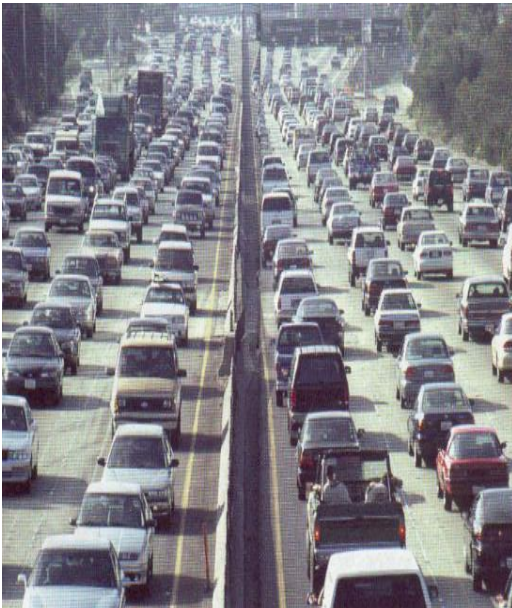


# A SUCCESSFUL TOD WILL REINFORCE BOTH THE COMMUNITY & THE TRANSIT SYSTEM?

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UWA- Australia



***Transit-oriented development (TOD) has become the dominant urban growth planning paradigm in Australia and is recognised as a way to encourage economic revitalisation, community diversity, and travel alternatives.***

## **What is TOD? The common answer is:**

- **High densities of mixed-use development around railway stations.**
- **It's such a simple concept, and TOD is becoming the new cult of planning.**
- **TOD is a new type of urban form that will be the answer to all our growing problems.**
- **TOD is not a new urban design and applied to the affected area.**
- **TO Design is a good urbanism that happens to be near, around, or above a stop on an effective public transit service.**

## ***TOD in Australia:***

***Is an increasingly popular strategy for encouraging smart growth in Australia.***

***Western Australia has implemented policies and programs that facilitate intra- and inter-governmental cooperation to promote TODs.***

***Western Australia has won the National Urban Planning Achievement Award for the State's TOD program “Reconnecting Perth”.***

***The experiences of transit operators, and local authorities, with TOD will help Perth establish a planning framework and to take action toward station-area development.***

***The three cases of TOD were selected either because they represent comparable rail station types (and/or physical settings) or because certain types of implementation Tools were used to make TOD happen.***

***Perth has one of the lowest population Densities in the world.***

***Perth is best described as a low density city and employment densities accompanied by high levels of car ownership and use, it also has a relatively high proportion of its total workforce located within the Central Business District (CBD) and a relatively high proportion of public transport usage per capita on rail.***



## OVERVIEW

***The primary aims of this work have been to determine the best ways to reduce out-of-vehicle travel burden and improve transit users' experience at stops, stations, and transfer facilities. In order to achieve this it has been essential to consider the development of various improvements at stops, stations, and transfer facilities and to understand how these improvements affect people's travel behavior. In gaining and understanding this it is important to recognize that transit systems' primary focus is clearly their passengers and the perceptions and needs of these passengers.***

## **SURVEY HIGHLIGHTS**

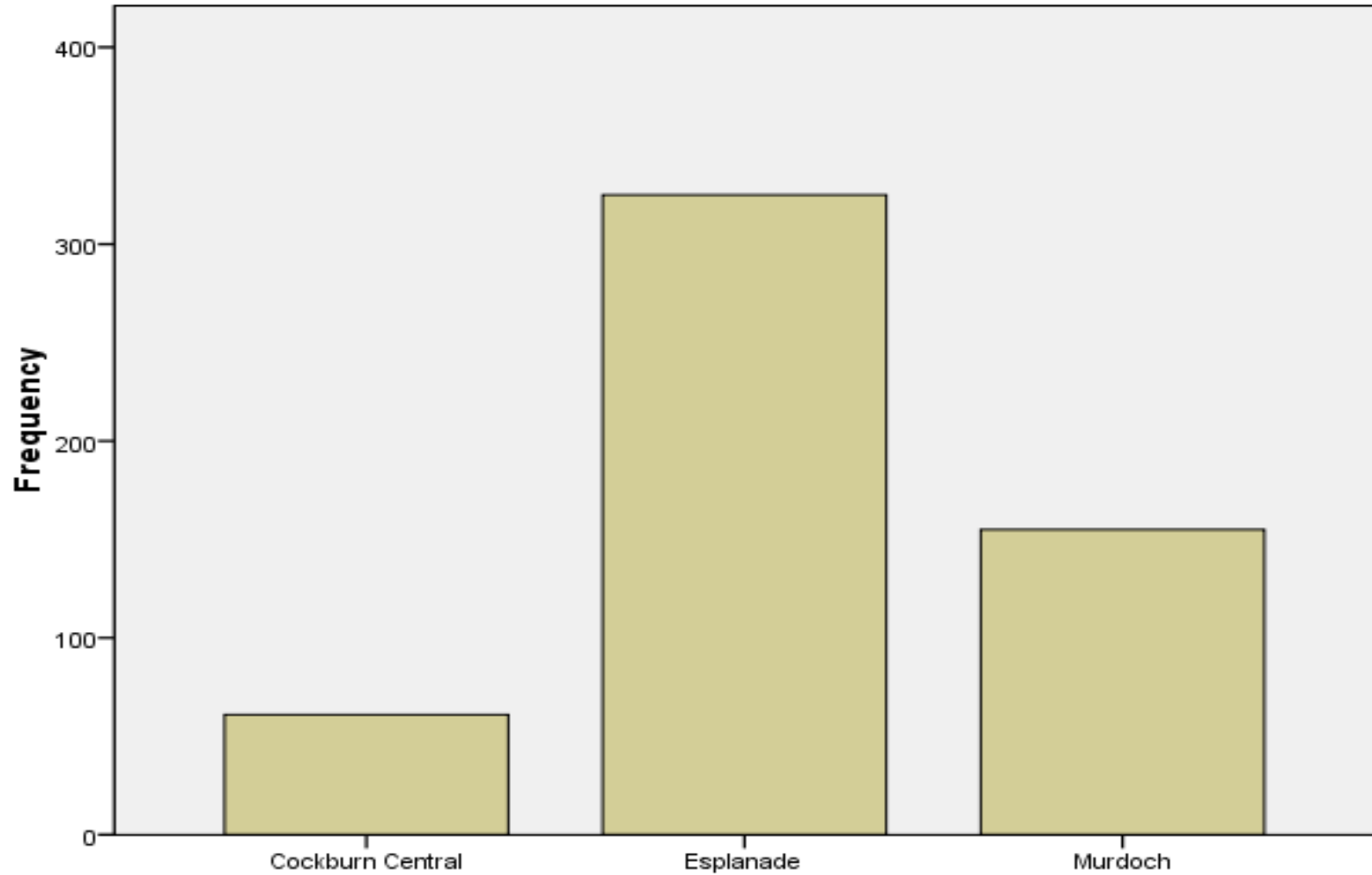
**The data collection for the survey was successful in terms of the number of responses from passengers, with 550 distributed (face- to-face interviews) a total of 544 valid surveys were obtained from across the 3 stations. It is considered that the data collection exercise provided acceptable and reliable evidence for each of the individual stations.**

**1. Esplanade Station**

**1. Murdoch Station**

**1. Cockburn Central Station**

Figure1. The survey stations distribution



## **Survey data collected was oriented to obtain information with the following survey objectives:**

- ❑ Origin purpose;**
- ❑ Mode of access to the public transport system;**
- ❑ Destination address;**
- ❑ Destination purpose;**
- ❑ Egress mode from the public transport system**
- ❑ Household car ownership availability for the trip made;**
- ❑ Journey made by car;**
- ❑ Ticket type; and gender/age.**
- ❑ Customer satisfaction**
- ❑ Suggestions**

