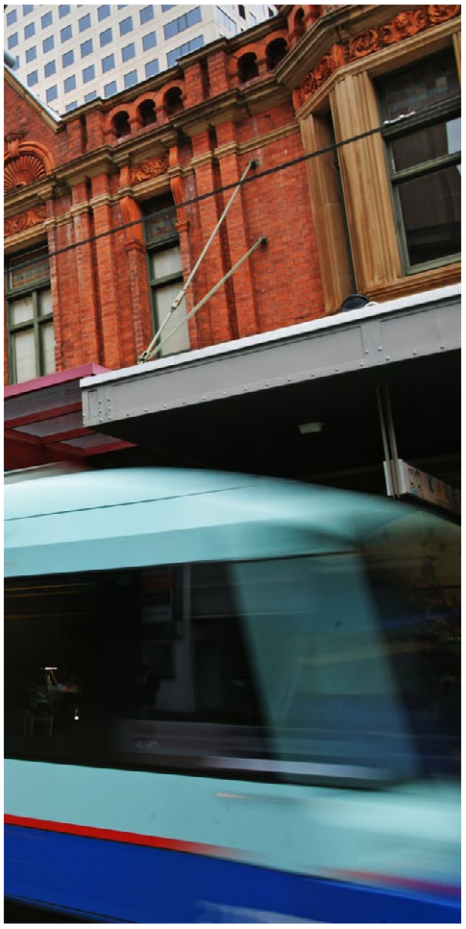
Transport NSW



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OCTOBER 2010

# SYDNEY LIGHT RAIL EXTENSION
# STAGE 1 – INNER WEST EXTENSION
## Volume 2 - Technical Reports

NSW GOVERNMENT Transport

PB 125 YEARS PARSONS BRINCKERHOFF

TECHNICAL PAPER

# 6

## SOCIO – ECONOMIC


# Sydney Light Rail Extension - Stage 1: Inner West Extension

# Social and Economic Impact Assessment

PREPARED FOR

## Transport NSW

October 2010

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# 1. EXECUTIVE SUMMARY

The Organisation for Economic Co-operation and Development (OECD) recognises that *"it is public transport that will be making our cities accessible and attractive in the 21st century*[1]*"*. The NSW Government also recognises the merits of improving the capacity of the State's transport network as an impetus for urban growth, and a means of increasing productivity and reducing costs to businesses. The economic advantages of transport infrastructure investment, coupled with the social benefits, enhance the liveability of cities through economic efficiencies, environmental improvements and better access to employment, social activities and cultural spaces.

In light of these objectives, Stage 1 (Inner West) of the Sydney Light Rail Extension (SLRE) (the Project) has been designated as both a critical infrastructure project for NSW and a "priority" part of the Metropolitan Transport Plan 2010. The Project proposes a 5.6km extension of the existing light rail service from Lilyfield to Dulwich Hill in addition to the provision of the GreenWay being a 5km long cycle and pedestrian pathway incorporating bushcare sites that extend from the Cooks River at Earlwood in the south to Iron Cove in the north.

The Project seeks to improve public transport connectivity across a range of land uses and activities, encourage sustainable travel and link existing radial corridors thereby enhancing the Inner West's liveability and accessibility.

## 1.1 Study Purpose

The following Social and Economic Impact Study has been commissioned to provide specialist information to help inform the Environmental Assessment of the Project. An Environmental Assessment is being prepared by a wider group of consultants to accompany a Development Application for the Project to be submitted and considered under Part 3A of the Environmental Planning and Assessment Act 1979.

## 1.2 Study Scope

The Project will have different influences at varying stages of development and at different geographic levels. For simplicity we have identified three geographic localities for assessment as follows:

1. The primary area of influence – the rail corridor and the uses immediately adjoining it;
2. The primary suburbs of influence – the suburbs that the rail corridor traverses; and
3. The secondary suburbs and LGAs of influence – other suburbs within the Local Government Areas (LGAs) that the defined section of the rail corridor passes through.

For reference purposes, we have defined the Study Area as the rail corridor (disused) extending from the current Light Rail terminus at Catherine Street, Lilyfield to the existing train station at Dulwich Hill (please refer to Figure 1). The Study Area also comprises areas outside the rail corridor stretching along the GreenWay. The Study Area passes through three Local Government Areas (LGAs) of Sydney's Inner West being Leichhardt LGA, Ashfield LGA and Marrickville LGA.

[1] Infrastructure to 2030: Mapping Policy for Electricity, Water and Transport; Chp 6 Strategic issues for the Future Funding and Operation of Urban Public Transport Systems OECD 2007

This Study categorises the various types of likely impact in accordance with the rating levels recommended by the Strategic Merit Test, which forms part of the *National Guidelines for Transport System Management in Australia (2nd Edition)*. The definitions have however been amended so that they are suitable for economic and social impact assessment.

Table 1 - Assessment Rating Levels

| Rating Level | Description |
|---|---|
| Significant Negative | Impacts with serious, long term and possibly irreversible effects leading to serious damage, degradation or deterioration of the economic or social environment. Requires a major re-scope of concept, design, location, justification, or requires major commitment to extensive management strategies to mitigate the effect. |
| Moderate Negative | Impacts may be short, medium or long term in duration and most likely to respond to management actions. |
| Slight Negative | Impacts have minimal effect, could be short term, can be mitigated and will not cause substantial detrimental effects. May be confined to a small area. |
| Neutral | No discernable or predictable positive or negative impact. |
| Slight Positive | Impacts have minimal effect, could be short term. May be confined to a small area. |
| Moderate Positive | Impacts may be short, medium or long term in duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement. |
| Significant Positive | Impacts resulting in substantial and long term improvements or enhancements to the existing environment. |

Source: Adapted from the Strategic Merit Test, National Guidelines for Transport System Management in Australia (2nd Edition)

## 1.3 What is a Social or Economic Impact?

An economic or social 'impact' affects the level of economic or social activity generated in a defined area either positively or negatively. The assessment of likely impacts resulting from a particular proposal allows for the identification, prediction and where possible quantification, of impacts as either likely benefits or negative impacts.

Economic impacts may directly affect the economic well-being of an area's residents, the viability of businesses, workforce availability or trade by changing factors that influence opportunities for employment or business growth, the ease of doing business and the environment in which business is conducted. Economic impacts may also alter the scope of demand for services and the level of accessibility to those services.

Social impacts may directly affect the social well-being of an area's residents, visitors and employees by changing the social amenity and character of an area, the degree of social interaction, the availability of employment, social perceptions and opportunities. Social impacts may also alter the level of demand for services and accessibility to those services. Consultation with a broad range of social groups, communities, individuals and other stakeholders should form part of a Social Impact Assessment (SIA) to identify and understand these effects.

## 1.4 Summary of Economic Impacts

The following section summarises the potential micro and macro economic impacts of the Project during both the construction and operational phases of the Project.

Business Viability: during the construction phase, the operation and function of businesses within close proximity of the rail corridor and construction sites may be influenced as a result of construction related noise or alterations to accessways to enable works. The impacts would however be restricted in geographic extent and temporary with

regards to duration and could be mitigated through appropriate construction and traffic measures. Upon operation, the Project may enhance business operation and function as a result of improved connectivity and accessibility for clients and staff. It is not likely that disturbances from the operation of the extension will affect business operation.

Road Congestion: upon operation, the Project will assist in reducing the level of local road congestion across the broader study area as a result of providing alternative options for travel. A reduction in road based congestion will have a positive flow on impact for businesses reliant on fast and efficient travel i.e. for deliveries, client access and servicing.

Property Values: research shows that improvements to public transport, the accessibility and amenity of a locality can positively influence land values. The Project seeks to achieve these objectives and thereby the Study Area may become a more attractive location to live and / or invest. This could potentially have positive economic benefits for local dwellings or landowners. Conversely, it may have a negative impact as a result of outpricing existing lower income residents / tenants from the locality.

Access to Jobs and Workforce Availability: upon operation the Project will provide enhanced connectivity within, to and from the Study Area. This will have a slight positive impact to resident's ability to access a broader range of jobs and in turn a slight positive impact to employers across the Inner City Region on account of providing a larger labour pool and skill set.

Business Investment: a commitment to infrastructure and improvements within the Study Area is likely to stimulate additional investment and development throughout. This will be particularly the case on sites in close proximity of proposed stop locations as they are well placed to benefit from increased densities of development and pedestrian flows. Furthermore, greater opportunities for increasing business densities and clustering around transport nodes could create economic efficiencies as a result of improved economies of scale and improved industry networking.

Economic Efficiencies: improvements to the efficiency of public transport infrastructure can have a positive correlation with economic output. Research studies have found that a 1% increase in capital infrastructure investment (such as the Project) could lead to a 0.4% increase in economic output[2]. In this regard the Project could have a slight positive impact.

Employment Generation: it is estimated that the Project would generate approximately 350 construction jobs for the duration of the construction phase (12 months). This would be a slight positive economic impact of the Project. Upon operation, employment generation will be modest and limited to the additional rail drivers, service attendants and maintenance staff required to facilitate the operation of three additional trains.

Economic Multipliers: the construction of infrastructure can have a positive economic flow on benefit to industries as a result of the multiplier effect. Multipliers refer to the level of additional economic activity generated by a source industry. The construction of the Project would have a moderate positive impact through the generation of economic multipliers.

[2] Otto, G and Voss, G (1995) Public Infrastructure and Private Production

## 1.5 Summary of Social Impacts

During the preparation of the environmental assessment, three community information sessions were held. The key issues and comments raised during these sessions regarding the Project are summarised below.

- Parking – impact from light rail users and need for additional spaces and / or residential parking restrictions.
- Traffic and Access – potential increase in traffic movements surrounding the stops owing to light rail users yet a reduction in traffic could be achieved across the broader study area.
- Noise – potential impacts from light rail operations and need for mitigation.
- Safety – need to create a safe environment for pedestrians, residents and cyclists between the GreenWay, rail corridor and surrounding uses.
- Privacy – potential privacy impacts where the GreenWay passes close to properties.
- Ecology – impacts to bushcare sites, trees, habitats and fauna along the corridor / as a result of GreenWay's use.
- Design – importance of stop locations.
- Land Use – the Project's implications to urban regeneration and mix of land uses.
- Socio-economic – the impacts to social amenity and property values.
- Amenity – impacts to residents by way of traffic, noise and air quality and other potential impacts.
- Indigenous Heritage – appropriate consultation process with the Aboriginal community.
- Operation of Light Rail – cost and integration of system, need for the Project, frequency of service, extent of stop facilities and ownership arrangements.

In light of the outcomes of the community information sessions and our desk top analysis, the following section summarises the likely social impacts of the Project during both the construction and operational phases.

Public Perception and Concern: uncertainty and concerns regarding the nature of any major project can create anxiety and social stress. In order to identify and address these concerns, Transport NSW in cooperation with the local Councils has sought to inform key stakeholders of the Project. In response to comments raised during this process, the Project has been refined. Looking forward, it will be important to maintain commitment to ongoing consultation with the community and the dissemination of necessary information in order to minimise any potential concerns.

Local Amenity: a number of sensitive receivers have been identified in the Study Area including residents, educational, community and leisure facilities. During construction, receivers located in close proximity to the light rail corridor may experience a degree of disturbance. Mitigation measures would be required to minimise these disturbances to an acceptable level and duration. Upon operation, noise and vibration disturbances may occur. As part of the environmental assessment, noise testing has been conducted for the worst case scenario and any necessary mitigation measures have been identified for implementation prior to operation. Furthermore potential impacts regarding overlooking or other privacy impacts will be identified and mitigated by the Landscape and Urban Design Strategy.

Access to Services: a likely social benefit of the Project is to enhance the liveability of transit poor households by improving access to a range of employment, retail and cultural services and facilities. Accessibility to services and employment is likely to be greatly enhanced by providing interchange between the proposed light rail extension and other modes of transport. Interchanges with cycle and pedestrian paths, bus services and rail interchanges at Lewisham and Dulwich Hill would allow movement and access to other corridors radiating from Sydney CBD, the Inner West and Bankstown City Rail Lines. The Project would also connect residents to popular centres along the light rail corridor including Glebe, Norton Street, Pyrmont and the Sydney Fish Markets.

Visual Amenity: the design of the stop locations and the environmental quality of the GreenWay were key issues raised during the Project's initial consultation period. In response the proposed design and siting of various elements of the Project have been altered to ensure that they sympathetically and positively integrate with the existing environment and the heritage of the localities. During construction, some adverse visual impacts are likely to result from the Project as a result of construction related equipment and works. The impacts will however be temporary and screened where appropriate.

Access to Public Spaces and Urban Connectivity: the former Rozelle freight corridor divided many suburbs and localities of the Inner West, severing communities and creating a significant physical and mental barrier to movement. The Project, when combined with the GreenWay, would provide an opportunity to significantly reduce the segregating effects of the current corridor. Providing access and connection to public spaces provides opportunities for social interaction enabling communities to build social networks and social capital.

Health and Well Being: health is a key factor in a community's social well being. The design of a city including the provision of public spaces for walking, cycling and transport provision all play a considerable role in encouraging people to travel by means other than the private vehicle. Non car travel can enhance opportunities for physical exercise, social integration and reduced stress. Combined these factors improve the physical and mental health and well being of an area's workers and residents.

Safety and Security: initial consultation with members of the local community regarding the Project identified that Safety and Security was a key matter for concern and consideration[3]. The community identified concerns regarding loitering at stops particularly at night, cyclist safety, lighting, passive and active surveillance. Subsequent community information sessions conducted for the Project have addressed these concerns and explained commitments to minimise issues through appropriate design and security measures including lighting, the provision of CCTV surveillance cameras, emergency help points, securing fencing and a risk management plan. Furthermore safety and security risks will be managed in accordance with Metro Transport Sydney's current practices.

Social Sustainability: there is evidence that liveable, sustainable and socially connected communities are characterised by strong social networks and provide good access to the services and facilities required for daily living[4]. In this regard the Project will support the sustainability of living and working within the Inner West by improving access to a range of centres, employment and residential locations and enhancing the amenity and appeal of living within the Study Area.

