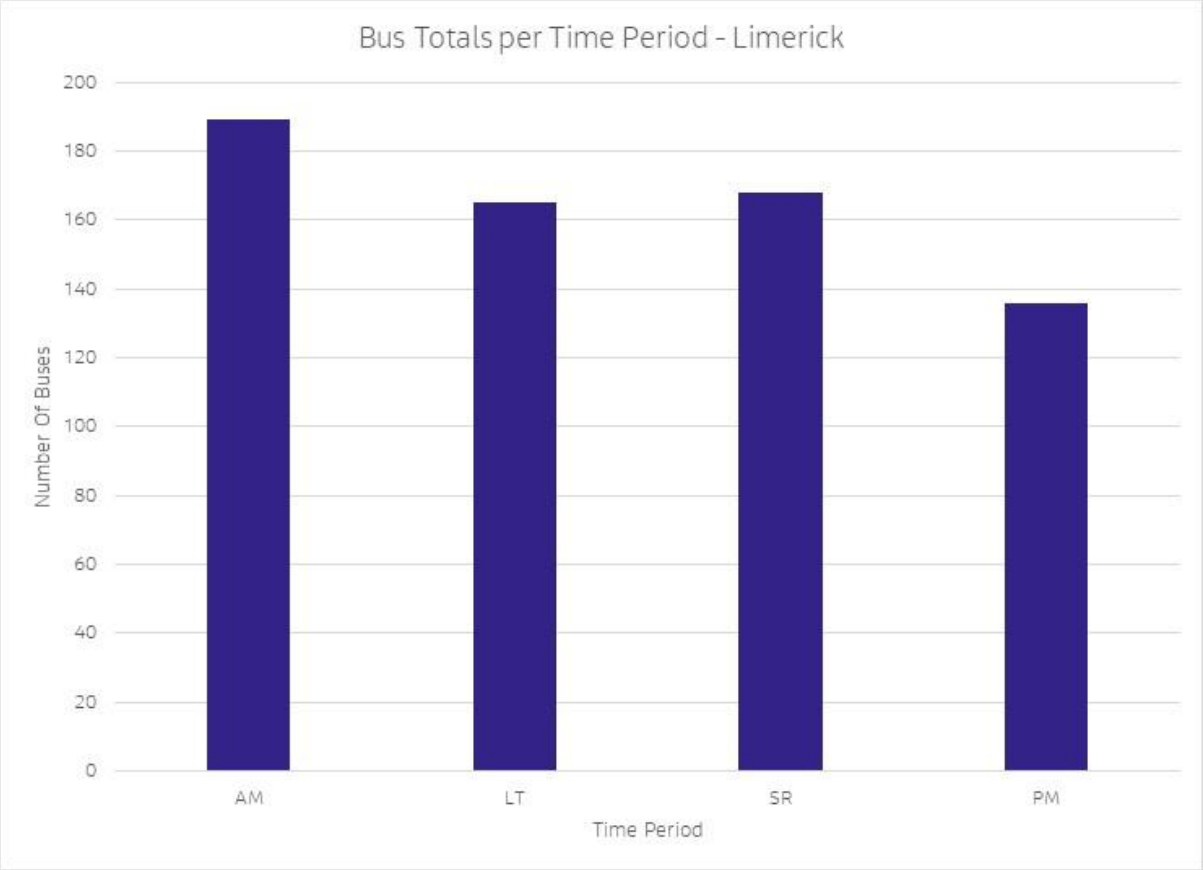


Figure 0-1:Total Buses per Time Period - Limerick

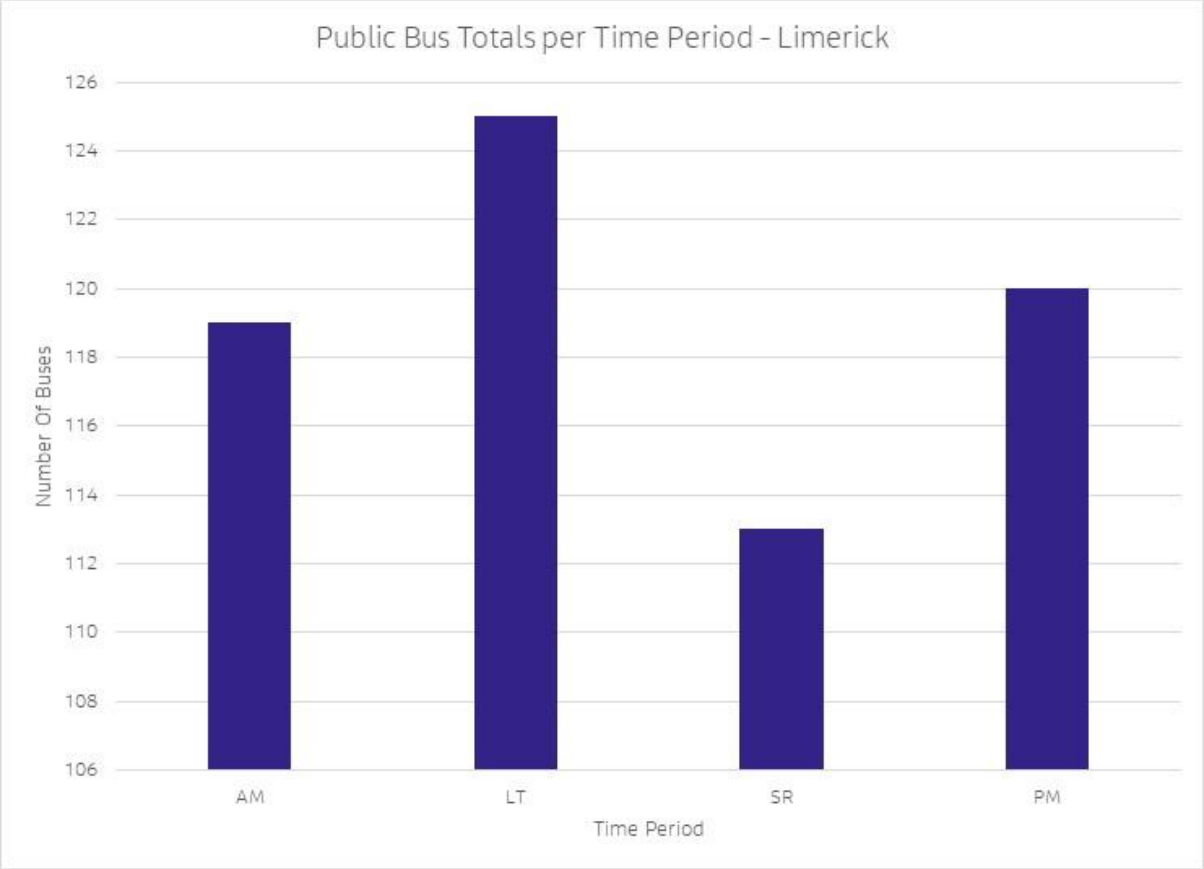


Figure 0-2:Public Buses Total per Time Period - Limerick