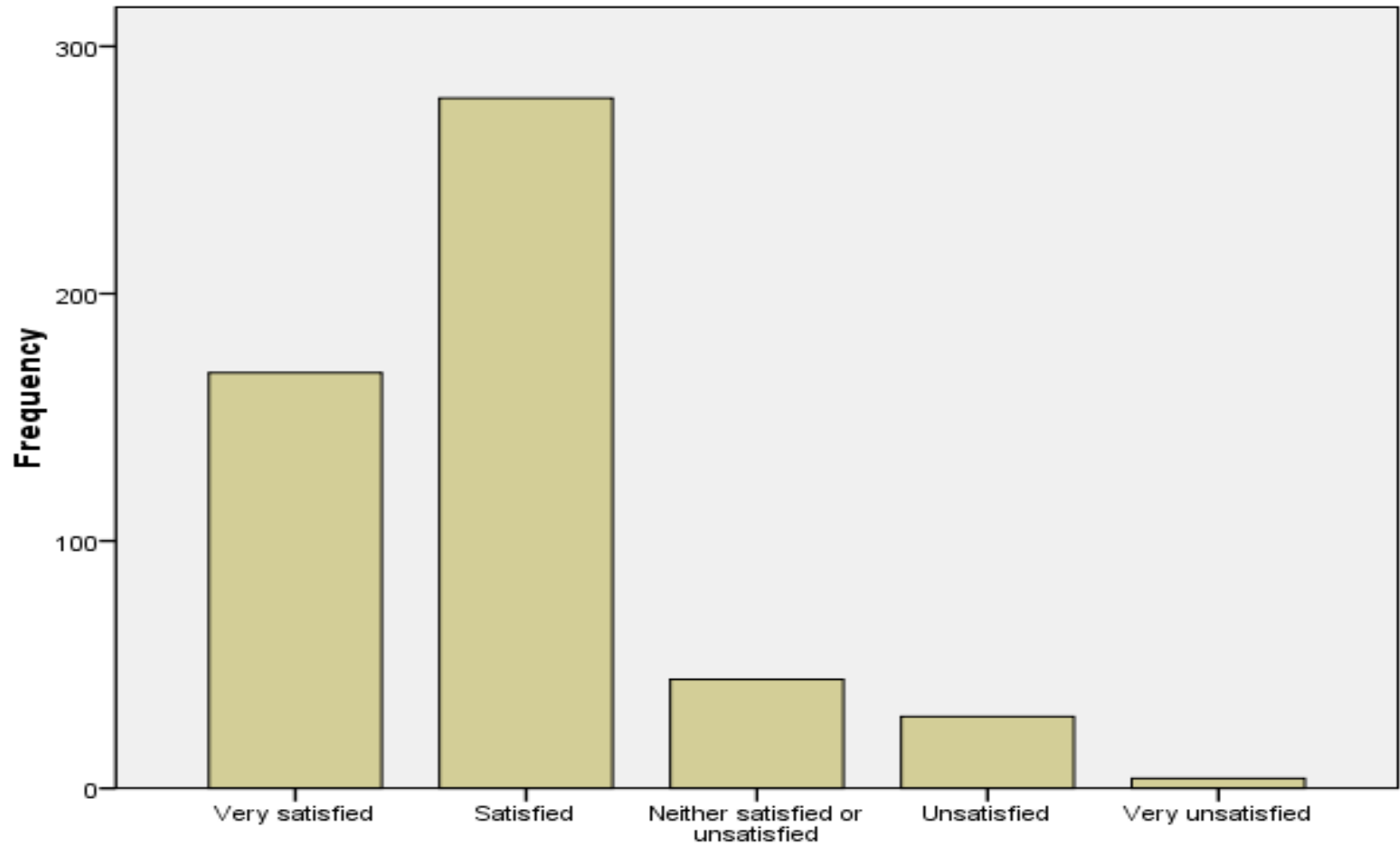
## **The New Mandurah Line which will demonstrate sustainability in action through:**

- reducing the use of motor vehicles and encouraging public transport use by locating residential and commercial/mixed use development close to major public transit services;**
- encouraging pedestrian activity and bicycle usage by providing pedestrian and cycleway linkages within the project area, and connecting the project area to the surrounding community;**
- generating local business opportunities, resulting in increased local employment opportunities;**
- encouraging energy efficient housing options; and**
- providing a mixture of affordable housing options.**

**The principal objectives of the travel surveys were to determine the methods used by Passengers to get to and from the rail system and to identify transfer patterns used by Passengers within the system during a given trip.**

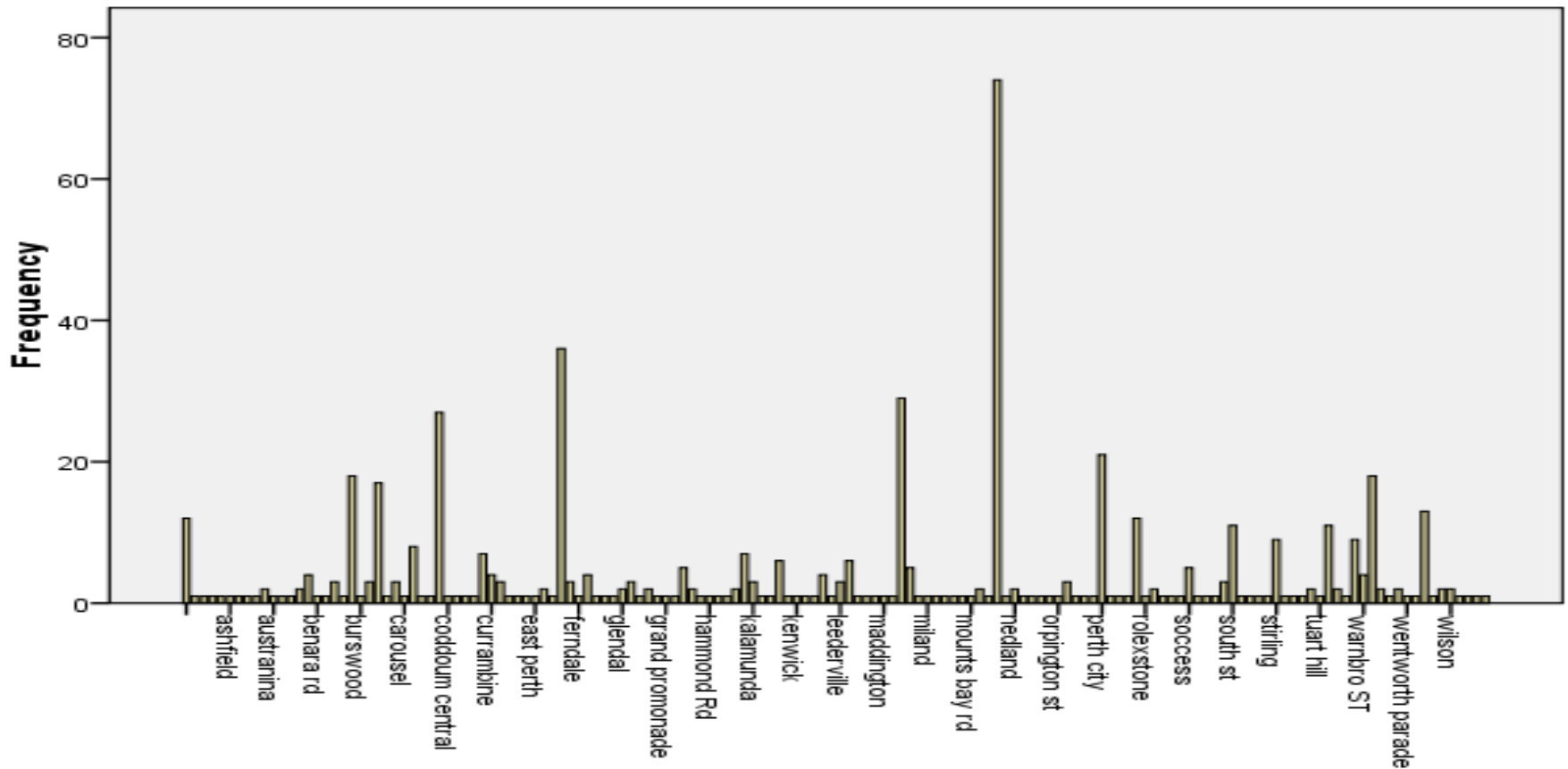
**Overall, survey results support the observation of user satisfaction with the New Mandurah Line experience and indicate that, in general, they are least happy with factors related to access, followed by some factors related to security and safety and connection and reliability. When we considered the level of satisfaction and importance ratings in tandem, factors that require improvement at the 9 stops and stations surveyed pertain most to security and safety, connection and reliability, and least to amenities.**