[3] Stakeholder Comments Report on the Draft Inner West Extension Study

[4] Healthy Spaces and Places Organisation, www.healthyspaces.org.au

## 1.6 Mitigation Measures and Commitments

Proposed mitigation measures we have made reference to for inclusion during construction include:

- The preparation and implementation of a Construction Environmental Management Plan (CEMP). Such a plan would be a comprehensive document setting out in detail for example construction site safety, traffic routes for construction vehicles avoiding where possible sensitive receivers, committing to the provision of a toll free phone number for use during construction with contractors providing prompt responses to community queries and concerns, hours of working and methods for notifying the community of particularly intrusive construction periods.
- The commitment to continue consultation with the community would facilitate ongoing correspondence and the notification of matters to affected residents, businesses and facilities during the construction phase. Clear lines of communication should be maintained through the provision of regularly updated Project information on the Transport NSW website, a dedicated email address and a 24 hour toll free number during construction to ensure any urgent concerns regarding works can be addressed.
- The considered and detailed design of the Site to ensure that it integrates with existing surrounding uses allowing for easy pedestrian access and forming an attractive focal point for the local area.
- The implementation of measures to manage risks associated with the potential for overlooking into residential properties, ways to maintain the quality of the public realm and open spaces, the maintenance of CCTV at stops and / or other security measures.

Proposed mitigation measures we have made reference to for inclusion during operation include:

- The regular maintenance of infrastructure and equipment within the light rail corridor to ensure air and ground borne noise levels and disturbances (as a result of train movements and related equipment usage) are kept to a minimum.
- The implementation of location specific noise testing to sensitive receivers within the Study Area to ensure that necessary mitigation measures can be implemented to minimise any adverse impacts of the Project (i.e. greater rail frequency), particularly during evening periods.

## 1.7 Conclusion

Overall this specialist study has found that the Project would result in a range of positive and negative economic and social impacts. The impacts would however vary in their distribution across different geographic areas, business and social groups.

The Project would support capacity improvements to Sydney's existing transport network, increasing the accessibility of residents, workers and visitors to the Inner West in addition to major activity centres such as Pyrmont and Sydney CBD. Improved accessibility supports access to jobs, labour, services, cultural and entertainment areas. The Project would also enhance opportunities for recreation, healthy living and sustainable lifestyles creating a more attractive location to live.

These benefits would also have positive wider economic merits including a reduction in the level of road based congestion, the generation of economic multipliers on account of investment and the resulting direct and indirect generation of employment from construction.

In the short term, not all the economic or social impacts of the Project would be positive. The construction of the Project could have temporary negative impacts to operation of businesses located within close proximity of proposed stops or the amenity of households. Potential adverse impacts in this regard could relate to: noise, dust and vibration, disruptions to traffic and pedestrian movements, customer access, changes to passing trade, business servicing facilities and travel times.

Owing to the proposed use of the former Freight Corridor for access and construction and the short duration of works, the negative impacts of the Project are considered moderate. Furthermore through the use of appropriate forms of mitigation and management, the negative impacts of the Project could be addressed to an acceptable level.

In summary, the implementation and ongoing monitoring of these impacts and their mitigation, coupled with Transport NSW's commitments, would combine to create a Project that positively supports many of the economic and social objectives of the Inner West draft Subregional Strategy in addition to those of Marrickville, Leichhardt and Ashfield LGAs.

# 2. INTRODUCTION

## 2.1 Study Purpose

The Sydney Light Rail Extension (SLRE) Stage 1 (Inner West) Project is a critical infrastructure project for NSW. In March 2010 the Project was also designated a "priority" development as part of the Metropolitan Transport Plan 2010 given its State and regional environmental planning significance.

The following specialist Social and Economic Impact Study (the Study) has been prepared in relation to the proposed Stage 1 SLRE Extension. The purpose of the Study is to inform the Project's Environmental Assessment. The broader Environmental Assessment work is being prepared by a wider group of consultants, led by Parsons Brinkerhoff.

Specifically, the aims and objectives of the Study include:

- To identify and quantify (where possible) the likely economic and social impacts arising from the Project; and
- To recommend ways to enhance the positive effects and reduce or mitigate negative impacts.

## 2.2 What is a Social or Economic Impact?

A social or economic 'impact' affects the level of social or economic activity generated in a defined area either positively or negatively. The assessment of likely impacts resulting from a particular development proposal allows for the identification (and where possible) quantification of impacts as either likely benefits or negative impacts.

Social impacts may directly affect the social well-being of an area's residents, visitors and employees by changing the social amenity and character of an area, the degree of social interaction, the availability of employment, social perceptions and opportunities. Social impacts may also alter the level of demand for services and accessibility to those services. Consultation with a broad range of social groups, communities, individuals and other stakeholders should form part of an impact assessment to identify and understand these effects.

Economic impacts may directly affect the economic well-being of an area's residents, the viability of businesses, workforce availability or trade by changing factors that influence opportunities for employment or business growth, the ease of doing business and the environment in which business is conducted. Economic impacts may also alter the scope of demand for services and the level of accessibility to those services.

The geographic range of an impact is dependent on the nature of the proposed development and its scope of influence. The geographic influence of an impact can range from individual dwellings or streets through to suburbs, LGAs and further afield.

Analysis of likely social or economic impacts can be compiled into Social and Economic Impact Assessment that estimates the consequences of a particular proposal to an economy or society. In addition to identifying impacts however, an impact assessment should recommend ways to enhance the positive effects and reduce or mitigate the negative ones.

## 2.3 Project Description

The Project relates to Stage 1 of a two stage commitment to extend the existing light rail system in Sydney. Stage 1 is defined as a 5.6km extension from Lilyfield to Dulwich Hill via the disused Rozelle Goods Line. The Project passes through the LGAs of Leichhardt, Ashfield and Marrickville and incorporates nine stops to be located at:

- Leichhardt North;
- Hawthorne;
- Marion;
- Taverners Hill;
- Lewisham West;
- Waratah Mills;
- Arlington;
- Dulwich Grove; and
- Dulwich Hill Interchange.

The Stage 1 Inner West Extension will operate between 6am and 11pm (Monday to Thursdays and on Sundays) and to approximately 12.30am on Fridays and Saturdays. It will have a frequency of between 10 and 15 minutes in keeping with the existing light rail service. It is important to note that the nominated hours and frequency may change in line with demand.

Stage 1 also incorporates the development of the GreenWay. The GreenWay is a 5km long shared path including bushcare sites extending from the Cooks River at Earlwood in the south to Iron Cove in the north. The GreenWay also follows the line of the former Rozelle freight corridor passing through four LGAs being Leichhardt, Ashfield, Marrickville and Canterbury.

Stage 2 of the SLRE Project proposes the extension of the existing system along the western corridor of the CBD from Haymarket to Circular Quay via Barangaroo. Combined, Stages 1 and 2 are known as the Sydney Light Rail Extension. However, Stage 2 does not form part of this assessment.

The proponent of the Project is Transport NSW. The same transport agency is responsible for development and delivery of the Project.

## 2.4 Project Objectives

The Project will enhance public transport services across the Inner West improving access between the Inner West, Pyrmont, Darling Harbour and Sydney CBD. The Project will provide opportunities for interchanges between existing bus and rail services, in addition to enhancing opportunities for walking and cycling along the GreenWay shared pathway. The Project also seeks to improve the local environment through safe and secure rail stops in a landscaped and green environment.

The key objectives of the Project are to:

- Improve public transport access and connections between where people live, work and visit;

- Improve the integration of public transport networks by linking existing radial corridors;
- Enhance liveability by improving local accessibility and amenity along the corridor;
- Encourage sustainable travel with greater use of active transport;
- Make best use of a disused government asset; and
- Deliver a safe and reliable project in a sustainable and environmentally friendly way.

## 2.5 Study Methodology

In order to prepare this desk top Economic (EcIA) and Social (SIA) Impact Assessment, the following methodology has been applied:

1. A review of relevant, available Project related information and assessments;
2. A profile of existing geographic areas, social groups, community facilities and businesses that may be influenced by the Project;
3. A scope of the likely changes / impacts that may occur as a result of the Project;
4. Research of relevant studies and literature establishing the impacts of similar proposals and issues;
5. Desk top analysis of potential negative and positive impacts, and direct and indirect impacts during construction and operational stages; and
6. The identification of appropriate mitigation measures including plans and strategies for monitoring and managing the impacts during both construction and operational stages.

## 2.6 Assumptions and Constraints

The Study has been undertaken on the basis of the following Project assumptions:

- The Project is a short term project with works to be undertaken over a 12 month period commencing in early 2011;
- Operation of the Project will commence in the first quarter of 2012;
- The construction of the GreenWay will occur in tandem with the light rail extension;
- The Project will be largely constructed within the existing freight corridor. The construction process will not hinder the operation of the existing light rail services;
- The Project has an anticipated capital cost of $120m for the light rail extension, and $30m for GreenWay;
- Minor works will be required at the Pyrmont maintenance facility and operations centre including a 30m extension to the rail track and additional fencing and security measures. Construction would be limited to daylight hours;
- One property would potentially need to be acquired to enable the Project. The property relates to a vacant building owned by RailCorp located in Darley Street close to at the proposed Leichhardt North stop; and
- Construction work would occur along the line of the corridor and at its interfaces, including stop locations and access points. Various sites are being investigated along the corridor for construction staff, lay-down and storage.

# 3. STUDY SCOPE

## 3.1 Study Area

For reference purposes, we have defined the Study Area as the rail corridor (disused) extending from the current light rail terminus at Catherine Street, Lilyfield to the existing light rail stop at Dulwich Hill (please refer to Figure 1). The Study Area also comprises the areas outside the rail corridor that stretch along the GreenWay.

The Study Area passes through three Local Government Areas (LGAs) of Sydney's Inner West being:

- Leichhardt LGA – at the northern end of the Study Area;
- Ashfield LGA – from Dobroyd Point to the Inner West Line; and
- Marrickville LGA – at the southern end of the Study Area.

The Study Area also passes through a range of suburbs including: Annandale, Ashfield, Dulwich Hill, Haberfield, Hurlstone Park, Leichhardt, Lewisham, Lilyfield, Marrickville, Petersham and Summer Hill.

## 3.2 Geographic Area of Influence

During the construction and operational phases, the Project would have different influences at varying stages of development and at different geographic levels. For simplicity we have identified the following geographic areas of influence for assessment:

1. The primary area of influence – the rail corridor and the uses immediately adjoining it;
2. The primary suburbs of influence – the suburbs that the rail corridor traverses; and
3. The secondary suburbs and LGAs of influence – other suburbs within the Local Government Areas (LGAs) that the defined section of the rail corridor passes through.

Table 2 provides an overview of the key areas of influence.

Table 2 - LGA's and Suburbs within Geographic Area of Influence

| Local Government Area | Primary Suburbs of Influence |
|---|---|
| Leichhardt Council | Lilyfield, Annandale and Leichhardt. |
| Ashfield Council | Haberfield, Ashfield, Summer Hill and Dobroyd Point. |
| Marrickville Council | Marrickville, Lewisham, Dulwich Hill and Hurlstone Park (part) |

Across the Study Area the nature and character of land uses change, making generic descriptions inappropriate. We have therefore divided the Study Area in to four main sections and described the key characteristics of each moving from along the former Rozelle freight line.

Figure 1 - SLRE Stage 1 Inner West Extension


Source: Transport NSW

## Area 1: From Lilyfield / Annandale to Leichhardt

The Study Area extends west from the suburbs of Lilyfield and Annandale. These inner city suburbs are primarily residential in character, comprising traditional semi-detached dwellings. Originally working-class areas, both Lilyfield and Annandale are increasingly becoming gentrified. Accordingly, property investment has stimulated an increase in the number of newer medium-high density developments. Lilyfield is also the location of the Sydney College of the Arts which operates on the former Callan Park Hospital site. Annandale and Lilyfield have a number of small scale industrial uses such as smash repairs, textile warehouses or auto-mechanic businesses.

Figure 2 - Aerial Photograph, Rozelle / Annandale to Leichhardt (Area 1)


Source: NSW Department of Lands, SIX Lite

The former Rozelle freight corridor and subsequent Study Area moves west from Catherine Street, Lilyfield adjacent to the City West Link Road towards the suburb of Leichhardt. South of the light rail corridor is Norton Street, a popular restaurant and entertainment precinct with both local and wider attraction. The area continues to be primarily residential in character comprising mainly detached and semi-detached dwellings.

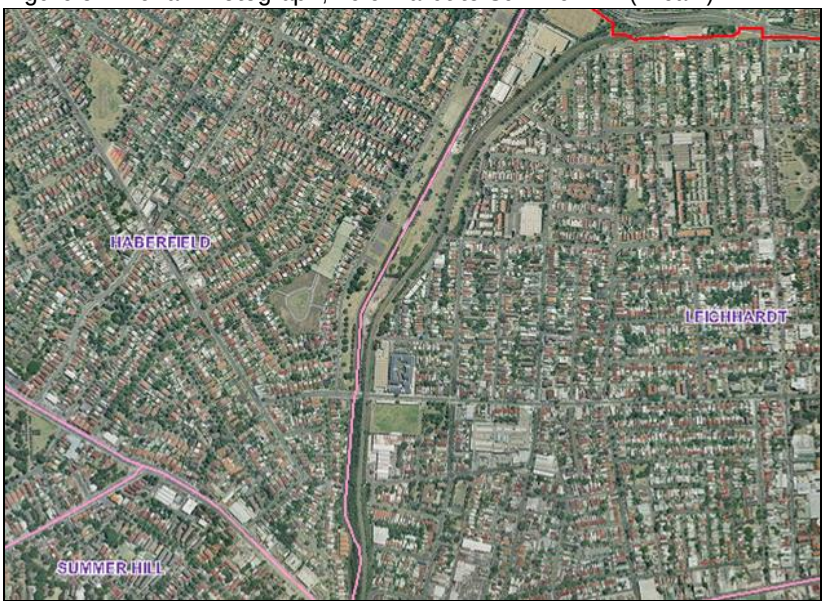
Area 2: Leichhardt to Summer Hill

From the proposed location of the Leichhardt North Stop the rail corridor parts from the City West Link Road curving around towards the Hawthorne Canal located on the western side of the corridor.

As can be seen on the aerial photograph below, parklands are located on either side of the canal adjacent to the corridor, including Blackmore Park and Hawthorne Canal Reserve.

Adjacent to Blackmore Park and to the western side of the former Rozelle freight corridor is a large industrial site, comprising a number of workshops and warehouses.