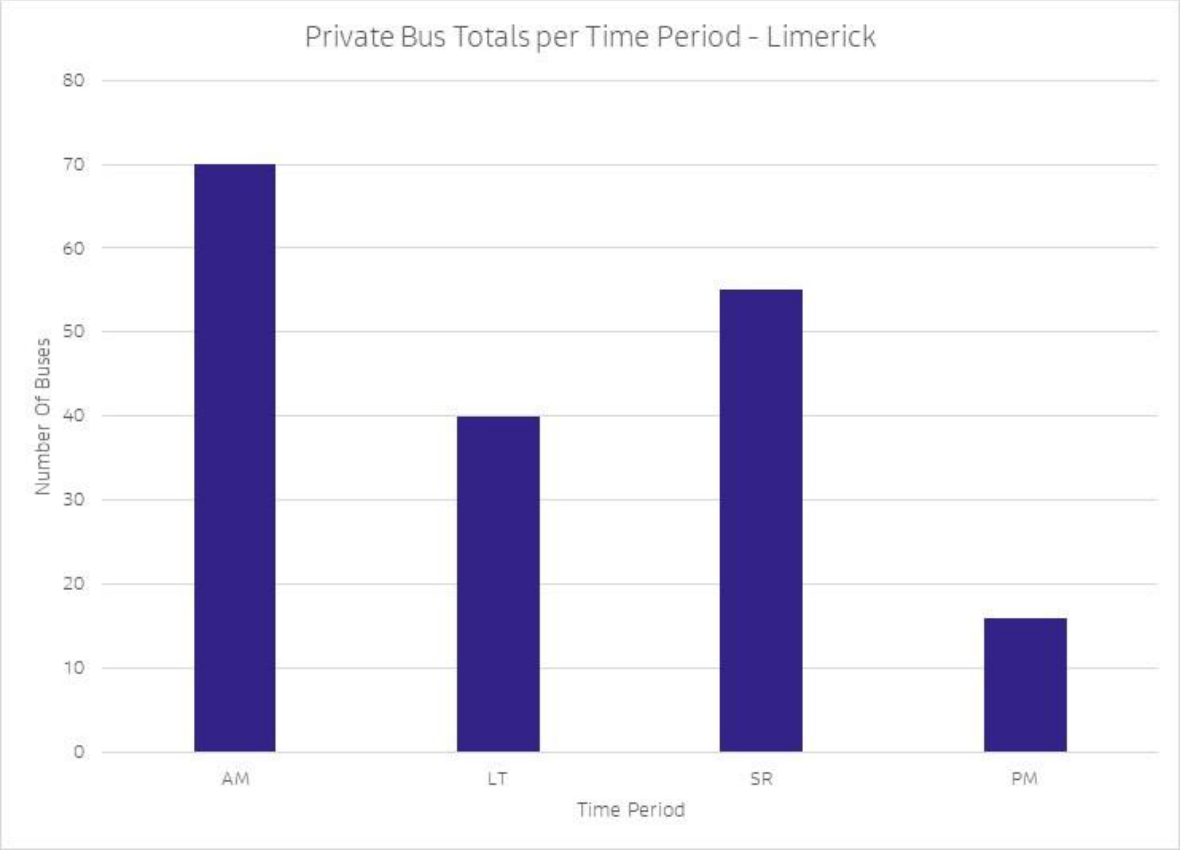


Figure 0-3:Private Buses Total per Time Period - Limerick

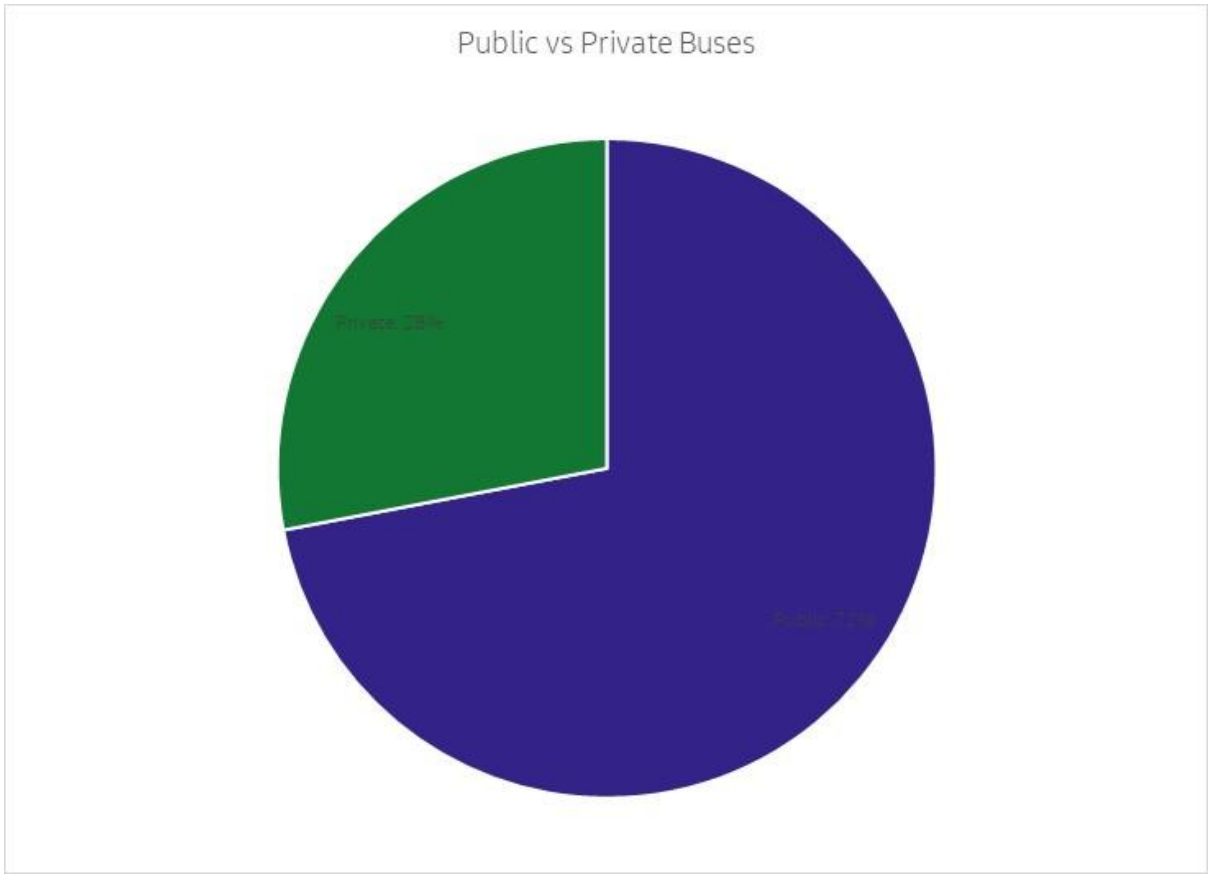


Figure 0-4:Private Buses vs Public Buses - Limerick