**Figure 2. Overall satisfaction with the bus and train services**



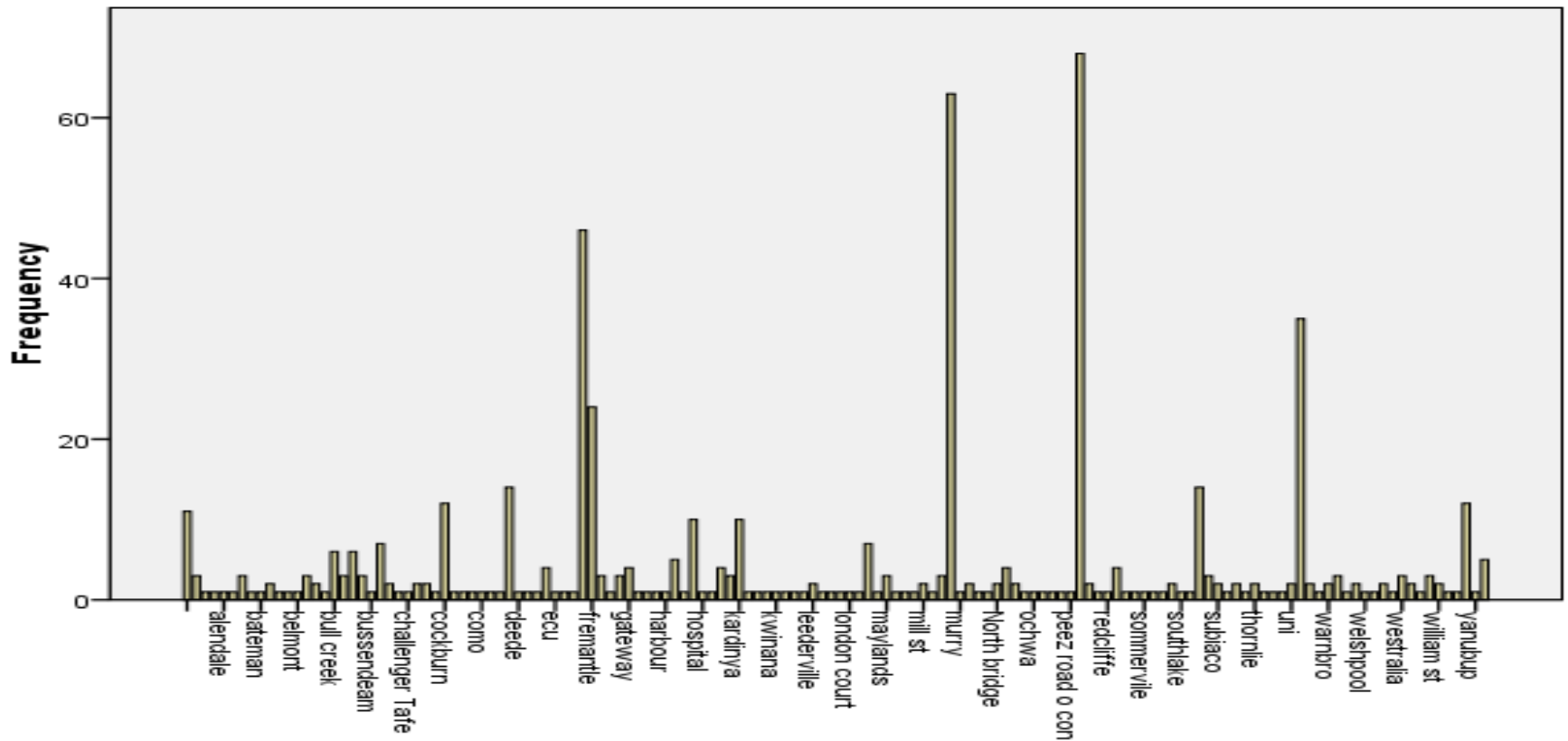
**Origin:** 10.1% of respondents stated they boarded at Esplanade (Perth City) either the Perth City Station (Murry St.); 13.6 at Murdoch Station approximately 8.5% at Mandurah Station.

Figure 3. The distribution of station boarding



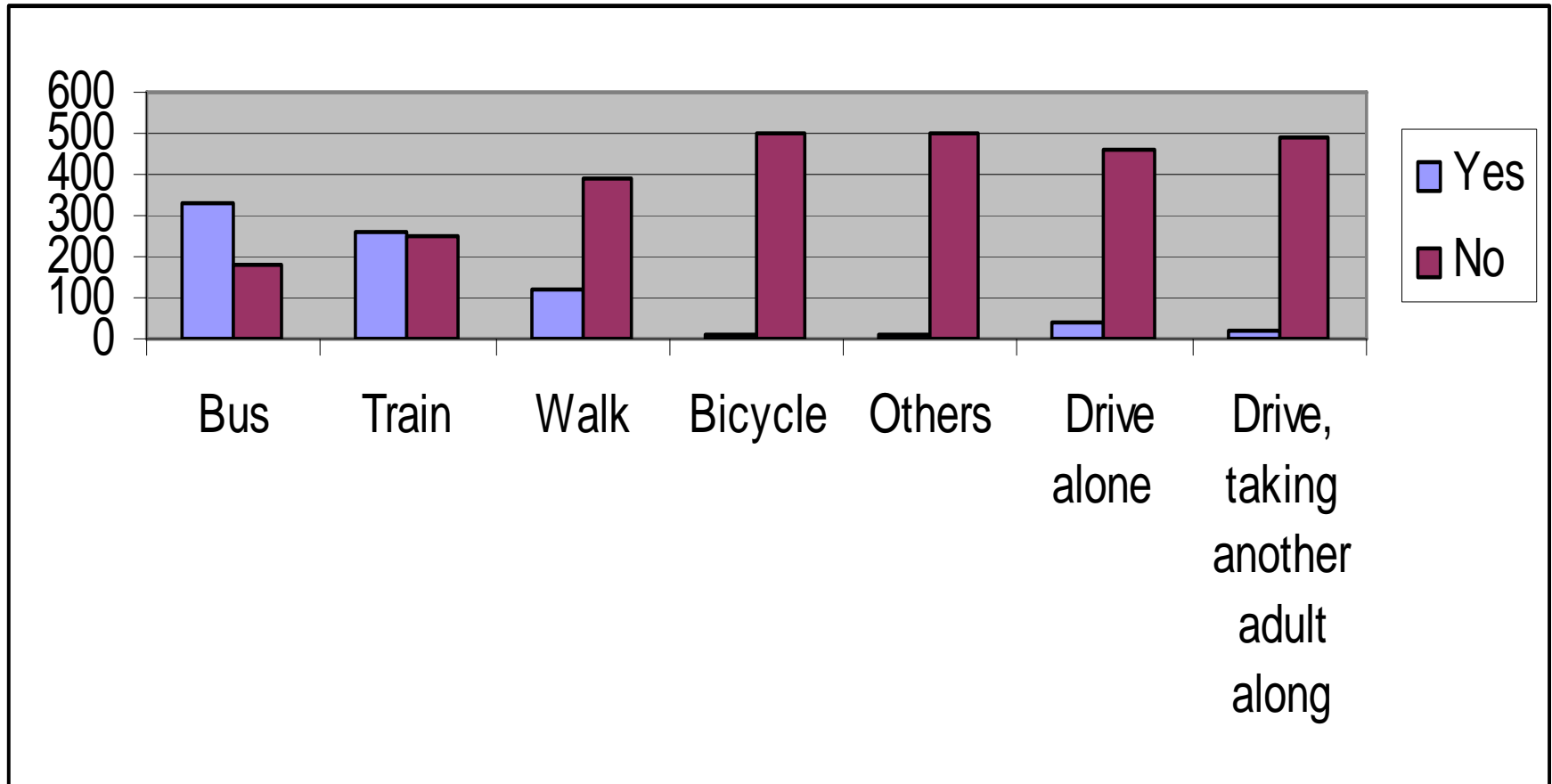
**Destination:** for the new Mandurah Line, approximately 12.1% of all respondents stated they disembarked at Perth City Station (Murry St.); 11.6% at Murdoch Station and approximately 8.5% at Esplanade (Perth City) nearly 6.4% of respondents stated they disembarked at University of Western Australia bus stop.