Figure 3 - Aerial Photograph, Leichhardt to Summer Hill (Area 2)




Source: NSW Department of Lands, SIX Lite

To the southern side of the freight corridor, through the suburb of Leichhardt, housing continues to be the main form of development. Within this area a number of sensitive receivers are located within proximity to the proposed Marion Stop. These include the Marion United Aged Care Centre and a NSW Scouts Hall. In walking distance of the proposed Marion Stop is Leichhardt Marketplace which attracts a large number of shoppers from surrounding areas.

Area 3: Summer Hill to Lewisham

At the centre of the Study Area the corridor crosses Parramatta Road and again the predominant form of development is residential. The area comprises a mix of federation era houses as well as medium density apartment blocks.

Figure 4 - Aerial Photograph, Summer Hill to Lewisham (Area 3)


Source: NSW Department of Lands, SIX Lite

Where the former freight corridor intersects (via an underpass) with City Rail's inner west line, the locality becomes increasingly commercial and industrial with a number of small scale industrial uses and bulky goods retailers located between Longport Street and Old Canterbury Road.

Area 4: Lewisham to Dulwich Hill and Hurlstone Park

The southern section of the Study Area continues to be predominantly residential on either side of the former freight corridor. As the corridor continues south, it passes parklands to the west (Johnson Park and Arlington Recreational Reserve) and a few industrial uses to the east. The western side of the corridor also has a number of newer medium density developments in addition to traditional single detached dwellings.

The southern most part of the Study Area is the suburb of Dulwich Hill which is largely dominated by residential (detached dwellings) and is dissected by the rail corridor. There are a number of small shops located along Wardell Road around the Dulwich Hill Station.

The GreenWay is proposed to go beyond Dulwich Hill station into the suburb of Hurlstone Park which again is predominantly residential in character.

Figure 5 - Aerial Photograph, Lewisham to Dulwich Hill and Hurlestone Park (Area 4)


Source: NSW Department of Lands, SIX Lite

## 3.3 Sensitive Receivers

Our desk top analysis has identified a number of social and business groups located within the Study Area that have the potential to be impacted in some way by the Project either during construction or operation.

The table below identifies various local groups, organisations and businesses that are likely to be influenced by the Project or designated as 'sensitive receivers'. With respect to sensitive receivers it is important to note that there are varying degrees of 'sensitivity' to impacts. Residential dwellings and in turn habitable rooms are most sensitive to potential impacts such as noise and other amenity impacts. These groups are often referred to under this title. Whilst not considered sensitive receivers in conventional terms, other uses such as recreational areas, public space and places of work may also be influenced by amenity and environmental impacts. Furthermore it is important to note that sensitive receivers are not necessarily determined by their proximity to the proposed works.

Table 3 - Potential Sensitive Receivers in the Study Area

| Type of Sensitive Receivers | Comment | Examples |
|---|---|---|
| Local residents | Particularly those located within streets immediately adjacent to the proposed Project corridor as well as residents located within streets that provide access to the work sites for construction vehicles. | Bedford Crescent, James Street, Weston Street and Francis Street and a number of other locations in the corridor. |
| Child care centres | There are a number of child care centres located within 100 metres of the corridor. | Explore and Develop (Old Canterbury Rd), Kegworth Out of Hours Care, Bambini of Lilyfield, Early Achievers Child Care Centre. |
| Educational facilities | There are a number of educational facilities where the affected community comprises staff, students and families. | Orange Grove Public School; Kegworth Public School; Dulwich Hill Public School, Trinity Grammar, Sydney Community College and Sydney College of the Arts |
| Entertainment and leisure facilities | There are a number of parks and recreation grounds within the Study Area together with restaurants and cafes. | Leichardt Bowling & Recreational Club, Haberfield Tennis Centre, Blackmore Park Playing Fields |
| Recreational areas | There are numerous parks and reserves along | Whites Creek Valley Park, Pioneers Memorial |

| Type of Sensitive Receivers | Comment | Examples |
|---|---|---|
| | the Project corridor. The Project corridor also follows the Hawthorne Canal (between Allen Street and Lewisham Interchange stop) and terminates 500m away from the Cooks River. | Park, Blackmore Park, Hawthorne Canal Reserve, Hawthorne Canal (between Allen Street and Lewisham Interchange Stop and terminates 500m away from the Cooks River, Lambert Park, Hoskins Park, Johnson Park and Arlington Recreational Reserve. |
| Religious and Community Centres | The rail corridor passes a number of churches and community centres. | Scout Hall, Greek Orthodox Church of St Gerasimos, Our Lady of Snows Society, Uniting Church in Australia (Parramatta Rd), Buddhists Association of Engaged, Greek Orthodox Church of the Holy Unmercenaries. |
| Local businesses | The project has the potential to affect a number of local businesses, particularly those located within streets that provide access to the work sites for construction vehicles. | Businesses along Darley Road, Norton Street, Parramatta Road, New Canterbury Road, Longport Street<br>Summer Hill Mills site (former Mungo Scott Mills), Lord Sixty Seven Pty Limited, P&C Consulting Pty Limited Film Industry, Canal Road Film Centre. |

Source: Hill PDA desktop research and site visit (16 August 2010)

The social characteristics of the groups referred to above have been analysed and discussed in the context of the Project further in Chapter 7 of this Study.

# 4. DEMOGRAPHIC ANALYSIS

The following Chapter provides a demographic profile of the community that may be influenced by Project. This analysis was undertaken to provide a better understanding of the employment, socioeconomic and lifestyle characteristics of the Study Area's resident and working community in comparison to the Sydney Statistical Division (SD) and the state of New South Wales.

For the purposes of this Chapter, two main sources of data have been used, the Australian Bureau of Statistics (ABS) Census Data (2006) and the Bureau of Transport Statistics (BTS) Journey to Work Data (2006).

The ABS Census collects information by household as to what occupation and industry the household's residents are employed. It also collects data concerning where people work and how they travel to work. The BTS configures the ABS' Journey to Work data to calculate the number of jobs within a given locality by industry and the number of residents within a locality travelling to other areas for work in given industries. It is important to note that the BTS figures can differ from ABS data, generally representing a greater number as it accounts for errors and undercounts that may have occurred at the time of the census survey.

The size of the resident workforce refers to the number of people living within an area that work in or outside of that area. Jobs or employment by area on the other hand refers to the number of people stating they work in that given area. They may live in, or outside of that area.

## 4.1 Population Characteristics Today

Analysis of the Study Area's population has found that as of the 2006 Census, the LGAs of the Study Area (Leichhardt, Ashfield and Marrickville) had a resident population of over 168,000 people. This represented 4% of the population of the Sydney Statistical Division (SD).

The primary suburbs of influence (Haberfield, Lilyfield, Annandale, Leichhardt, Summer Hill, Ashfield, Marrickville, Petersham, Lewisham, Dulwich Hill and Hurlstone Park had a resident population of just under 130,000 people comprising 44% of the total population of the four LGAs in the Study Area.

The demographic profile of existing residents of the Study Area was based on a review of 2006 ABS Census Data. The following section summarises the key social characteristics of the Study Area's population, based on the detailed demographic analysis provided in Appendix 1.

Key social characteristics of the Study Area's population include the propensity towards:

- Being within the key working ages of 15 - 44 years;
- Forming households occupied by couples with no children;
- Residing within medium to high density dwellings; and
- Being employed in more senior roles as a manager or professional.

These characteristics are largely a reflection of the Study Area's comparatively dense inner city location and the diversity of social groups that are attracted to live within these areas to access employment opportunities. We understand however that since the last Census, the number of couples with children forming family households has increased within the Inner West thus changing the traditional dynamics of the area and reinvigorating need for a range of uses.

## 4.2 Employment Characteristics Today

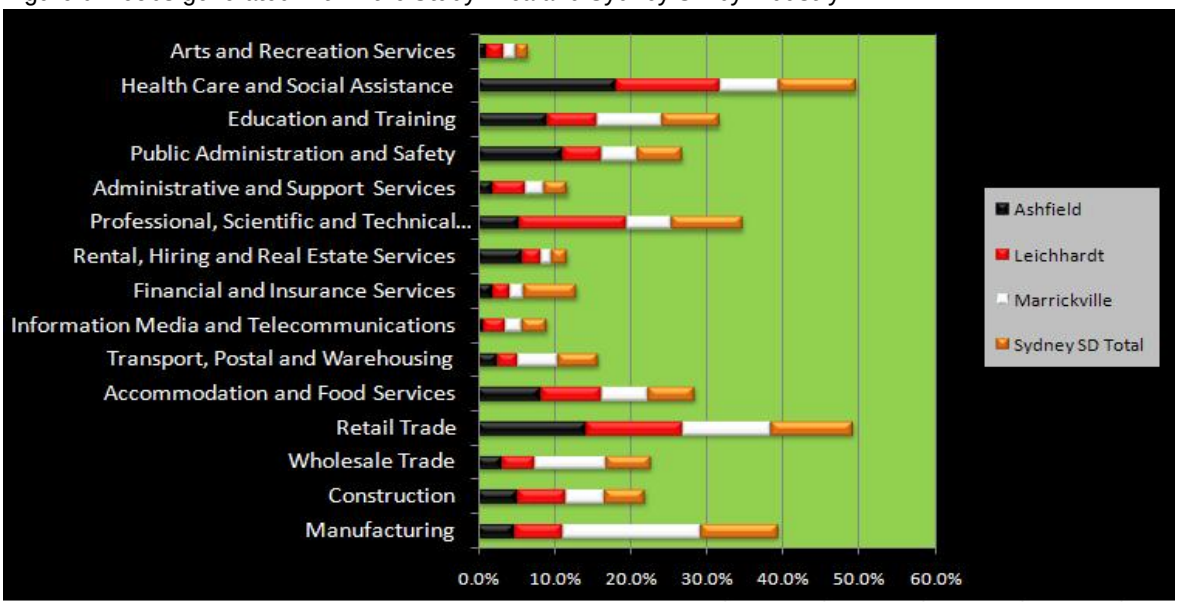
Based on ABS Census Data and the Census question 'where do you work' it is possible to clarify the number of jobs and the nature of jobs generated within the Study Area. This section also addresses the question of what industries the Study Area's residents are employed in, whether they work in or outside of the Study Area.

Jobs Generated in the Study Area

The Study Area generated over 52,500 jobs as of 2006 with the single largest portion being generated within Marrickville LGA (46%) followed by Leichhardt LGA (35%). As shown in Figure 6, two key employment generating industries within the Study Area were Health Care and Social Assistance in addition to Retail. These two industries reflect the service orientated role of the Study Area and its dual role to both support the local community and provide regional services for Sydney. Manufacturing was another notable industry of employment, reflecting the traditional industrial role of the Study Area to support the function of Sydney.

The role the Study Area plays in generating employment underpins the important need for residents, workers and clients from across the Sydney Region to access the area. The generation of, and ease of access to, these jobs will support the Study Area's ongoing economic well being and the opportunity for residents to live closer to where they work. Jobs and industries within the Study Area also play an important role in supporting the growth of jobs along Sydney CBD's periphery.

Figure 6 - Jobs generated within the Study Area and Sydney SD by Industry



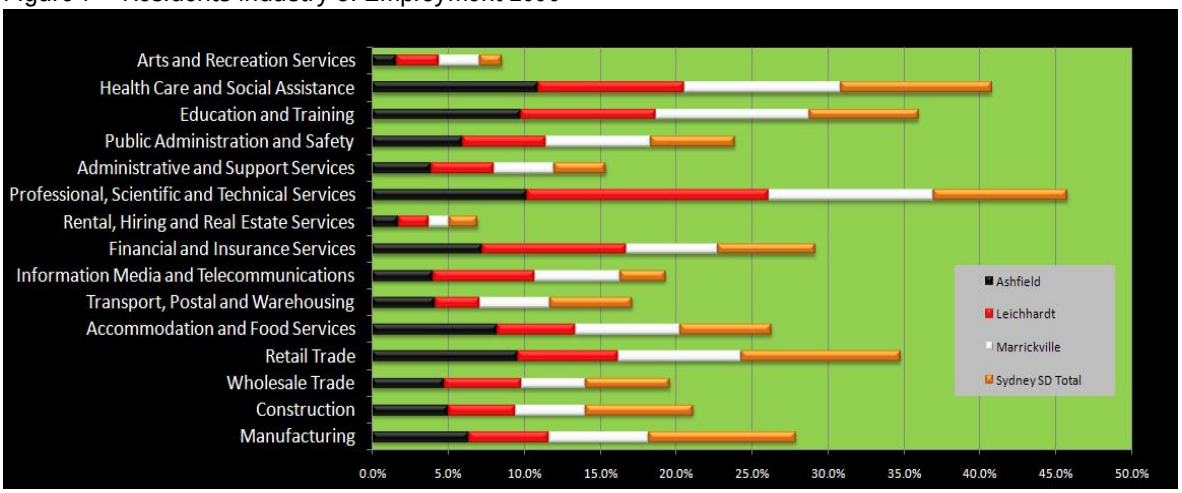

Source: BTS data based on Australian Bureau of Statistics (ABS) 2006 Census of Population and Housing

For graphing purposes percentages have been rounded to nearest whole number and that for the graphs the categories of Agriculture, Forestry and Fishing, Mining, Electricity, Gas, Water and Waste Services, Other Services and inadequately described were withheld from the graphs.

Residents Industry of Employment

As of 2006, it was estimated that 85,000 residents of the Study Area were employed. The largest share of employed residents (44%) resided in Leichhardt LGA. As shown in the graph below, Residents of the Study Area as of 2006 were largely employed in the Retail and Health Care and Social Assistance Industries reflecting the key employment generating industries in the Study Area. This feature highlights the importance of travel connectivity within and across the Study Area for journey to work purposes. Another key industry of employment was the Professional, Scientific and Technical Service Industry. This feature highlights the number of Study Area residents employed in Sydney CBD and the importance of good connectivity to this area for journey to work purposes.

Figure 7 - Residents Industry of Employment 2006




Source: BTS data based on Australian Bureau of Statistics (ABS) 2006 Census of Population and Housing

## 4.3 Forecast Population Change

The following section profiles the Study Area's forecast population growth[5]. An assessment of population growth provides a better understanding of the growing need for transport within, to and from the Study Area and the growing pressure on social resources. These forecasts inform the assessment of the Project's likely social and economic impact during both construction and operational phases.