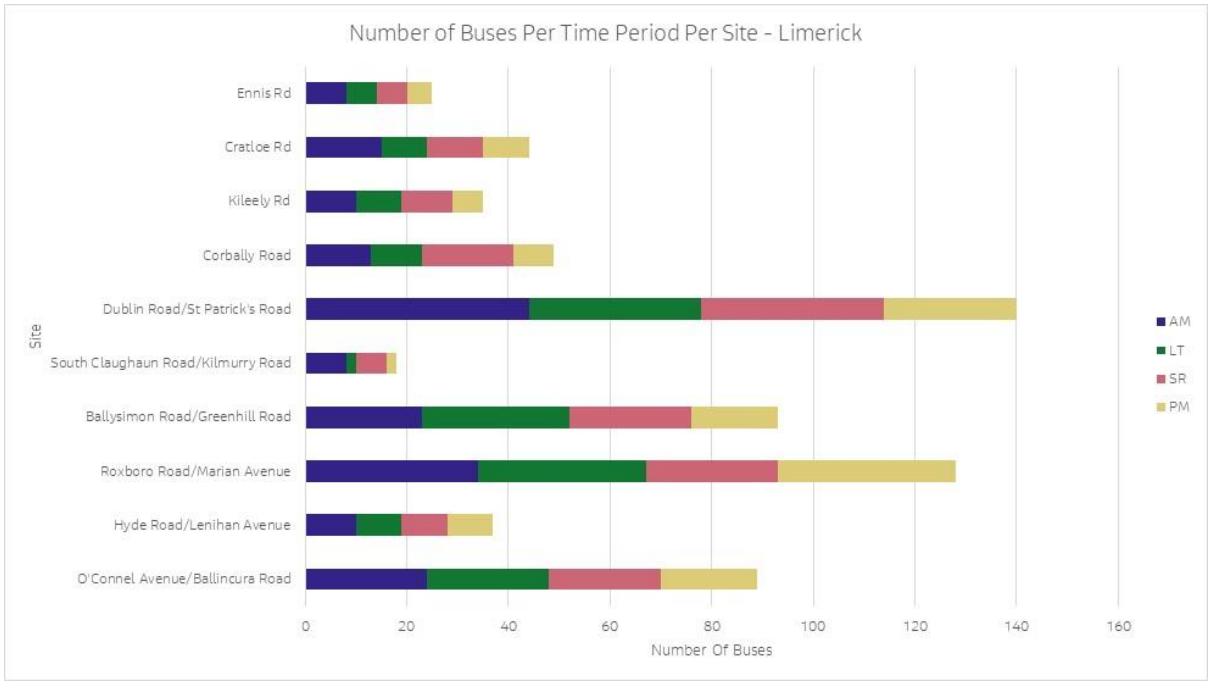


Figure 0-5:Number of Buses per Time Period Per Site - Limerick

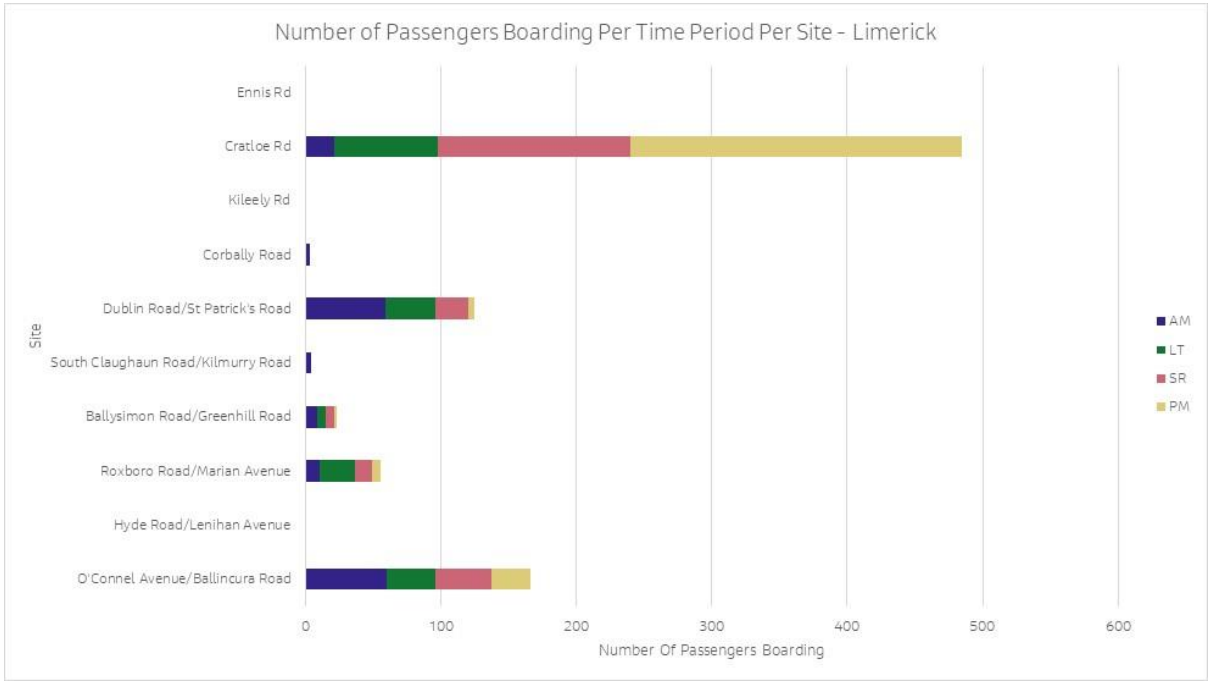


Figure 0-6:Number of Passengers Boarding per Time Period Per Site - Limerick

Bus Occupancy Methodology

The bus passenger trip numbers used throughout this report were calculated from the bus occupancy values via the following methodology.

First the average number of passengers for each bus type was calculated. These are standard industry bus occupancy values and are shown in the table below.