**Figure 4. The distribution of station embarking**



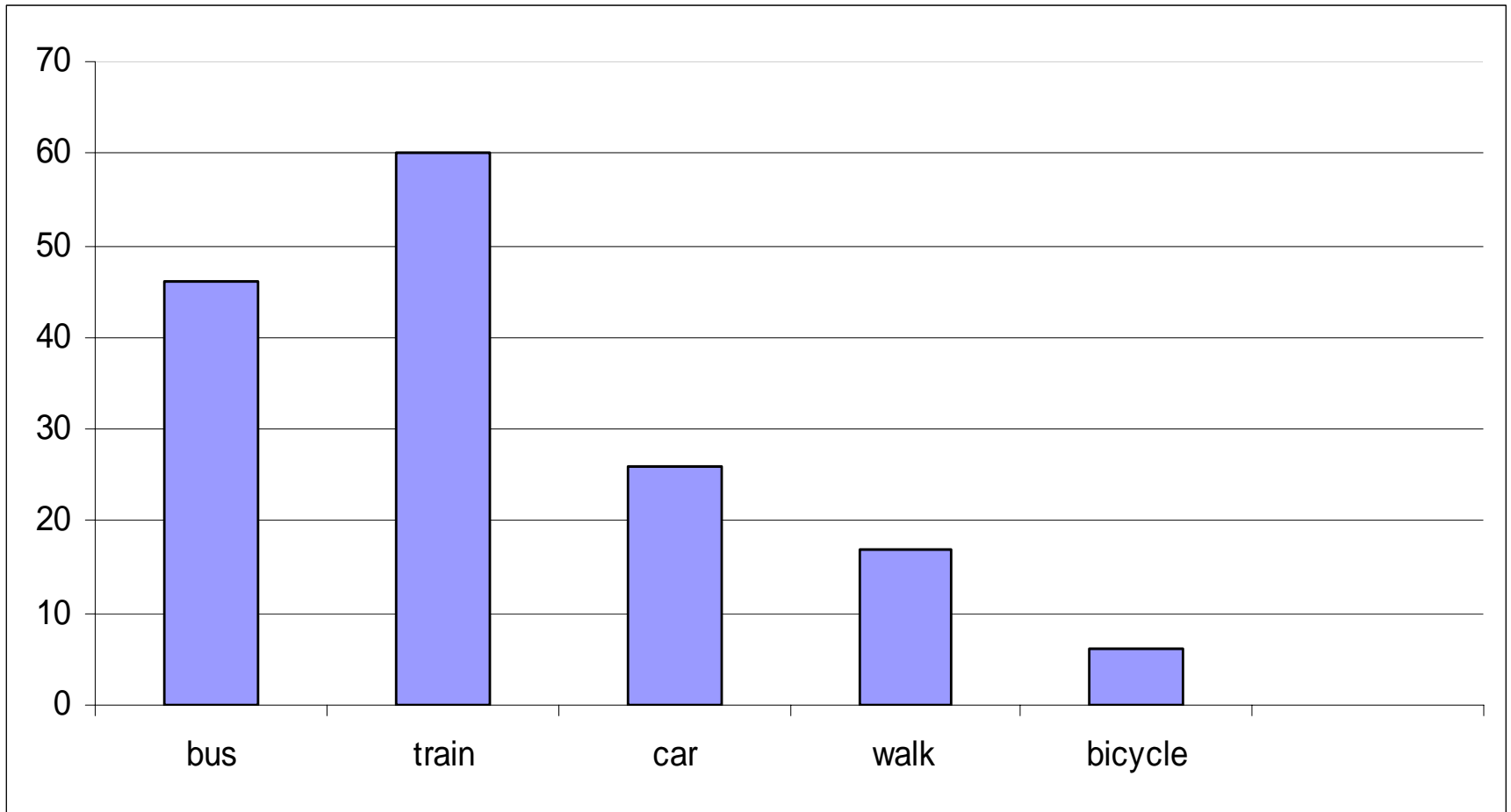
**Method Travel Used:** Passengers reported they had driven to the station, less percentage (43.0%) of respondents stated that they don't drive car to the stations (54.0%).

Figure 5. Travel access



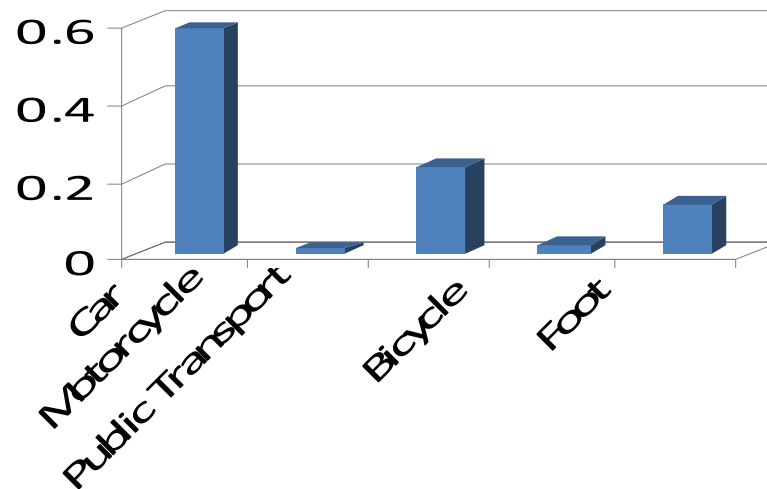
**Trip Method: 69.7% of respondents stated that the bus or train station was within walk distance of their point of origin, for the first bus or train on the trip.**