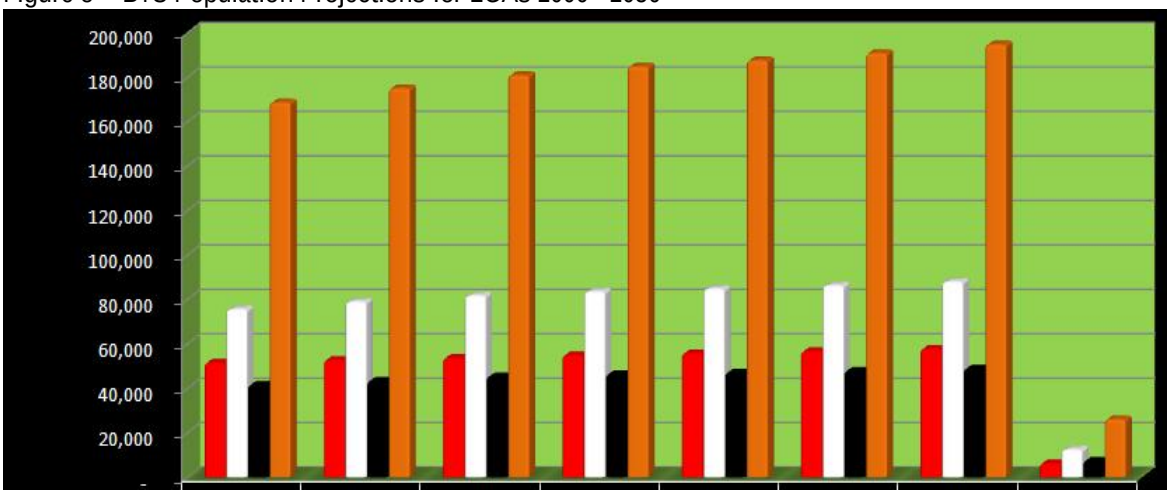
The main influences of population growth in the Study Area are likely to relate to the age of the resident population, the housing market (including the availability and pricing of housing) in addition to the population's demographic characteristics (fertility patterns, household types etc).

The graph below shows the forecast population growth of 26,085 residents within the Study Area by year 2036. The LGA with the greatest forecast net population growth by 2036 is Marrickville LGA with a net growth of 12,450 residents, followed by Ashfield LGA (7,418) and Leichhardt LGA (6,217). This analysis shows that the Study Area will continue to experience positive population growth into the foreseeable future (2036). This reinforces the

[5] Based on the BTS 2009 population forecasts

importance of better pubic transport for the growing population not only within the Study Area but also improved connectivity with other regions of Sydney.

Figure 8 - BTS Population Projections for LGAs 2006 - 2036




| | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 | 2036 | Net Gowth 2006-36 |
|---|---|---|---|---|---|---|---|---|
| Leichhardt | 51,554 | 52,694 | 53,762 | 54,909 | 55,714 | 56,658 | 57,771 | 6,217 |
| Marrickville | 75,546 | 78,983 | 81,738 | 83,513 | 84,776 | 86,257 | 87,996 | 12,450 |
| Ashfield | 41,520 | 43,331 | 45,384 | 46,364 | 47,079 | 47,932 | 48,938 | 7,418 |
| Combined LGA's | 168,620 | 175,008 | 180,884 | 184,786 | 187,570 | 190,846 | 194,705 | 26,085 |

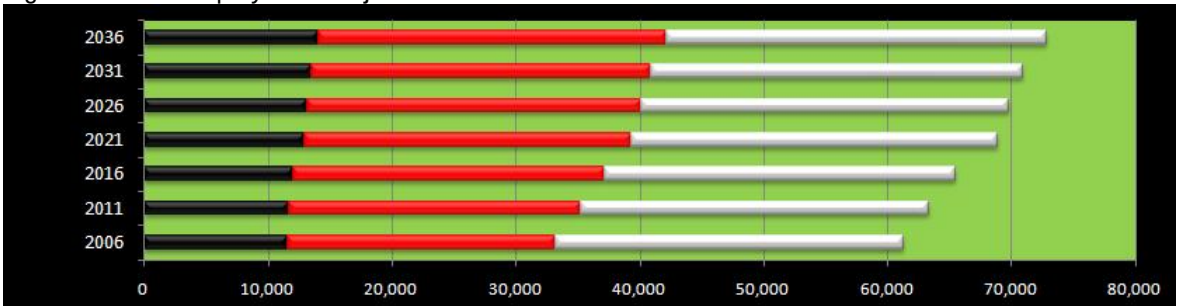
Source: BTS Population Forecasts 2009

## 4.4 Forecast Employment Change

In keeping with the approach taken for the population projections discussed above, BTS figures can also be used to forecast employment growth across the Study Area up to 2036. This analysis shows that employment within the Study Area will continue to have positive growth, with an anticipated net increase of 17,364 by 2036. Accordingly, by this year it is anticipated that the Study Area will generate close to 108,000 jobs representing a significant 19% increase from 2006.

The main growth industries are forecast to be Retail Trade, Health Care and Social Assistance and Public Administration and Safety. The continued growth in employment within the Study Area highlights the importance of better connectivity across the three LGAs and other regions of Sydney.

Figure 9 - BTS Employment Projections for LGAs 2006 - 2036



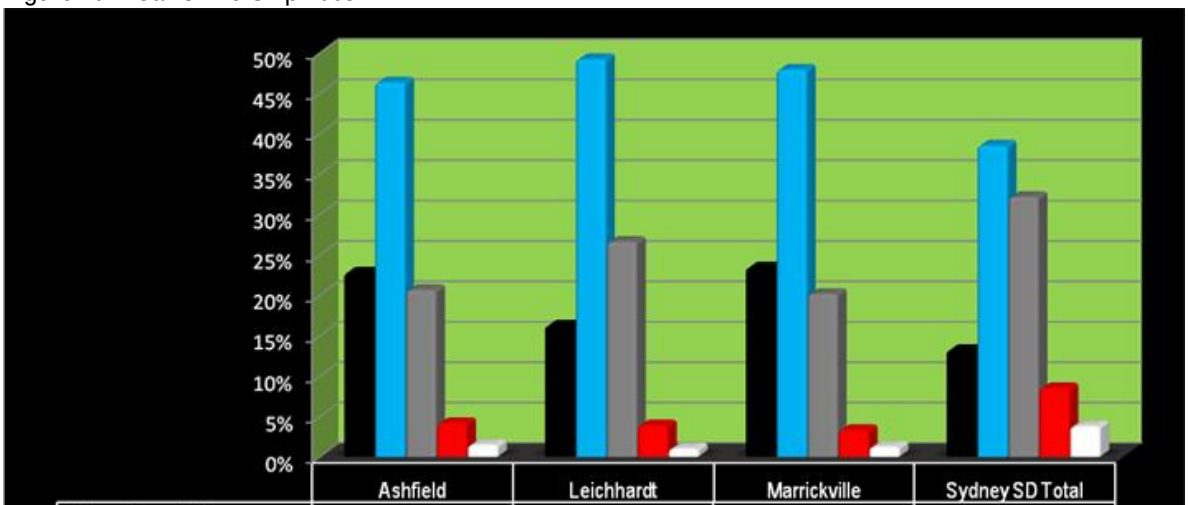

| | 2006 | 2011 | 2016 | 2021 | 2026 | 2031 | 2036 |
|---|---|---|---|---|---|---|---|
| Ashfield | 11,582 | 11,650 | 12,058 | 12,876 | 13,181 | 13,523 | 14,025 |
| Leichhardt | 21,642 | 23,581 | 25,146 | 26,488 | 26,910 | 27,389 | 28,142 |
| Marrickville | 28,055 | 28,037 | 28,292 | 29,545 | 29,684 | 29,957 | 30,637 |

Source: BTS Employment Forecasts 2009

## 4.5 Car Ownership

A significantly higher proportion of households within the Study Area were recorded as not having a car (20%) than the Sydney SD (13%). This reflects the greater reliance on, and propensity towards the use of alternative forms of travel such as walking, cycling and public transport by households in the Study Area than other locations in Sydney. By LGA, Marrickville had the greatest proportion of dwellings without vehicles (23%) followed by Ashfield (23%) and Leichhardt (16%). Further details of car ownership can be seen in the graph below.

Figure 10 - Car Ownership 2008



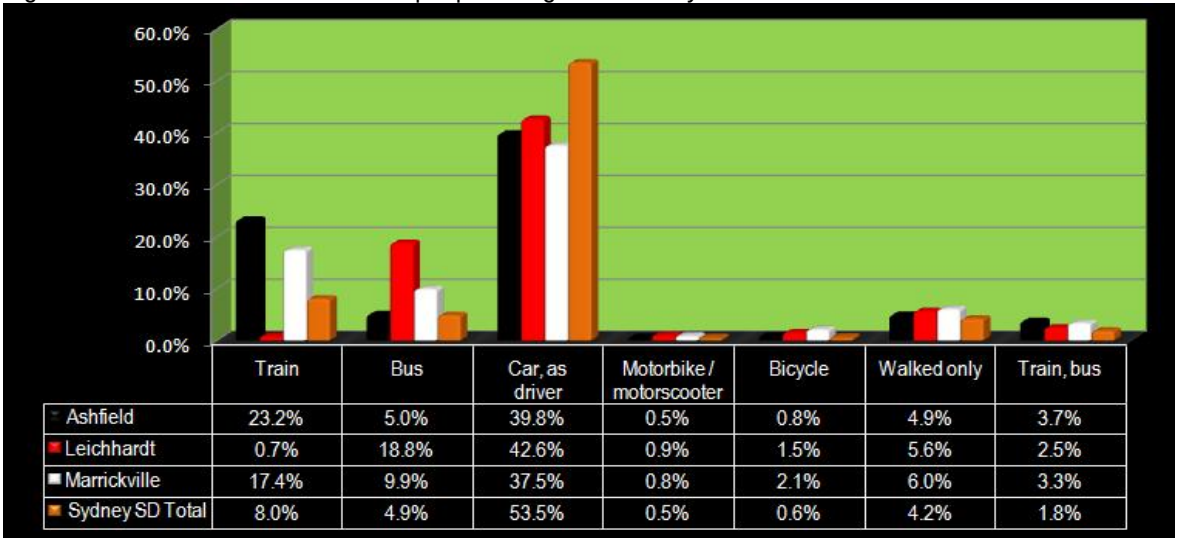

| | Ashfield | Leichhardt | Marrickville | Sydney SD Total |
|---|---|---|---|---|
| No motor vehicles | 23% | 16% | 23% | 13.2% |
| One motor vehicle | 46% | 49% | 48% | 38.5% |
| Two motor vehicles | 21% | 27% | 20% | 32.2% |
| Three motor vehicles | 4% | 4% | 3% | 8.5% |
| Four or more motor vehicles | 1% | 1% | 1% | 3.8% |

Source: BTS data based on Australian Bureau of Statistics (ABS) 2006 Census of Population and Housing

## 4.6 Mode of Travel to Work

The Study Area is characterised by residents that have a higher rate of public transport usage that the Sydney SD. By way of example, 23% of Ashfield LGA and 17% of Marrickville LGA residents used the train to get to work compared to 8% of the Sydney SD. As shown in the graph below, the proportion of people using the bus and / or cycling to work was also significantly higher than the proportion recorded for the Sydney SD. It therefore follows that the proportion of the Study Area's residents using a car to travel to work scored lower than the Sydney SD proportion of 54%.

Figure 11 - Mode of travel to work of people living within Study Area




| | Train | Bus | Car, as driver | Motorbike / motorscooter | Bicycle | Walked only | Train, bus |
|---|---|---|---|---|---|---|---|
| Ashfield | 23.2% | 5.0% | 39.8% | 0.5% | 0.8% | 4.9% | 3.7% |
| Leichhardt | 0.7% | 18.8% | 42.6% | 0.9% | 1.5% | 5.6% | 2.5% |
| Marrickville | 17.4% | 9.9% | 37.5% | 0.8% | 2.1% | 6.0% | 3.3% |
| Sydney SD Total | 8.0% | 4.9% | 53.5% | 0.5% | 0.6% | 4.2% | 1.8% |

Source: BTS data based on Australian Bureau of Statistics (ABS) 2006 Census of Population and Housing

## 4.7 Key Implications

The analysis provided in this Chapter has shown that the existing resident and workforce population of the Study Area has a high propensity towards using alternative forms of travel such as walking and cycling in addition to public transport (such as the existing bus services and heavy rail system). This is evidenced by existing journey to work modes of preference and lower rates of car ownership compared to the Sydney SD. The Study Area's population also has a propensity towards working within the Study Area or the adjacent Sydney CBD highlighting the importance of good transport connectivity within and between these areas.

The analysis provided in this Chapter has also shown that notable resident and employment growth is forecast to occur in the Study Area over the next 25 years. Notwithstanding this growth, existing public transport systems that serve the Study Area are reaching capacity, particularly in peak periods. Furthermore there is a lack of transport options that adequately connect locations across the Study Area and broader Inner West region. Accordingly, the development of the Project will help to relieve the existing burden on public bus networks and heavy rail stations over the next couple of decades whilst better linking existing destinations with public transport options.

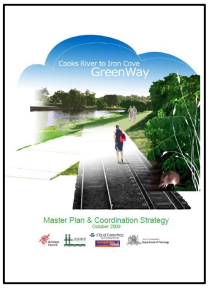
The development of the GreenWay shared pathway along the light rail extension will also support continuing use of bicycles as a means of travel within and across the Study Area. This will encourage more vehicles off the road as people use alternative modes of transport to work helping in the ever increasing struggle with congestion.

# 5. RELEVANT SOCIAL POLICIES

The following Chapter provides an overview of the planning policies and strategies relevant to the Project. Rather than replicate the planning policy analysis undertaken by other components of the Environmental Assessment, this Chapter has focused on local social policies and strategies for the three LGAs within the Study Area (Leichhardt, Ashfield and Marrickville). Their policies emphasise promoting sustainable modes of transport in the Inner West Suburbs, and in turn enhance the health and wellbeing of the local community.

The applicable social policies to the Project are summarised below.