Average Occupancy of a Bus per Bus Type				
Double Decker	**Single Decker**	**Single Coach**	**Double Coach**	**Mini Bus**
94	37	55	79	16

Table 0-1:Average number of passengers per bus type

Then, working back from the average number of passengers per bus type, a value was calculated which corresponds with each occupancy percentage that was recorded in the bus surveys. This was calculated by taking the maximum passenger numbers per bus type, dividing the value by 100 and multiplying by the occupancy value.

Occupancy %	Double Decker Passenger Number	Single Decker Passenger Number	Single Coach Passenger Number	Double Coach Passenger Number	Mini Bus Passenger Number
0	0	0	0	0	0
5	5	2	3	4	1
10	9	4	6	8	2
15	14	6	8	12	2
20	19	7	11	16	3
25	24	9	14	20	4
30	28	11	17	24	5
35	33	13	19	28	6
40	38	15	22	32	6
45	42	17	25	36	7
50	47	19	28	40	8
55	52	20	30	43	9
60	56	22	33	47	10
65	61	24	36	51	10

70	66	26	39	55	11
75	71	28	41	59	12
80	75	30	44	63	13
85	80	31	47	67	14
90	85	33	50	71	14
95	89	35	52	75	15
100	94	37	55	79	16

Table 0-2:Occupancy Per Bus Type

Then, using the above table, the average number of passengers per bus type and occupancy range was calculated. The below table defines the ranges and the average passenger number for each range. The passenger numbers from the above table for each range are added together and the average calculated.

Average number of passengers per range					
Range	**Double Decker**	**Single Decker**	**Single Coach**	**Double Coach**	**Mini Bus**
0-24%	9	4	6	8	2
25-50%	33	13	19	28	6
51-74%	38	15	22	32	6
75-99%	61	24	36	51	10
100%	94	37	55	79	16

Table 0-3:Average passengers per range

The same process was then carried out to calculate the lower and upper passenger bounds of each bus type. These upper and lower bounds, along with the average passenger numbers can be seen in the below tables.

Lower Bound of passengers per range					
Lower	**Double Decker**	**Single Decker**	**Single Coach**	**Double Coach**	**Mini Bus**
0-24%	0	0	0	0	0
25-50%	5	2	3	4	1
51-74%	28	11	17	24	5
75-99%	52	20	30	43	9
100%	75	30	44	63	13

Table 0-4:Lower bound of passengers by range

Upper Bound of passengers per range					
Upper	**Double Decker**	**Single Decker**	**Single Coach**	**Double Coach**	**Mini Bus**
0-24%	19	7	11	16	3
25-49%	42	17	25	36	7
50-74%	66	26	39	55	11
75-99%	89	35	52	75	15
100%	94	37	55	79	16

Table 0-5:Upper bound of passengers by range

Bus Passenger Trips

The following graphs indicate how many passengers crossed each cordon on a bus during each time period at each site. The data in this section was taken from the Bus Occupancy surveys, where average bus occupancy values have been used to calculate the average number of passengers on board each bus.