**Figure 6. Method of Travel: March 2009 Survey**



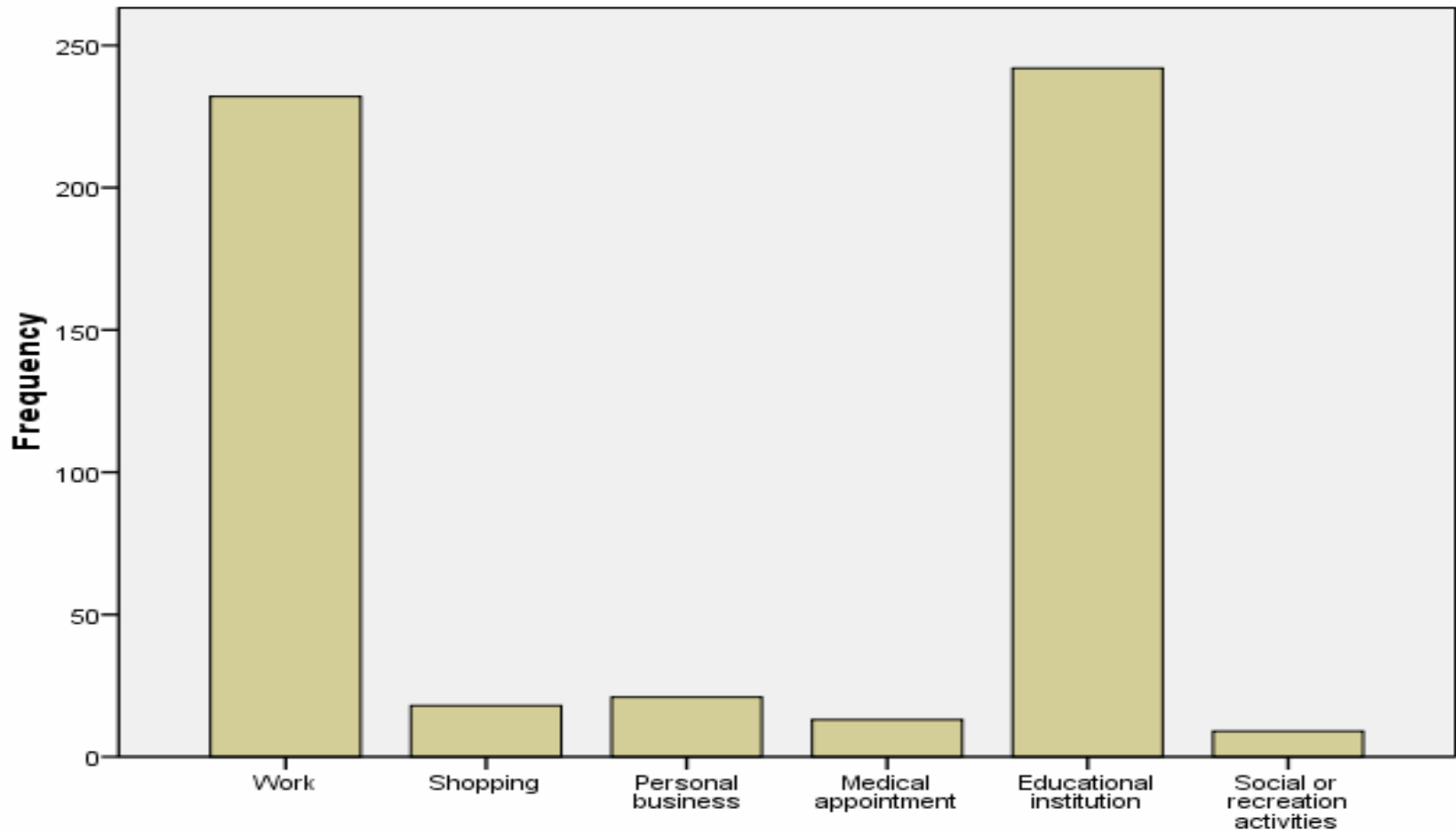
The Figures 7 show comparisons between a Murdoch University focus groups intercept survey in August 2008 and our March 2009 Murdoch Train and Bus Stop Station Survey after the new Mandurah train line was started in December 2008.

Figure 7 Method of Travel: August 2008 (Murdoch University Focus Groups)



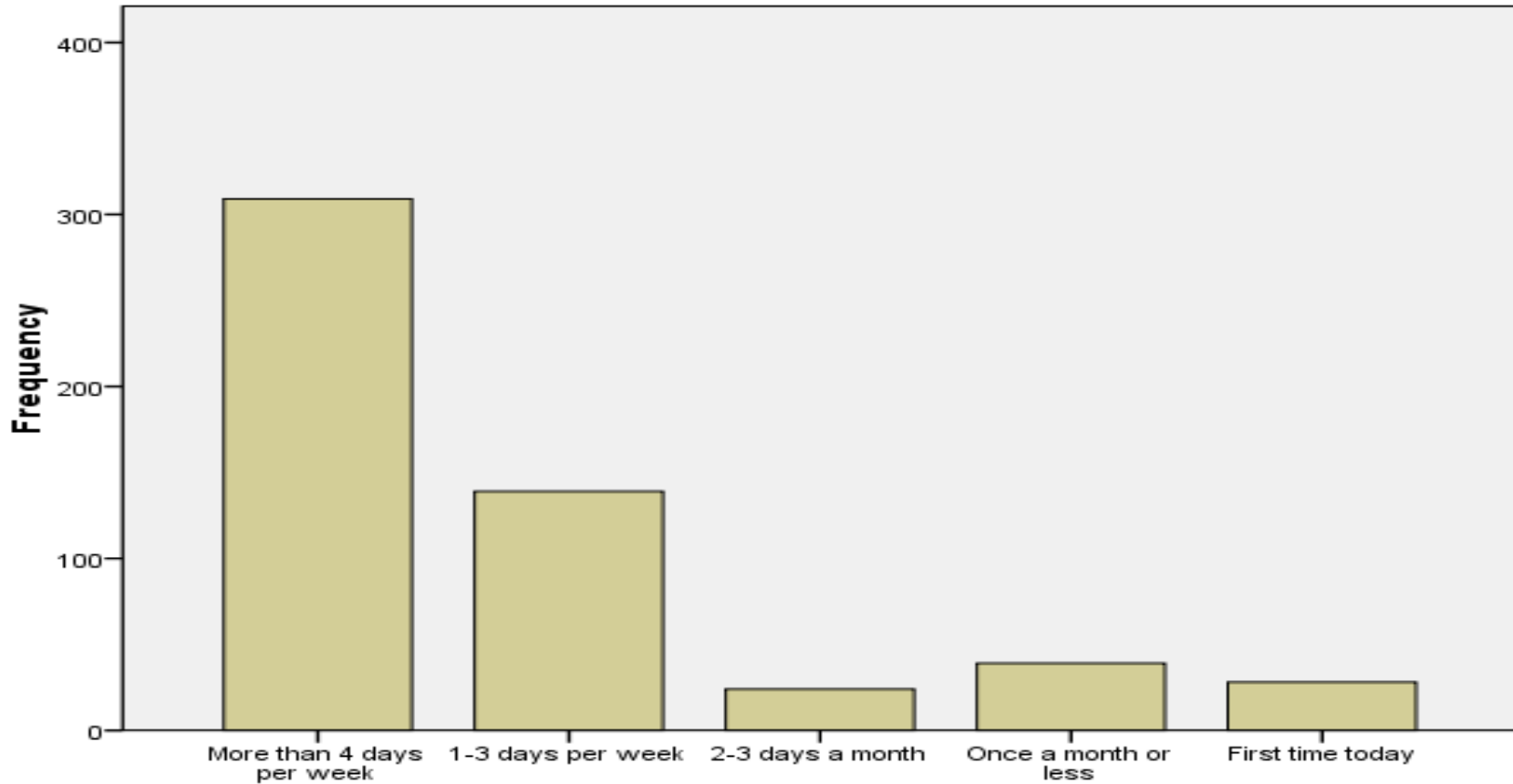
**Trip Purpose: Over 45.2% of all respondents stated their trip purpose was Education. In contrast, 43.4% stated their trip purpose was work.**