## 5.1 The GreenWay Master Plan & Coordination Strategy 2009



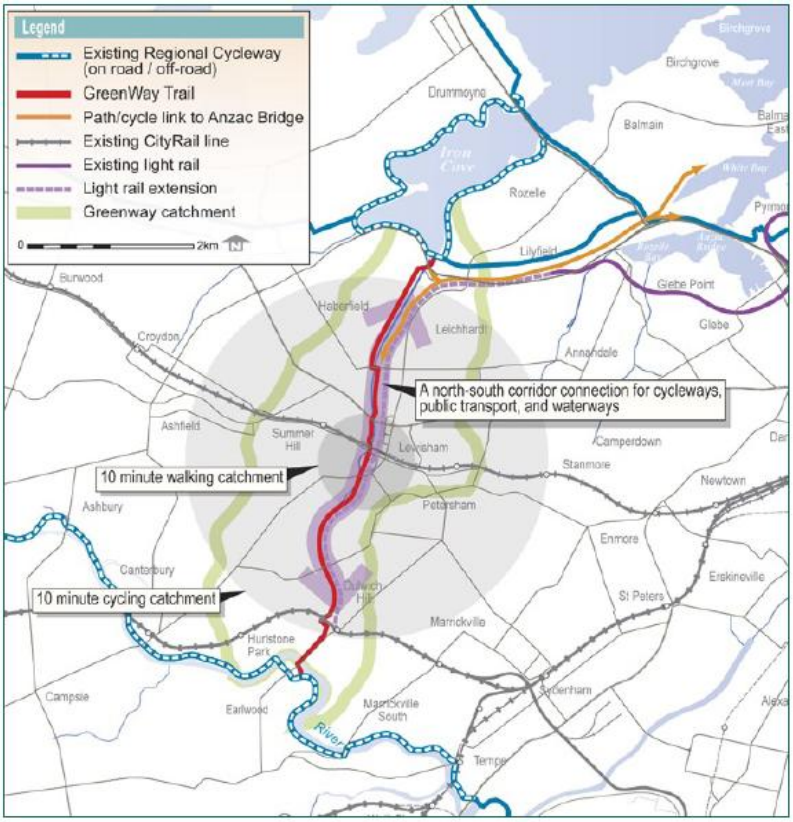

The GreenWay is a collaborative project between Leichhardt, Ashfield, Marrickville and Canterbury Councils to provide a 5km connected pedestrian and cycle way together with bushcare sites. The proposed GreenWay corridor extends from the Cooks River at Earlwood in the south to Iron Cove in the north. The key vision of the project is to provide '*a recognisable environmental, cultural and non-motorised transport corridor linking the sub-catchments of two of Sydney's most important waterways.'*

The corridor follows the disused Rozelle freight rail corridor offering a quick link for commuters in the Inner West between various transport nodes such as train and light rail stops (please refer to Figure 12). Accordingly, the GreenWay shared pathway provides an important opportunity to promote sustainable travel patterns amongst the residents and workers of the Inner West Suburbs.

The suburbs extending along the proposed corridor have a moderate population density and comprise a large, number of schools and shopping precincts, stimulating strong demand for active transport infrastructure. In light of this need, the Strategy notes that implementing the GreenWay has a number of local and regional benefits, including the promotion of railway access and patronage whilst also providing a link to other regional pathway systems and public transport nodes.

The Master Plan was approved by all four Councils in October 2009. A key component of the GreenWay is to integrate with the Sydney Light Rail.

Figure 12 - Plan of Inner West GreenWay




Source: GreenWay MasterPlan and Coordination Strategy, 2009

## 5.2 Ashfield Towards 2010

Ashfield Towards 2010 is a Strategic Plan providing means to address the key challenges faced by the LGA. The Plan recognises that the LGA has limited open recreational space and ageing infrastructure. The Plan also recognises that Council is restricted in its ability to influence the local provision of much needed transport infrastructure projects.

In light of these challenges, the Plan emphasises the importance of promoting adequate transport access. It sets an action for Council to implement infrastructure improvements such as public transport linkages, disability access to transport infrastructure, traffic management and alternatives to car use. In addition, it mandates the need for Council to participate in regionally significant projects such as the GreenWay, in addition to the Dobroyd Canal and John Pope bike and pedestrian links.

## 5.3 Marrickville Community Plan 2025 & Strategic Plan

The Marrickville Community Plan provides a vision for the LGA to 2025. In order to guide future development, Marrickville Council recognises the importance of promoting environmentally sensitive principles. In turn, Marrickville Council aims to create a community which is liveable, safer and accessible to all citizens. It is recognised that a sustainable and integrated transport system will be key to achieving an improved quality of life for the people of Marrickville LGA.

Council's Strategic Plan sets out a number of actions in order to complement the Community Plan. Relevant to this assessment is the objective '*to strive towards a community that is safe accessible, pedestrian friendly and ecologically sustainable by seeking more sustainable forms of transport, developing appropriate infrastructure and long term and responsive urban planning.'*

The Strategic Plan identifies Light Rail as a key solution to achieving this objective, identifying the need to investigate opportunities and lobby the use of light rail in the Inner West and Inner City regions of Sydney.

## 5.4 Leichhardt 2020+ Strategic Plan


Leichhardt 2020+ emphasises the implementation of sustainable development within the LGA, ensuring that '*community and council will work together to promote and develop Leichhardt as a sustainable and liveable community'.*

To guide the environmental, social and economic sustainability of the community, the Plan sets out objectives for 'Key Service Areas'. With regard to Accessibility, a key objective is to link alternative access strategies to reduce car dependency for local regular community activities and trip purposes. The Strategic Plan points to the need to develop a regional transport strategy in partnership with councils and agencies to integrate public transport and local access strategies.

# 6. LIKELY ECONOMIC IMPACTS

The construction and operation of the Project is likely to result in a number of economic influences and impacts. As identified in the introductory Chapter of this Study, an economic impact can affect:

- The viability of businesses (including the level of trade / demand for services);
- The economic well-being of an area's residents;
- The availability of the local workforce; and
- Opportunities for business and employment growth.

In addition to the above, there is a potential economic impact to existing landowners and tenants should land or premises need to be acquired to deliver a project. The potential micro and macro economic impacts of the Project are considered in greater detail below.

## 6.1 Viability of Local Businesses

The following section analyses the potential impacts of the Project to the effective operation and function of businesses across the Study Area during both the construction and operational phases. As a summary, the table below outlines key locations and business likely to be affected by the Project.

Table 4 - Businesses located within the primary and secondary area of influence

| | Location | Examples of Businesses |
|---|---|---|
| Primary Area of Influence | Darley Road, Norton Street, Parramatta Road, Canal Road, New Canterbury Road, Longport Street, Old Canterbury Road (part) | Summer Hill Flour Mill, Lord Sixty Seven Pty Limited, P&C Consulting Pty Limited, Cafe Bones, AMR Mazda and City Sydney Suburu, All Smart Kitchens, The Physio Practice, Bones Cafe |
| Secondary Area of Influence | Marion Street, Old Canterbury Road (part) | Leichardt Marketplace, Bernina Australia, The Kaz Bar |

Source: HillPDA Desktop Analysis

Impacts During Construction

It may be expected that during the construction phase of the Project (12 months over 2011) some businesses would be adversely affected by the construction process. The greatest potential impact is likely to be to businesses located within the primary area of influence (i.e. those directly adjoining the rail corridor) as well as those within the secondary area i.e. the suburbs through which the Project corridor travels. A summary of these businesses and locations is provided in the table below.

Impacts are likely to result from construction related traffic movements and noises. Some businesses across the broader Study Area (i.e. the wider LGAs) may also be influenced as a result of construction related traffic movements however at this stage the impacts are likely to be minimal. The potential impacts to business viability are discussed further below.

The noise and vibration expected during construction will be intermittent, relatively short term in duration and greatest around the proposed stops. Construction related noise and vibration has the potential to negatively affect employee productivity, interaction with clients and workplace ambience. It can also affect the function of services,

especially those depending on a serene environment such as beauticians or outdoor dining areas. We understand that the Environmental Assessment will be informed by a Construction Noise and Vibration Strategy that will identify ways to ensure adequate noise and vibration levels are achieved during construction.

Similarly, there is potential for dust to be generated during the construction process which can not only make the environment unpleasant for customers and employees but also result in dirt settling on the premises. As with noise, the Construction Environmental Management Plan will identify ways to ensure this is kept to a minimum such as keeping machinery well maintained and switched off when not in use.

The presence of large construction vehicles within close proximity to businesses reliant on the amenity of the locality (cafes etc) can have an adverse visual impact. This impact will however be minimised as the majority of works will occur within the existing rail corridor. This means that most construction related vehicle movements will also occur within the corridor.

That said some local access may be required. The closure of local streets, albeit temporary, could reduce the ability of local businesses to service their needs and receive deliveries, incurring increased time and vehicle related costs as well as lost revenue. Also pedestrians and cyclists may need to be diverted. As a result, the level of passing trade for some businesses could be altered to the detriment (or benefit) of sales or customers. The temporary closure of local streets to construct the Project is expected to be minimal, however this is unlikely to significantly impact the level of trade or demand for services.

The areas around the proposed stops rely heavily upon on-street parking which is used by local businesses. During construction the availability of on-street parking in close proximity to the stops and construction sites may need to be reduced. A detailed Construction Traffic Management Plan (CTMP) will be prepared for the Project to ensure a sufficient amount of parking is retained during the construction phase for shoppers, employees and visitors as a reduction in the availability of parking spaces and other disturbances may influence the consumer's decision to use a service or visit a business. The CTMP will also provide mitigation measures to ameliorate the aforementioned traffic related impacts.

For the most part, the negative impacts for businesses will be confined to the construction period and will be reduced or eliminated upon completion of work.

During the construction phase some businesses may in fact experience economic benefits directly associated with construction of the Project. Businesses that may benefit from this phase of the Project include: recruitment agencies; development consultants; manufacturers; suppliers and food and beverage retailers. In the case of the latter, many of the local food stores located in close proximity to the stop or construction sites could receive a modest benefit from the Project on account of the greater number of construction related workers in the area.

A positive flow on effect (or indirect benefit) could also be gained through the boost the construction industry could give to local employment generation and therefore consumption. This prospect is dealt with further in Section 6.4 below.

Road Based Congestion (Operational Phase)

The economic cost of road based congestion is a growing realisation across Australia, with the majority of the population experiencing longer journeys to work. Hill PDA notes that the Study Area's highway network is already considered to be at full capacity during both the am and pm peak periods.

The impact of road congestion flows onto the efficient and effective operation of public transport and buses, with service delays due to queuing traffic. In addition, many services experience crowding during peak times making them a less attractive alternative for commuters. This in turn exacerbates traffic congestion as travel by private car becomes a more efficient and attractive mode of travel compared to public transport.

To quantify the economic cost of congestion, and the importance of encouraging a modal shift, a study was commissioned by the Council of Australian Governments (COAG) and undertaken by the Bureau of Transport and Regional Economics (BTRE)[6]. The study sought to estimate the average costs incurred as a result of congestion to trip travel times and how they would vary over time. The study also assessed costs relating to air quality, travel time variability, vehicle engine operation and efficiency.

The study found that the 'avoidable' cost of congestion to Australian Capital Cities (as of 2005), was in the order of $9.4 billion. This figure could be broken down into:

- $3.5 billion in private time costs (trip delay plus variability);
- $3.6 billion in business time costs (trip delay plus variability);
- $1.2 billion in extra vehicle operating costs; and
- $1.1 billion in extra air pollution damage costs.

By city, Sydney had the highest estimated avoidable cost of congestion of $3.5 billion followed by Melbourne at $3.0 billion.

Forecasting the growth in cost, the BTRE estimated that the avoidable social cost of congestion would more than double over the 15-year period between 2005 and 2020 to $20.4 billion. Over $9 billion of this cost related to business vehicle use. For Sydney alone, the cost of avoidable congestion was forecast to increase to $7.8 billion by 2020.

The BTRE study also identified additional flow on costs of congestion that were not assessed as part of the study. Relevant to this Study were the likely costs incurred by businesses having to re-locate or close due to restrictions to their operations as a result of congestion. A cost of congestion to business includes reduced business productivity as well as:

- Increased travel times and therefore business service times, transportation and vehicle operating costs;
- Impeded staff access and therefore access to workforce and work related skills; and
- The reduced attraction of doing business / investing within a locality (such as the Inner West).

[6] Department of Urban Transport and Regional Services, Bureau of Transport and Regional Economics: Estimating Urban Traffic and Congestion Cost Trends for Australian Cities, Working Paper No.71

The Project would support a reduction in the existing and future degree of non business related road related traffic movements across the Study Area and within the Inner West Region. This would in turn enhance the ability for businesses to operate within the Study Area on account of more efficient and reliable access for staff, clients, deliveries and services alike.

Level of Trade and Demand for Services (Operational Phase)

Owing to enhanced pedestrian, cyclist and commuter accessibility across the Study Area, the Project may result in a modest increase in demand for local retail and business services upon operation. The extent of the potential growth in demand would be difficult to quantify. However, trade and demand for services could increase as a result of:

- A larger customer base due to improved levels of accessibility and connectivity;
- Increased pedestrian activity close to the stops;
- An enhanced level of amenity due to completion of the GreenWay, landscape improvements along the rail corridor and new public realm; and
- Increased awareness of the suburbs close proximity to proposed stops as destinations.

Examples of local businesses well positioned to benefit from enhanced access across the Study Area include the shops and restaurants at the junction of Marion Street and Foster Street (between Leichhardt Market Place and the proposed Marion stop) in addition to businesses located in close proximity to the proposed interchanges at Dulwich Hill and Lewisham.

Upon operation there is some potential for increased noise levels associated with the rolling stock. During consultation, noise was not considered a major issue with most consultees appreciating that the light rail would be less disruptive than the former goods line, even though services would be more regular. As such we do not consider this to be a concern for businesses operation within the locality or their viability.

## 6.2 Property Values

As referred to above, the Project will deliver a number of improvements that would enhance the aesthetic and recreational amenity of the Study Area making it a more attractive place to live and work. Such improvements include improved landscaping, a greater level of accessibility (to nearby Centres and the CBD) by modes of transport other than private car and an integrated GreenWay which could be used for both leisure and commuting purposes. In addition, the profile of suburbs where stops are located will increase as people become more familiar with them as destinations.

Combined these two factors could potentially result in improved residential values influenced by increased levels of confidence from investors and owner occupiers looking to purchase or develop properties in the Study Area, and in particular those suburbs / sites close to the proposed stops.

There are a number of studies that reinforce this hypothesis. By way of example, Vladimir Bajic found that when the metro was introduced in Toronto, Canada,

*"the direct savings in commuting costs have been capitalized into housing values"*[7].