Figure 0-7:Total Inbound Journeys – Buses Per Site - Limerick

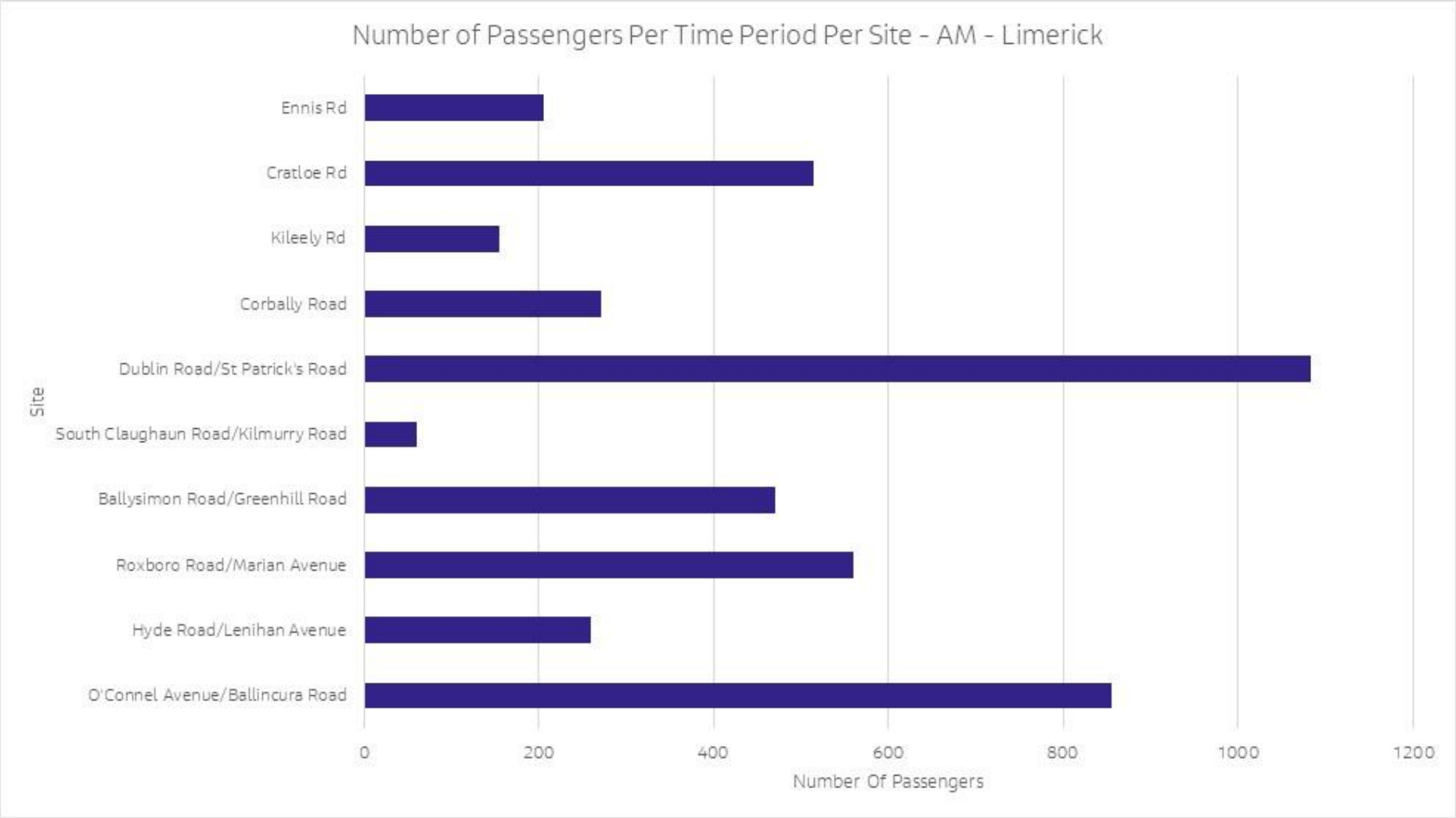


Figure 0-8:Bus Passengers - AM - Limerick

Figure 0-9:Bus Passengers - LT - Limerick

Figure 0-10:Bus Passengers - SR - Limerick

Figure 0-11:Bus Passengers - PM - Limerick

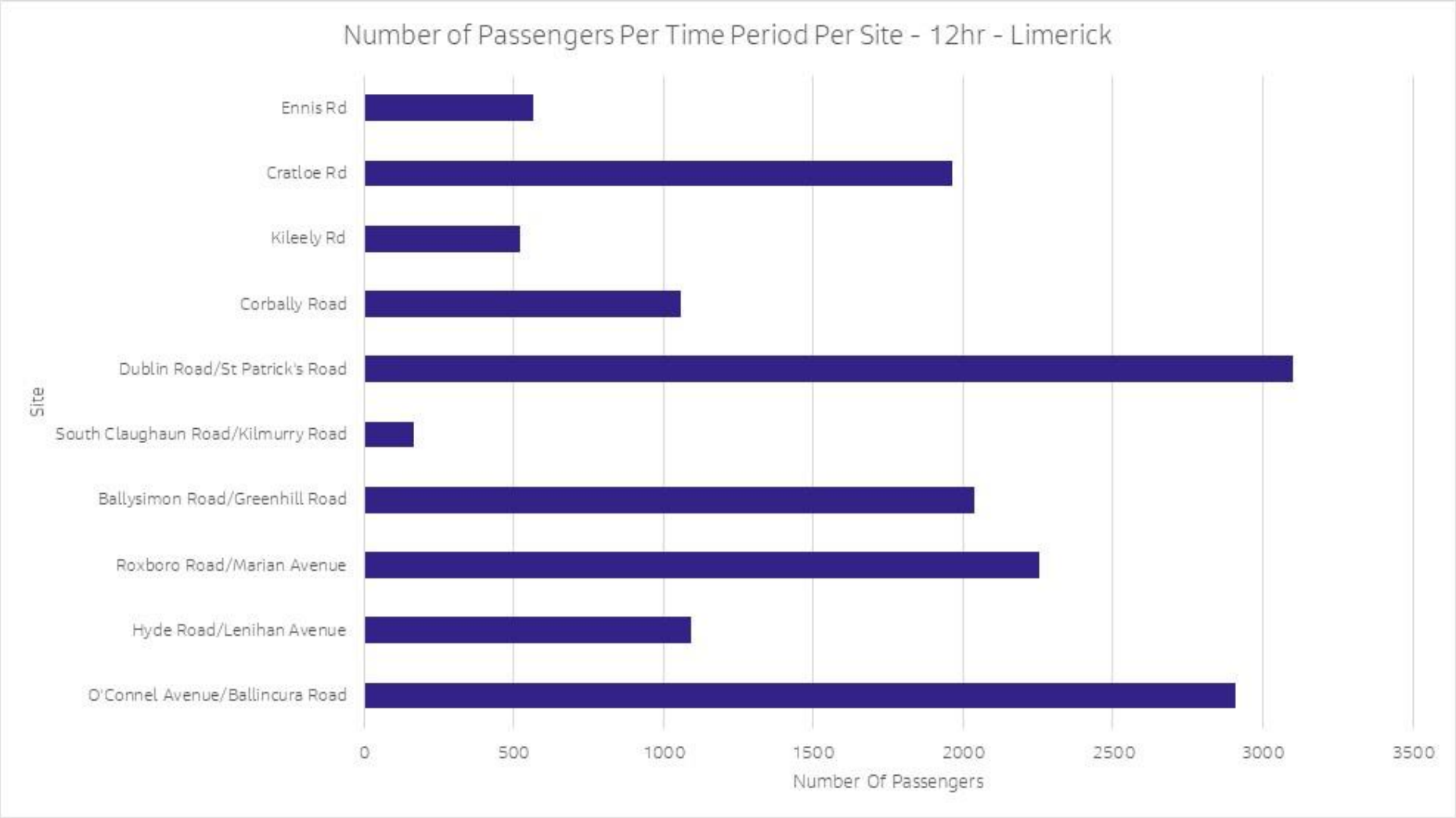


Figure 0-12:Bus Passengers - 12hr - Limerick

Figure 0-13:Total Passenger Trips Per Site Per Time Period - Limerick

Appendix C - Heavy Rail Data

The heavy rail passenger numbers are taken from the Annual Rail Census, carried out by Iarnród Éireann. The Passenger numbers from these services were taken from the following stations, where the train crossed the Limerick City Cordon, or the first station that the train stopped at, after crossing the Cordon.

- Limerick Colbert Train Station

All Rail Trips Inbound Across Cordon	Trips
AM	394
LT	285
SR	250
PM	523
12hr	1,452

Table 0-1:Rail Passengers per Time Period

Origin	AM	LT	SR	PM	12hr
Heuston	0	0	0	138	138
Thurles	121	0	0	0	121
Limerick Junction	63	117	181	273	634
Nenagh	46	0	0	0	46
Ballybrophy	0	15	0	0	15
Ennis	32	0	22	20	74
Galway	132	46	47	0	225
Ennis	0	58	0	0	58
Limerick Junction	0	49	0	92	141

Table 0-2:Rail Passengers by Origin