**Figure 8. Trip Purpose**



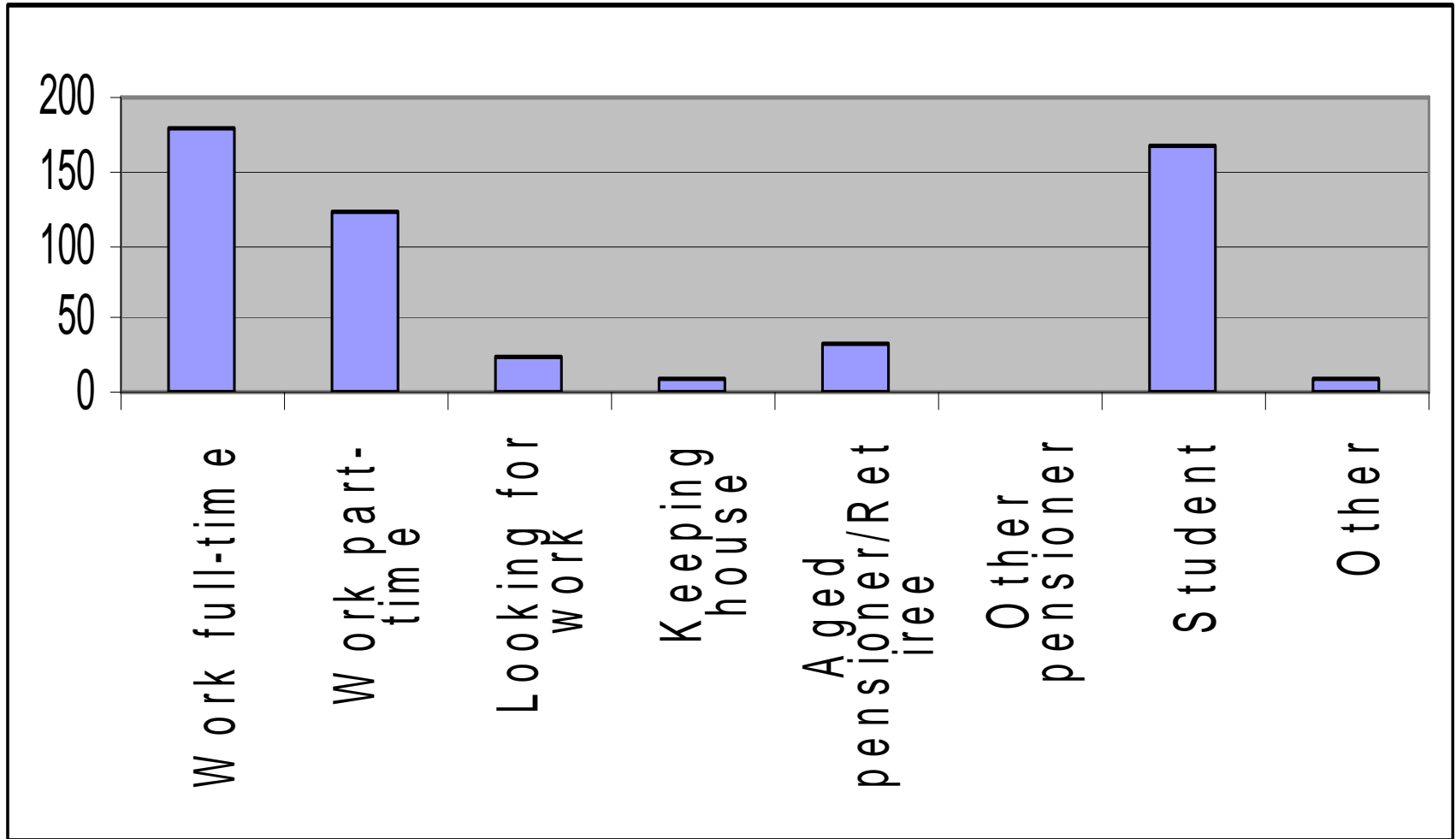
**Trip Frequency: Approximately 26.7% of all respondents stated they rode the bus or train for their trip more than 4 days per week. An additional 25.7% stated they rode the train 3-4 days per week.**

**Figure 9: Trip Frequency**



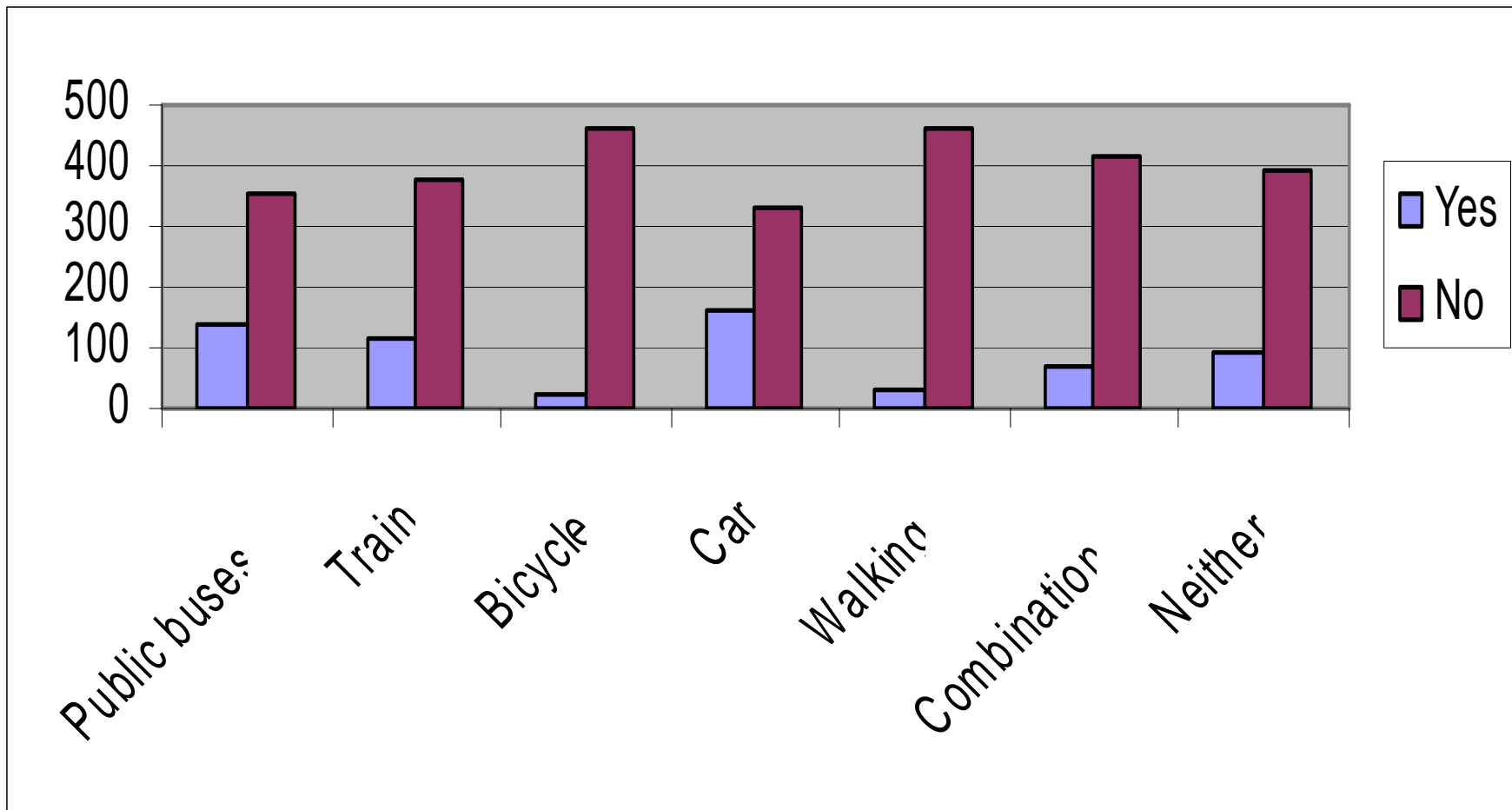
**Employment Type:** 32.4 % respondents stated that they are employed full-time, 22.3% working part-time, 4.5% seeking work and 30.4 are higher education student.