Tse et al found a general improvement in land values in close proximity to rail stations in Hong Kong[8] and also cited an extensive list of studies linking rail and other infrastructure to land values.

This research suggests that land values could increase in response to transport infrastructure improvements (such as the Project) as people are willing to pay more to live in accessible locations.

A potential downside of this "gentrification" relates to the prospect of existing residents on low or middle incomes to be gradually priced out of the area. This is a socioeconomic trend that is increasingly occurring within inner city areas of Sydney and other global cities whereby the attraction of inner city living is gentrifying existing working class suburbs. Furthermore, whilst indicative of a buoyant market, rising land values can present challenges for businesses. For example, in the event that land values increase some existing businesses may need to move out of the area to facilitate growth, where land and premises are cheaper. It is also common for lower margin businesses, keen to release the uplift in value of their assets, to sell to developers who would build higher value uses, most commonly housing.

## 6.3 Access to Jobs & Workforce Availability

Residents of the Study Area may experience a modest economic benefit as a result of the Project's ability to improve ease of access to a wider range of employment opportunities upon operation. By way of example, the Project would enhance the speed and ease of access to employment centres such as Pyrmont and Sydney CBD. It would also enhance access to nearby Regional Centres such as Burwood.

Residents who do not have access to private cars or who are time poor (due to other commitments) would particularly benefit from these improvements. In turn, these improvements could enhance the economic well being of the Study Area's residents by increasing their accessibility to work opportunities across the corridor.

Given that the Project is likely to enhance access to jobs across the Study Area, upon operation it will also enhance the availability and range of workers available to local businesses. Businesses would benefit from a larger labour pool, greater staff choice and a broader available skill set.

As the Project would not adversely affect existing rail transport services within the Study Area during construction and would create a modest level of construction related traffic, during the construction phase, the impacts to workforce travel times and accessibility are considered slight to negligible.

## 6.4 Opportunities for Business and Employment Growth

It is a widely held view that public investment in major projects can help to stimulate further investment, acting as a catalyst for urban renewal and an indirect stimulus for wider economic productivity.

[7] Bajic, V. (1983). "The Effects of a New Subway Line on Housing Prices in Metropolitan Toronto." Urban Studies 20(147-158).

[8] Tse, R. Y. C., Y. C. Lee, et al. (1997). "Effects of Railway on House Prices in Hong Kong." Australian Land Economics Review 3(1): 33-35.

Construction of the Project, along with a shift in strategic policy, for new development to be focussed around transit nodes would lead to increased confidence, particularly in those areas close to the stops. This trend would be fuelled by the opportunity to increase the density of development and the ability to access larger catchment areas (for workforce and customers). As a direct consequence, employment opportunities would also increase.

We discuss these impacts in more detail below.

Public Investment in Infrastructure

Research undertaken by Otto and Voss[9] quantified the relationship between public infrastructure provision and private production. The research stemmed from economic theory that public investment in infrastructure projects (such as such as transportation systems) could have a positive flow on effect to private production and economies. Otto and Voss' research stemmed from debate in the US that the reduction in government infrastructure spending and investment had been in-part responsible for the observed slow down in productivity growth. The potential correlation between these factors was applied to an Australian context, to determine whether a similar decline in public infrastructure investment could be sacrificing future economic growth in Australia.

Whilst the research by Otto and Voss advocated further detailed research and testing, it found that positive economic effects and enhanced production could be gained by private enterprises as a result of public infrastructure. Furthermore these supply side effects could be accrued when the economy was strong or close to full employment capacity.

Quantifying this, Otto and Voss found that with everything else constant, a 1% increase in public capital stock could lead to a 0.4% increase in private output. In fact the Otto and Voss research results implied that

*"the marginal returns to additional investment in public infrastructure capital are very high, and significantly higher than the returns to additional investment in private capital".*

These findings are significant and are presented by many economists as justification for capital expenditure on infrastructure such as the Project.

Stimulus for Development and Investment

As mentioned above, improving infrastructure and making locations more accessible to customers, visitors and employees can act as a stimulus for development and investment, resulting in existing businesses growing and new business being attracted to an area. The result is an agglomeration of business, which in turn delivers a number of economic benefits.

Agglomeration refers to the economic and cost savings, resulting from a concentration of related or similar activities within a common geographic area such as a local centre. Locations across the Study Area, close to existing train stops (such as Lewisham and Dulwich Hill) have grown to support the agglomeration of economic

[9] Otto, G and Voss, G (1995) Public Infrastructure and Private Production

activity through an increase in the density of the built environment and the associated clustering of activities. The Project would further enhance workforce and customer accessibility thereby allowing for and encouraging greater building densities and agglomeration. Local businesses and centres that would most likely benefit from the Project are those close to the stops and interchanges such as Leichhardt Market Place.

Empirical research undertaken in the UK and Europe[10] has tested and ratified the positive relationship between agglomeration and economic benefits to businesses. These studies have found that business productivity increases in line with density. The economic benefits of agglomeration may result from:

- Improved opportunities to network;
- Increased innovation and service sophistication;
- Cost savings through economies of scale;
- The ability to specialise and use other services to complement business activity; and
- A larger available customer and supplier market.

Whilst it is difficult to quantify the impact of agglomeration precisely, Ciccone [11] makes reference to a doubling of employment density resulting in a 5% increase in labour productivity.

The consumer also benefits from the economic effect of agglomeration through better access to choices and lower prices as a result of price competition. The NSW State Government recognises the economic importance of agglomeration and the need to cluster businesses in centres[12] and areas close to transit nodes. The success of centres and their ability to support the agglomeration of industries relies however on their ability to increase densities and thereby the integration of land use with transport infrastructure.

The Project would play an important role (as part of the wider public transport system) in supporting an increase in density throughout the LGAs and the effective movement of people to and from locations of business. This would in turn support the agglomeration of businesses and associated economic benefits to private business and consumers.

Construction Multipliers

The construction of transport infrastructure such as the Project can have a positive economic benefit to industries as a result of the multiplier effect. Multipliers refer to the level of additional economic activity generated by a source industry. The construction industry is a key source industry responsible for 6.6% of Australia's Gross Domestic Product (GDP). Accordingly, the construction of major infrastructure, such as the Project can have strong positive economic impacts to other industries through the multiplier effect.

There are two types of multipliers:

1. *Production induced*: which is made up of:

[10] Rosenthal, S and Strange, W (2004) 'Evidence of the Nature of the Sources of Agglomeration Economies' Handbook of Urban and Regional Economic

[11] Agglomeration Effects in Europe, European Economic Review, 2002, Antonio Ciccone

[12] Action B3 Cluster Businesses and Knowledge-Based Activities in Strategic Centres, Metropolitan Strategy: City of Cities, A plan for Sydney's Future, Department of Planning (2005) and The Metropolitan Strategy Review, 2010

- a first round effect: which is all outputs and employment required to produce the inputs for construction; and
- an industrial support effect: which is the induced extra output and employment from all industries to support the production of the first round effect.

2. *Consumption induced*: which relates to the demand for additional goods and services due to increased spending by the wage and salary earners across all industries arising from employment

The source of the multipliers adopted in this study is the ABS and Australian National Accounts: Input-Output Tables 1996 - 97 (ABS Catalogue 5209.0). These multipliers are based on both the building and non building industry and therefore the effects are an approximation only.

Table 5 - below shows the estimated first round effects, industrial support effects, and consumption induced multiplier effects at rates of $0.466, $0.438 and $0.962 respectively to every dollar of construction.

Table 5 - Construction Multiplier Effect

| | Initial Effects | Production Induced Effects | | Consumption Induced Effects | Total |
|---|---|---|---|---|---|
| | | First Round Effects | Industrial Support Effects | | |
| Output multipliers | 1 | 0.466 | 0.438 | 0.962 | 2.866 |

Data Sources: Australian National Accounts: Input-Output Tables 1996-97 (5209.0), Price Index of the Output of the Building Industry - Producer Price Indexes (6427.0), CPI All Groups - RBA Bulletin (Table G2)

The multipliers above show that the cost of constructing the Project could have a positive wider multiplier effect by a factor as high as 2.87[13] owing to a combined benefit from production induced effects and consumption induced effects. That is for every $1 spent on the Project $2.7m will be injected in to the broader economy.

It is important to note however when reviewing these estimates that multiplier effects have a national impact and not necessarily a local impact. At this stage of the Project, it is not possible to quantify with precision the state or local impact of the Project as a result of its multiples. This is because factors that feed into the assessment of multipliers (such as the origin of materials and construction contracts) are yet to be determined.

Furthermore the ABS notes that,

*"Care is needed in interpreting multiplier effects; their theoretical basis produces estimates which somewhat overstate the actual impacts in terms of output and employment. Nevertheless, the estimates illustrate the high flow-on effects of construction activity to the rest of the economy."*

The precision of the multiples and their dollar value could be calculated in greater detail upon confirmation of additional information.

[13] Data Sources: Australian National Accounts: Input-Output Tables 1996-97 (5209.0), Price Index of the Output of the Building Industry - Producer Price Indexes (6427.0), CPI All Groups - RBA Bulletin (Table G2)

Construction Jobs

The construction industry is a significant component of the Australian economy accounting for almost 9% of the workforce as of November 2008[14]. In fact the construction industry generates 775,000 direct jobs per annum in Australia, making construction the third largest source of employment in Australia.

The industry also has strong linkages with other sectors, so its impacts on the economy go further than the direct contribution of construction through its strong multiplier effect.

Transport NSW has estimated that the number of jobs generated as a result of the proposed 12 month construction period would be approximately 350 jobs. Jobs that would be generated include onsite labour, supervision, professional services and project managers.

Major infrastructure projects can also have flow on or indirect secondary benefits to job generation through the raw material supply chain and jobs created as a result of the new infrastructure (such as food and beverage services, public facilities and services and related infrastructure projects). Secondary indirect jobs were not however included in the job generation calculations.

## 6.5 Property Acquisition

As the Project would make use of a disused rail corridor and vacant parcels of land, there are only two properties that have been identified as necessary for construction and operation. These properties are located at:

- Leichhardt North – being the existing RailCorp site located adjacent to Darley Road; and
- Dulwich Hill Interchange – being a section of the on street car park located north of the existing stop.

There is a private lease associated with the RailCorp site on Darley Road that would potentially need to be terminated prior to construction in line with the terms of that agreement. Otherwise we understand that all of the land required to facilitate the Project is publicly owned and could be vested to Transport NSW or another appropriate Government Authority.

It is therefore unlikely that there will be a need to compulsory acquire any private properties to facilitate the construction or operation of the Project. Should however this position change, it is understood that Transport NSW would use best endeavours to acquire any property through negotiation and purchase or lease rather than compulsory acquisition. Should any property need to be acquired it would be acquired in accordance with Section 55 (a) – (f) of the *Land Acquisition (Just Terms Compensation) Act 1991.* This means that any property owners affected by the Project would not only be paid fair market value, but other costs and losses such as disturbances to business operation due to relocation.

[14] Australian Bureau of Statistics Catalogue No. 5209.0.55.001 Australian National Accounts: Input-Output Tables - Electronic Publication 2004-05

# 7. LIKELY SOCIAL IMPACTS

The following Chapter provides a qualitative, and where possible quantitative assessment of the expected impacts of the Project to the social groups located within the Study Area. With respect to social impact, the following Chapter discusses the Project's potential influence to:

1. Public perception and concerns;
2. Local amenity;
3. Access to services and jobs;
4. Visual amenity;
5. Traffic congestion;
6. Access and social cohesion;
7. Access to open space and urban connectivity ;
8. Health and well being;
9. Perceived safety and security; and
10. Social sustainability.

The social impacts under the broad headings given above have been identified and assessed during both the construction and operational stages of the Project. Where appropriate, mitigation measures to minimise or ameliorate the impacts have been identified. The recommended mitigation measures are discussed further in Chapter 9.

## 7.1 Public Perception and Concerns

Uncertainty and concerns regarding the nature of the Project and its potential impact is an important social consideration. Uncertainty regarding changes that may affect the amenity of one's home, the nature of a business or the character of a local area can create anxiety and social stress.

In order to identify and address these potential concerns at an early stage, Transport NSW in cooperation with the three Councils of the Study Area implemented a series community consultation measures. The measures sought to inform the wider pubic of the Project and to seek views on how to best adapt the design and details of the Project to maximize its benefits and integration with the local community.

Initial feedback from community consultation has highlighted a high level of interest and support for the principle of the Project from key stakeholders and members of the wider community. In fact during the specific three week consultation period, approximately 97% of submissions made by the public showed specific support for the Project.

Key social matters for consideration raised during the consultation program included:

- The inclusion of a cycle way;
- The provision of bike facilities;
- The location of stops;
- Ticketing and fares; and
- Potential road traffic and parking impacts.

Many of the comments made in relation to the key areas above have informed the refinement of the Project's design including the location of stops and their names. In response to the community's priority for the GreenWay, this component of the Project has been included and will be constructed alongside the light rail extension.

Transport NSW have committed to continuing to provide the latest Project information to the community through a variety of mediums to ensure that the information can be widely disseminated and is easily accessible. By way of example, a section of the Transport NSW website has been dedicated to information regarding the Project and will be regularly updated. Transport NSW has also conducted three community information sessions to date to keep members of the public and key stakeholders informed of the projects development. Information regarding early works will also be communicated through letter box drops and information distributed from local community groups.

In addition, Transport NSW has established a direct telephone information line, enabling the community to deliver their feedback, access information and raise their concerns. During construction, it is recommended that this contact number should also provide a human point of contact that can liaise directly with staff on site to action any necessary changes or suspend inappropriate work.

As the Project commences, maintaining these clear lines of contact would assist in reducing the associated concerns and anxiety regarding potential impacts.

## 7.2 Impact to Local Amenity

The construction of the Project has the potential to adversely impact the amenity of localities along the proposed light rail and GreenWay corridor and within reasonable proximity of Project work sites. The impacts to the amenity of these sensitive receivers may be by way of noise, vibration, traffic congestion and dust. Construction impacts are however likely to be intermittent and relatively short term given the anticipated 12 month construction period. Furthermore, any adverse impacts are likely to recede with distance away from the rail corridor or work sites.

A Construction Environmental Management Plan (CEMP) would be prepared for the construction phase of the Project and would provide a centralised mechanism in which all potential environmental impacts relevant to the project would be managed.