**Figure 10: Employment category**



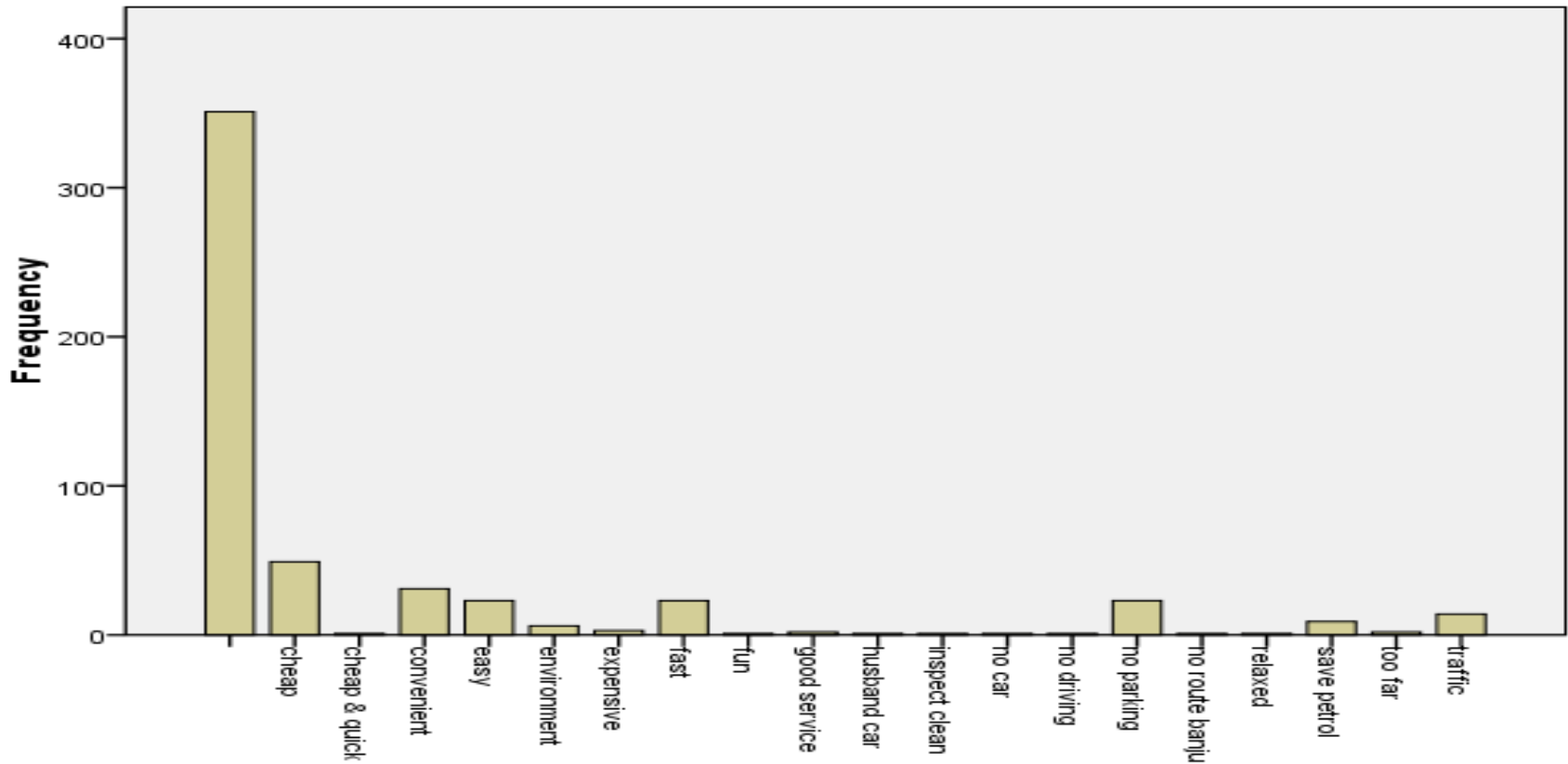
**Household car ownership trip made: 32.5% of respondents stated they were using cars in their households, with the majority using public transport - 27.8% using buses and 23.0 % using trains.**

**Figure 11. Household car ownership trip used**



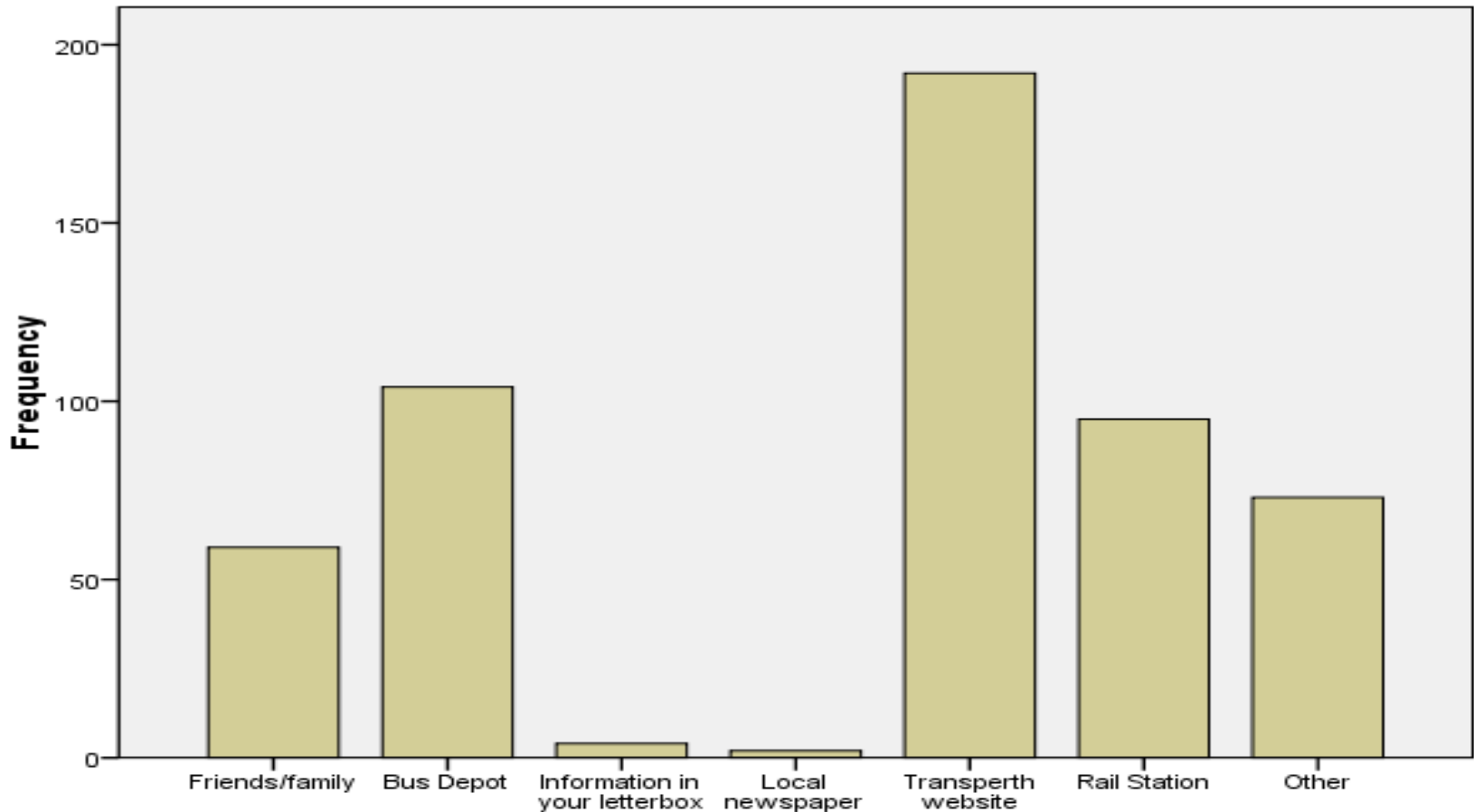
**Information about train stations and reasons for using the public transport:** 64% of the respondents using public transport stated that the reasons for using the trains were; 9.0% cheaper, 4.4% easier, 4.2% faster, 4.2% no parking, 2.6% traffic, 1.7% saving petrol, 1.1% environmental and 5.7 convenient.

**Figure 11. Household car ownership trip used**



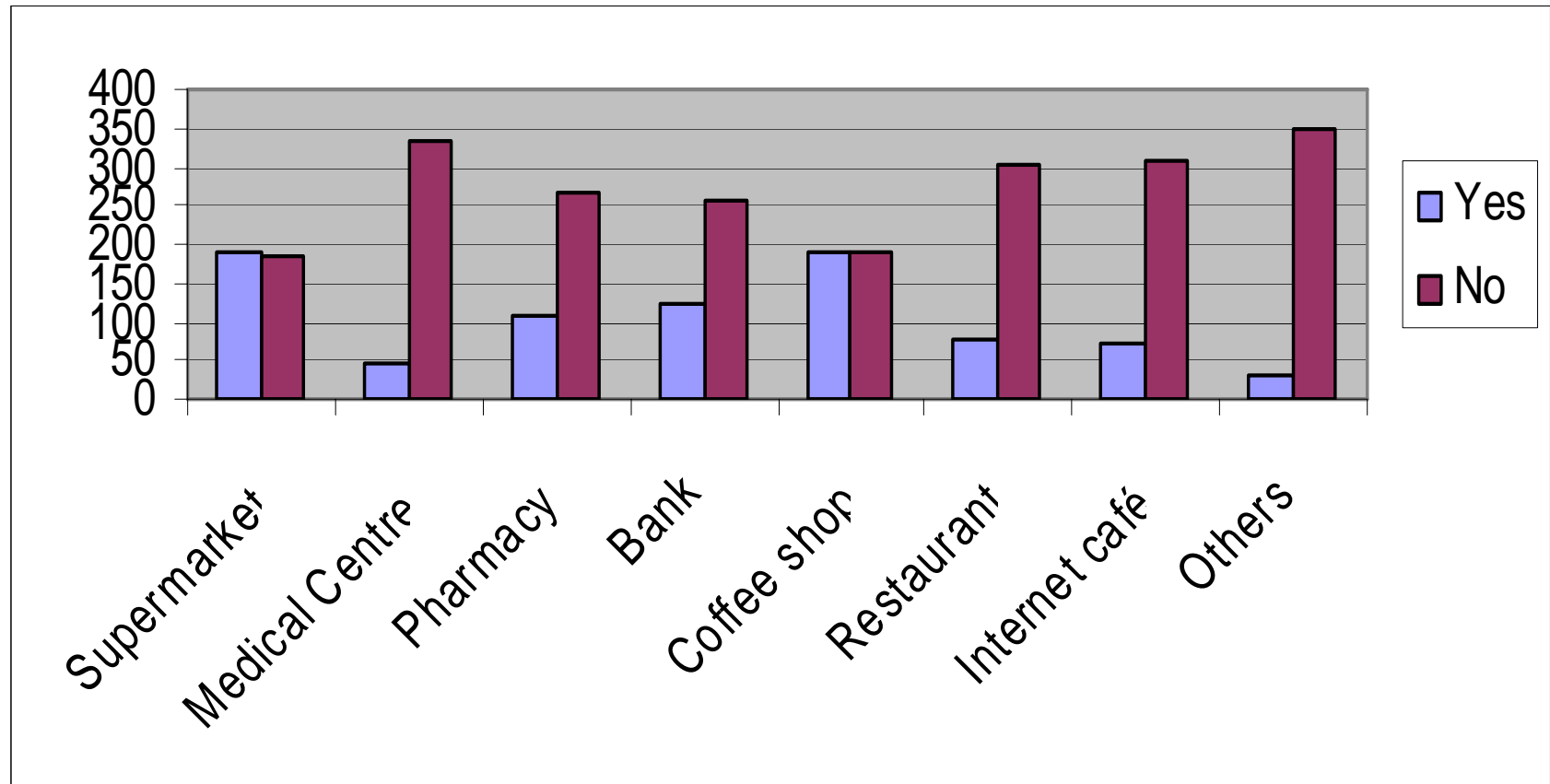
**35.3% of the respondents used the PTA website to find information's about the trip time and 17.5 at the train stations and buses stops.**

Figure 12. Category of Information used to find out about the trip



**Train Stations facilities and conveniences: (a) 57.5% of respondents said they would like to live next to train station for transport convenience, In contrast, 42.5% said “No”. (b) 72.2% of respondents said they would like to see more shops at th train station, in contrast, 27.8% said “No”**

**Figure 13. Category of shops**



**According to the Passenger Survey Results, it would appear that the New Mandurah Line is getting people out of their cars and reducing congestion:**

- For most passengers on the 3 selected stations, the option of driving was available.**
- Just over half of those surveyed reported that a vehicle was available to them even though they chose to use the train to complete their trip.**
- Those that had previously driven and now take the train were asked if they had travelled on the new Mandurah Line. A majority had; indicating that the train is helping to reduce traffic congestion on this major artery as it is cheaper, faster and more convenient.**

## **CONCLUSIONS:**

**The New Mandurah Line and the 9 Stations Development was created:  
To promote transit-oriented development in the City of Perth.**

**The intent of this development is to encourage a mix of uses and activities near the train stations, which will serve the train users, visitors, area workers, and residents.**

**A mix of uses is an essential element necessary to encourage the New Mandurah Line passengers, maximizing rail investment and area revitalization.**

**The development describes land uses, urban design and economic development strategies around various stations in the City of Perth.**

**The analysis of the collected data shows that the train stations and bus stops should include:**

- **A shopping plaza around the rail station which is a focus point;**
- **A cafe, convenience retail store, child care facility, aged care facility, clinic, newsagent, pharmacy and ATM;**
- **Office employment facilities around the main shopping plaza;**
- **The provision of mixed-use employment attached to dwellings within residential areas;**
- **A network of well lit and overlooked footpaths/cycle-ways connecting with the main plaza;**
- **The use of trees and buildings along all footpaths to give pedestrians and cyclists a feeling of intimacy and security.**
- **Full and ready access for people with disabilities and the elderly.**

- **The provision of a park & ride facility near the station. This would accommodate patrons living beyond the TOD where no close alternative station site exists with an exclusive park & ride.**
- **Discouragement of automobile-oriented uses such as auto repair and service shops, box or shed retail, and drive-thru fast food within the Station Area.**
- **Priority for pedestrians and bicycles in building design and street layout.**
- **Establishment of residential density targets in Station Area Plans to provide flexibility and encourage a variety of development intensities and heights.**

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## **ACKNOWLEDGMENTS**

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