As identified in Chapter 3 of this Study, the sensitive receivers that could be affected during the Project's construction with respect to noise, traffic congestion, vibration and dust include:

- Local residents – particularly those located adjacent to, or within a reasonable distance of the light rail corridor, in addition to residents located along the main routes that would provide access to the work sites for construction vehicles;
- Local businesses – particularly those located along the light rail corridor, adjacent to stops and / or work sites;
- Educational facilities, their staff, students and families – including child care centres and schools located along the light rail corridor (i.e. Orange Grove Primary School, Trinity Grammar, Sydney College of the Arts and Dulwich Hill Public School);
- Entertainment and leisure facilities – located adjacent to the light rail corridor and work sites (i.e. the Leichhardt Bowling and Recreational Club, Haberfield Tennis Centre, Blackmore Park playing fields and numerous restaurants and cafes);
- Aged Care Facilities – located adjacent to the light rail corridor and work sites in particular the Marion United Aged Care Centre which is situated within close proximity of the proposed Marion Stop; and
- Religious and Community Centres – located adjacent to the light rail corridor or work sites such the Scout Hall located near the proposed Marion Stop.

A number of methods will be required to minimise the impact of the Project to sensitive receivers during construction.

Construction traffic is likely to moderately affect sensitive receivers. A detailed Construction Traffic Management Plan (CTMP) will be prepared to identify the measures and controls that will need to be put in place to minimise the following impacts: heavy vehicle traffic, construction staff traffic, construction staff parking, temporary worksite access, oversized/ overmass deliveries, emergency works, construction of the GreenWay shared path bridge over Parramatta Road, construction of the GreenWay underpass tunnels, construction of the GreenWay on street sections and construction of the Marion Street signalised mid block pedestrian crossing. Measures to mitigate the impact of construction traffic may include minimising Project related vehicle movements during peak travel periods and avoiding key bus routes.

Measures to address detrimental noise and vibration impacts to sensitive receivers listed above will be dealt with through a Construction Noise and Vibration Management Plan. Measures may include the restriction of noisy work or its treatment at the source, checks so that plant and equipment are not left idling when not in use and that they are regularly maintained and serviced. Areas likely to be most affected by construction noise should also be provided with advance notice of the time and duration of the construction activity.

Operation

Upon operation, the Project is likely to generate noise from various sources including light rail operational noises and greater people activity in key nodes. Preliminary noise testing has identified that the resulting noise impacts of the Project's operation, when compared to existing noise levels, are likely to be negative. In comparison to the earlier use of the corridor as a Freight corridor the air borne noise generated from the Project would be more frequent yet significantly quieter.

Operational noise impacts may have a moderate adverse impact to a limited number of receivers when unmitigated. A number of mitigation measures would be investigated to minimise impacts to a slight negative impact.

During operation, air quality is likely to be greatly improved. Compared to heavy rail vehicles, light rail vehicles emit very small quantities of brake dust at locations where they are required to slow or stop. Moreover, as the Project would promote greater use of public transport, reducing private car dependency, this would have a net positive benefit on roadside air quality.

With respect to amenity impacts, concerns were raised during the consultation process with regards to the potential for overlooking and privacy impacts as a result of additional people using the GreenWay shared pathway and commuters at stop locations being able to look into homes. The potential for direct overlooking, particularly within close proximity of a habitable room could be mitigated through appropriate design features such as screening or the appropriate orientation of stairs and platforms so that they do not adversely affect the amenity of surrounding residents.

## 7.3 Access to Services and Jobs

A likely social benefit of the Project is to enhance the liveability of transit poor households by improving access to a range of employment, retail and cultural services and facilities.

Accessibility to services and employment is likely to be greatly enhanced by providing interchange between the proposed light rail extension and other modes of transport. Interchanges with cycle and pedestrian paths, bus services and rail interchanges at Lewisham and Dulwich Hill would allow movement and access to other corridors radiating from Sydney CBD, the Inner West and Bankstown City Rail Lines. The Project would also connect residents to popular centres along the light rail corridor including Glebe, Norton Street, Pyrmont and the Sydney Fish Markets.

The corridor is also located within close proximity of various primary and secondary schools, child care and retail services (such as Leichhardt Marketplace). The location of light rail stops around these services would provide convenient access for users minimising the time taken to do daily activities. For example, commuters would be able to do their daily shopping whilst picking up their children on the way home from work, rather than making designated trips.

In addition to the economic benefits of providing employment closer to home and reducing travel times to existing employment locations, discussed in Chapter 7, key social benefits of the Project relate to reduced stress and increasing the time available for leisure activities. To exemplify this point, economists Frey and Stutzer found that commuters who travel for more than an hour to their place of employment would need to earn 40% more money than they currently do to be as satisfied with their lives as non commuters[15]

[15] Ania Wieckowski, 'Back to the City', Harvard Business Review, May 2010

## 7.4 Visual Amenity

The location of the proposed stops, their design and their integration with the existing built environment at street level is a key social issue as they will influence the character and social identity of areas within the stop radii.

During the construction phase, the visual integrity and character of areas are likely to be affected by the presence of construction sites, worker sheds and compounds, plant equipment and other machinery. However, these adverse visual impacts are likely to be minimal as construction would be contained predominantly within the existing freight corridor and to a 12 month period.

During operation, by activating the disused freight line, the Project is likely to positively improve the visual amenity of the Study Area. Revitalising the corridor is particularly important given the tendency for disused infrastructure to fall into disrepair, attracting graffiti and other forms of vandalism and in turn negatively contributing to the streetscape.

The proposed stops are likely to follow existing platform designs, providing visual continuity along the light rail line. These stops are not as visually prominent as heavy rail stops and measures will be taken to minimise intrusive visual impacts to neighbouring properties. A Visual Impact Assessment has been undertaken to identify and address potential visual amenity issues and has found that no 'high' visual impacts are likely to result from the project.

The importance of stops being integrated with the local environment was reiterated by local stakeholders during the consultation period whereby 88 comments were raised in the 400 submissions received concerning stop locations and design. These comments were addressed and have informed the revised stop locations, their names and a commitment to incorporate appropriate way of finding signage wherever appropriate.

## 7.5 Access to Public Spaces and Urban Connectivity

A key social benefit of the Project is to improve urban connectivity within the Study Area, enhancing access to and promoting the use of public spaces.

The former Rozelle freight corridor presently divides many suburbs and localities of the Inner West, severing communities and creating a significant physical and mental barrier to movement. The proposed Stage 1 Sydney Light Rail Extension, when combined with the GreenWay shared pathway, provides an opportunity to significantly reduce the segregating effects of the current corridor. To exemplify this point the Project's Product Definition Report states:

*'through its conversion to light rail, integrated with cycle and pedestrian paths, there is an opportunity for significantly enhancing urban connectivity and for some of these connections to be re-established, in particular through well considered stop locations.'*

In enhancing connectivity, stop locations have been designed to ensure that they are accessible to the widest catchment of residents. The proposed pedestrian / cycle bridges and pathway upgrades would ensure that stations have a wide geographic outreach. Specifically, the proposed pedestrian bridge across the Hawthorne

Canal would link the north western part of Leichhardt (currently not well served by public transport) and the eastern part of Haberfield to Waratah Street, Haberfield.

Another new pedestrian bridge is proposed over Parramatta Road improving connectivity for pedestrians and cyclists across a congested and busy traffic corridor. Connectivity and access would be further enhanced by way finding and location signage.

Public Spaces and Social Cohesion

Providing access and connection to public spaces provides opportunities for social interaction, enabling communities to build social networks and social capital. In this regard, the World Health Organisation emphasises the importance of locating and designing facilities (such as light rail stops) to encourage meeting and social interaction.

The proposed location of the light rail stops and the prospective creation of new public spaces and facilities for commuters, such as the GreenWay, are likely to promote a greater number of people walking to and from transport nodes within centres. New pedestrian bridges (such as the one proposed to traverse Hawthrone Canal) would enhance urban connectivity and the public domain. Combined new bridges, shared pathways, cycle parking, outdoor seating and rest areas would create active and vibrant and social areas that would have positive influences to community spirit and promote the integration of pedestrians, bike riders, recreational travellers as well as commuters.

Improving public open space and the environment along the proposed light rail corridor is a key concern for residents. As the corridor is located adjacent to a number of community parks, connecting these parks through stop locations and the GreenWay shared pathway would provide the dense urban Inner West environment with a 'Green Lung'. This would be likely to encourage residents and commuters to either incidentally appreciate these public open spaces when travelling to work or purposefully for recreational activities. To demonstrate the importance of improving the amount of public open space, studies point to the potential for open space to promote social integration in addition to enhancing participation in physical activity which as a result influences the mental and physical well being of the community[16].

A significant community concern identified during preliminary consultation was to ensure that the Project could protect and enhance existing bushcare sites. As part of the Environmental Assessment, an Ecological Assessment Report has been prepared for the Project addressing potential impacts on the biodiversity along the corridor and in particular the bushcare sites. Whilst not all sites will be able to be retained, especially those within the rail corridor, several potential additional bushcare sites have been proposed to offset any loss. Accordingly, this would ensure that existing levels of biodiversity along the corridor are maintained and habitat for fauna can be further enhanced.

*"More attention needs to be given to the potential of the Cooks River-Parramatta corridor for wildlife connectivity. Though the native vegetation and animal life have been decimated there is a great opportunity to restore the rail corridor with habitat in which native animals can thrive…I hope Transport NSW will work with residents and local councils in creating a vital habitat for wildlife, as well as a pleasant environment for Light Rail passengers, pedestrians and cyclists…"*

Consultation Summary Report, 2010.

[16] See Premiers Council for Active Living – healthyspaces.org

## 7.6 Health and Well Being

Health is a key factor in a community's social well being. As stated by the Organisation for Economic Co-operation and Development (OECD):

> *"Good health is necessary for individuals to flourish as citizens, family members, workers and consumers. Improving health is a key concern of OECD societies, as it can contribute to higher economic growth and improved welfare[17]."*

There is evidence that the design of a city, its built environment and infrastructure provision significantly impacts its residents and workers[18]. Of relevance to the Project, is the understanding that the provision of a safe, reliable and accessible transport service (such as the Project) is one element of the built environment that can positively influence commuter's behaviour away from car use to public transport use. The use of public transport encourages people to walk as they need to access stops and destinations on foot once leaving the stop.

This hypothesis is supported by research undertaken in Sweden which found that walking, cycling and using public transport for travel to work has a negative correlation with obesity. Accordingly, it was found that people using these modes of transport were much healthier compared to commuters who drove to work[19].

Using public transport enables people to include incidental physical activity into their lives by walking or cycling to stops. In the case of the Project, the inclusion of the GreenWay shared pathway would enhance these opportunities as well as options to walk or cycle directly to places of work. Facilitating a modal shift away from private motor vehicles towards public transport, walking or cycling can have other social health benefits including improved air quality, social cohesion and greater access to a range of healthy food retail opportunities. Studies have found that as a result of increased physical activity *"community spirit and social networks are encouraged in vibrant, mixed use centres and in walkable neighbourhoods"*. [20]

Research shows that as the provision of safe, reliable and accessible public transport services improves physical activity for users it also positively improves psychological well being[21]. These positive social benefits are derived from reducing the stress associated with traffic congestion and reducing travel times, thereby allowing for additional personal recreational time, or leisure time with families and friends[22].

In light of the research referenced above, the Project provides significant opportunities to increase the local resident and workforce's opportunity to walk, cycle and travel via public transport across the Inner West. These opportunities often correlate with positive improvements to physical and mental health and well being.

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[17] www.oecd.org

18 CISRO, Response to Infrastructure Australia Discussion Paper #1 - "Australia's Future Infrastructure Requirements" October 2008

19 Lindström M, 2008. Means of transportation to work and overweight and obesity: A population based study in southern Sweden. Preventive Medicine 46(1): 22-28)

[20] Does the Built Environment Influence Physical Activity? Examining the Evidence, Transportation Research Board, USA

[21] Billie Giles Corti, Sarah Foster, Trevor Shilton and Ryan Falconer, 'The co-benefits for health of investing in active transportation', NSW Public Health Bulletin, Vol 21 (5-6) 2010

22 Woodcock J, Edwards P, Tonne C, et al. Public health benefits of strategies to reduce greenhouse-gas emissions: urban land transport. Lancet 2009

## 7.7 Safety and Security

Addressing issues of safety and security are of fundamental importance to the Project. To exemplify this point, a recent survey undertaken by the ABS recorded that 26% of persons aged 18 years and older reported feeling unsafe walking in their neighbourhood or taking public transport alone at night[23].

International studies have found that the design of stops, the access point to and from stops, their lighting and visibility are all aspects that will influence the perception of safety and in turn the degree of use of public transport. This is particularly the case for more vulnerable social groups such as the elderly and women[24].

Initial consultation with members of the local community regarding the Project identified that Safety and Security was a key matter for concern and consideration[25]. The community identified concerns regarding loitering at stops particularly at night, cyclist safety, lighting, passive and active surveillance.

In response, Transport NSW has committed to the investigation and implementation of appropriate design options and details to ensure the safety and security of users including:

- Appropriate lighting;
- Installation of CCTV Cameras at stops;
- Emergency telephone / help points;
- Appropriate safety fencing or separation of shared path and light rail operations; and
- Managing safety and security risks in accordance with Metro Transport Sydney's current practices.

In addition, safety and security must be considered at access and connectivity points to stop locations. Integrating the Project with the GreenWay means that commuters will be using the shared pathway at various times during the day, requiring adequate safety, surveillance and lighting mechanisms to mitigate the chance of crime and associated perceptions of fear. Whilst it is understood that the GreenWay shared pathway is proposed to be lit by LED lighting, additional measures should also be implemented to ensure utmost safety at these points.

In order to ensure that the Project creates safe and secure locations for users travelling at all times during the day and night, as well as for the communities surrounding stop / rail corridor locations, we recommend that the preparation of the designs and amendments accord with the principles of Crime Prevention through Environmental Design (CPTED).

In addition to crime related safety, pedestrian safety should be considered to ensure safe access to and from stop locations. Measures such as signalised pedestrian crossings (such as the proposed crossing at Marion Street) and speed limits may mitigate the risk to pedestrians at busy traffic routes.

[23] Australian Bureau of Statistics, 'Who's afraid? Feelings of personal safety', 2010

[24] Department of Transport United Kingdom, Crime and Disorder on Public Transport Guidelines

[25] Stakeholder Comments Report on the Draft Inner West Extension Study

The implementation of the mechanisms and design considerations referred to above will assist in maximising the use of the light rail extension and GreenWay shared pathway and thereby achieving the range of flow on positive social and economic impacts discussed in this Study.

## 7.8 Social Sustainability

There is evidence that liveable, sustainable and socially connected communities are characterised by strong social networks and provide good access to the services and facilities required for daily living[26].

To summarise, the Project would positively enhance the sustainability of communities within the Inner West by:

- Stimulating opportunities for the regeneration and redevelopment of areas to facilitate greater housing choice, affordability and access to employment and services;
- Enhancing economies of scale and the benefits of agglomeration by supporting the viability and activity of business centres through greater customer, visitor and client numbers;
- Reducing the need to use unsustainable forms of transport and thereby reducing household costs;
- Enhancing the liveability of transit poor households by improving access to a range of employment, retail and cultural services, facilities and spaces;
- Enhanced air quality and environmental sustainability with flow on positive impacts for health and well being;
- Enhancing opportunities to walk thereby reducing chance of sedentary related diseases and health costs;
- Reducing travel times to work thereby increasing opportunities to spend time undertaking more favourable activities that support health and well being; and
- Stimulating improvements to urban environments that facilitate better social cohesion, equity and connectivity.

[26] Healthy Spaces and Places Organisation, www.healthyspaces.org.au

# 8. SIGNIFICANCE OF IMPACTS

This Chapter describes the methodology used to rate the significance of the social and economic impacts associated with the Project. It also provides a summary of the likely economic and social impacts of the Project as discussed in Chapters 6 and 7 during both the construction and operational phases.

When assessing the social or economic impacts, the impacts have been described as either:

1. Positive or negative;
2. Significant, moderate, slight or neutral; and
3. During construction and/or upon operation.

Table 6 below provides a definition of the term provided under points one and two above. The definitions are adapted from the rating levels recommended by the Strategic Merit Test which forms part of the National Guidelines for Transport System Management in Australia (2nd Edition). The definitions have however been amended so that they are suitable for a social and economic impact assessment.

Table 6 - Assessment Rating Levels

| Rating Level | Description |
|---|---|
| Significant Negative | Impacts with serious, long term and possibly irreversible effects leading to serious damage, degradation or deterioration of the environment. Requires a major re-scope of concept, design, location, justification, or requires major commitment to extensive management strategies to mitigate the effect. |
| Moderate Negative | Impacts may be short, medium or long term in duration and most likely to respond to management actions. |
| Slight Negative | Impacts have minimal effect, could be short term, can be mitigated and would not cause substantial detrimental effects. May be confined to a small area. |
| Neutral | No discernable or predictable positive or negative impact. |
| Slight Positive | Impacts have minimal effect, could be short term. May be confined to a small area. |
| Moderate Positive | Impacts may be short, medium or long term in duration. Positive outcome may be in terms of new opportunities and outcomes of enhancement or improvement. |
| Significant Positive | Impacts resulting in substantial and long term improvements or enhancements to the existing environment. |

Source: Adapted from the Strategic Merit Test, National Guidelines for Transport System Management in Australia (2nd Edition)

## 8.2 Significance of Economic Impacts

Applying the rating methodology outlined above we seek to quantify the significance of the likely economic impacts of the Project and identify mitigation measures that have already been, or could be incorporated in to the Project.

Table 7 - Likely Economic Impacts of the Project (With and Without Mitigation)

| Potential Impact and Stage | Impact Without Mitigation | Impact With Mitigation |
|---|---|---|
| Viability of Local Businesses | | |
| Level of Trade/Demand for Services (Construction) | Slight Negative<br>Whilst businesses may experience some disturbance in terms of noise, vibration, access and visual amenity which could impact the level of trade and demand for services, these impacts would be restricted to the construction period.<br><br>Congestion and road closures associated with the Project would not be significant.<br><br>Some local businesses may in fact experience a positive impact during construction owing to increased trade from construction workers or demand for construction related services. | Neutral<br>On balance it is considered there would be a slight positive impact so long as the Construction Environmental Management Plan and the Construction Traffic Management Plan are implemented and consultation with the community continues.<br><br>These plans should direct heavy traffic away from sensitive areas during construction and restrict intrusive construction processes during sensitive times. Local businesses should be given advance warning of potential road closures. |
| Level of Trade/Demand for Services (Operation) | Slight Positive<br>The level of trade and demand for services is likely to increase due to improved pedestrian, cyclist and commuter accessibility creating a larger customer base, increased pedestrian activity close to the stops, an enhanced level of amenity and a greater awareness of the suburbs close to proposed stops as destinations.<br><br>Whilst there is some potential for increased noise levels associated with the rolling stock, we note that it is likely to be minimal and has not been raised to date as a major concern during consultation. | Slight Positive<br>No further mitigation required. |
| Road Based Congestion (Operation) | Slight Positive<br>Once completed the Project would support a modal shift to help reduce road congestion which can negatively impact business operations locally as well as across Sydney. | Slight Positive<br>No further mitigation required. |
| Property Values (operation) | Slight Positive<br>The improved image of the area could potentially result in higher values of residential properties which may in turn benefit existing property owners.<br><br>The increased level of confidence may also drive commercial land values, although to a lesser extent. A negative impact of this is it would become costly for local businesses to expand, but alternatively it could allow the businesses an opportunity to release the equity to invest and grow, albeit away from the stop locations where land is likely to be more affordable. | Slight Positive<br>No further mitigation required. |
| Access to Jobs and Workforce Availability | | |
| Access to Jobs (Operation) | Slight Positive<br>Local residents would be better able to commute to, and therefore access, jobs within Pyrmont, the CBD and Regional Centres such as Burwood. | Slight Positive<br>No further mitigation required. |
| Workforce Availability (Operation) | Slight Positive<br>Local businesses would benefit from a larger labour pool but this benefit may be diluted as the local workforce can more easily travel to | Slight Positive<br>No further mitigation required. |

| Potential Impact and Stage | Impact Without Mitigation | Impact With Mitigation |
|---|---|---|
| | other employment locations. Overall however enhanced access to labour force will have a positive impact to businesses within the Inner City Region. | |
| Opportunities for Business and Employment Growth | | |
| Increased Private Production (Operation) | Slight Positive<br>Major public investment in the order of $150m would have a positive flow on effect to private production and the economy. | Slight Positive<br>No further mitigation required. |
| Stimulus for Development and Investment (Operation) | Slight Positive<br>Increased confidence as a result of transport investment is likely to result in additional private investment and development throughout the Study Area. Particular development and investment interest is likely to relate to sites close to the proposed stops that are well placed to benefit from increased densities of development.<br><br>By increasing the density of associated businesses within the Study Area, local businesses could benefit through enhanced efficiencies derived from economies of scale and improved industry networking. | Slight Positive<br>No further mitigation required. |
| Construction Multipliers (Construction) | Significant Positive<br>Construction is a key industry within Australia and for every dollar spent on the proposed development a further $2.87 expenditure in to the economy would result. | Significant Positive<br>No further mitigation required. |
| Construction Jobs (Construction) | Significant Positive<br>The Project would generate approximately 350 jobs. The range of jobs provided matches the skills of the local population and are in industries that are expected to grow. | Significant Positive<br>No further mitigation required. |
| Property Acquisition (Construction) | Neutral<br>The land required to facilitate operation / construction are in public ownership. Accordingly it will not be necessary to acquire any private properties to enable the Project. | Neutral<br>No mitigation required. |

## 8.3 Significance of Social Impacts

This section provides a summary of the likely social impacts of the Project and highlights the mitigation measures that have already been or could be incorporated in to the Project.

Table 8 - Social Impacts (With and Without Mitigation)

| Potential Impact and Stage | Impact Without Mitigation | Impact With Mitigation |
|---|---|---|
| Public perception and concerns (Construction) | Slight Negative<br>Local residents and businesses are likely to have concerns regarding disruption and disturbances resulting from the Project. | Neutral<br>Information disseminated via community consultation, information sessions a 24 hour toll free information line and dedicated section on Transport NSW's website provides a forum for the community to express their concerns and be fully informed on the latest updates of the Project.<br>Letterbox drops ensure that sensitive receivers have advanced warning on potentially intrusive, yet intermittent, construction activities.<br>Providing a human point of contact on the information line would enable direct liaison with staff on site to action necessary changes or suspend inappropriate work. |
| Impact to Amenity | | |
| Construction | Slight Negative<br>Sensitive receivers may be disrupted due to noise, vibrations, dust and increased traffic congestion from heavy vehicle movements and local road closures.<br>Effects are likely to be intermittent and are restricted to the 12 month construction period. Levels of heavy vehicle movements are not likely to increase due to the Project as access to construction sites would be mainly through the existing freight corridor. | Neutral<br>The preparation and implementation of a Construction Traffic Management Plan would ensure heavy traffic is minimised during peak traffic periods and is directed away from sensitive areas.<br>A Construction Environmental Management Plan would also be implemented to ensure construction processes take place at times when least disturbance is caused. The provision of a 24 hour complaints line would also mitigate potential detrimental impacts. |
| Operation | Moderate Negative<br>Potential impacts to sensitive receivers relate to noise and vibration as a result of additional light rail movements through the Study Area.<br>Air quality would be improved due to reduced dust emitted from light rail movements when compared to heavy rail. The Project would reduce car dependency, facilitating a modal shift towards public transport in turn having net benefits on road side air quality. | Slight Negative<br>A Construction Noise and Vibration Management Plan would enable location specific testing and appropriate measures to be tailored to mitigate identified disturbances to sensitive receivers.<br>Design considerations should also seek to minimise the potential for overlooking or privacy impacts to dwellings as a result of stop and GreenWay use by the community. |
| Access to Services and Jobs | | |
| Construction | Neutral<br>Access will be maintained to all businesses, community and educational services during the construction of the Project. There may be a slight hindrance to access in some areas due to construction related traffic, however the impact to access would be minimal. | Neutral<br>No mitigation required. |

| Potential Impact and Stage | Impact Without Mitigation | Impact With Mitigation |
|---|---|---|
| Operation | Significant Positive<br>Residents and commuters would be given access to popular centres providing access to retail, cultural and entertainment facilities in locations such as the Sydney Fish Markets, Glebe and Norton Street.<br><br>Interchanges with various modes of travel enhances accessibility to employment around Sydney reducing travel times, giving workers more leisure time, and reducing the stress associated with traffic congestion. | Significant Positive<br>No mitigation required. |
| Visual Amenity | | |
| Construction | Slight Negative<br>Construction sites, work sheds, machinery and other equipment would negatively influence the visual integrity and character of areas around stop locations. | Slight Negative<br>The visual impact of construction is likely to be minimised as most construction would take place within the existing corridor. |
| Operation | Slight Positive<br>The project reactivates the disused freight line, avoiding the potential for it to be subject to vandalism and graffiti.<br>The construction of 9 new stops would have visual impacts for surrounding residential areas. | Slight Positive<br>The incorporation of way finding signage into stop designs could further enhance the visual amenity of stops and address concerns raised by local stakeholders. |
| Access to Public Spaces and Urban Connectivity | | |
| Operation | Significant Positive<br>Urban connectivity would be enhanced by the provision of pedestrian/ cycle bridges linking areas previously segregated by the rail corridor.<br>Integrating stop locations with the GreenWay would encourage commuters and residents to use public open space, inturn enhancing opportunities for social integration and physical activity.<br>The construction of the Project means that not all bushcare sites, particularly those within the rail corridor, are able to be retained. | Significant Positive<br>Several new bushcare sites have been proposed to offset any loss to existing bushcare sites. |
| Health and Wellbeing | | |
| (Operation) | Significant Positive<br>The Project provides significant opportunities to increase the local resident and workforce's opportunity to walk, cycle and travel via public transport across the Inner West. This is expected to have a positive impact to their physical and mental health and well being. | Significant Positive<br>No mitigation required. |
| Safety and Security | | |
| Operation | Slight Positive<br>The Project will activate areas around stop locations and increase activity along the GreenWay shared pathway at various hours during the day, encouraging passive surveillance.<br>Stop designs incorporate CCTV, lighting, emergency telephone/ help points and appropriate fencing thereby reducing the opportunity for crime and increasing the sense of safety and security. | Significant Positive<br>Additional measures to enhance safety along the GreenWay should be considered, especially at connection points with stop locations. Safety and security risks should be managed in accordance with Metro Transport Sydney's current practices.<br>It is recommended that further analysis of stop designs and the GreenWay take into account principles of Crime Prevention Through Environmental Design. |

| Potential Impact and Stage | Impact Without Mitigation | Impact With Mitigation |
|---|---|---|
| Social Sustainability | | |
| Operation | Significant Positive<br>The Project provides significant opportunities to increase the social sustainability of the local community through enhanced opportunities for access to services, jobs and recreational facilities in addition to reduced travel times and environmental enhancements through reduced reliance on the private car. | Significant Positive<br>No mitigation required. |

# 9. RECOMMENDED MITIGATION MEASURES

It is widely recognised practice for Social and Economic Impact Assessments to not only identify the impacts of a project, but to provide recommendations as to appropriate methods of minimising or mitigating negative impacts.

The U.S Inter-organizational Committee on Guidelines and Principles for Social Impact Assessment defines mitigation as a means of,

*"avoiding the impact by not taking or modifying an action; minimising, rectifying or reducing the impacts through the design or operation of the project or policy or compensating for the impact by providing substitute facilities, resources or opportunities (1994:15)."*

In light of this practice, we recommend methods of treating the impacts identified in Chapters 6, 7 and 8 through appropriate management and mitigation measures. General and specific measures are provided to mitigate both social and economic impacts.

Proposed mitigation measures we have made reference to for inclusion during construction include:

- The preparation and implementation of a Construction Environmental Management Plan. Such a plan would be a comprehensive document setting out in detail for example construction site safety, traffic routes for construction vehicles avoiding where possible sensitive receivers, committing to the provision of a toll free phone number for use during construction with contractors providing prompt responses to community queries and concerns, hours of working and methods for notifying the community of particularly intrusive construction periods.
- The ongoing commitment to community consultation and the provision of a website, email and telephone line. This would facilitate ongoing correspondence and the notification of matters to affected residents, businesses and facilities during the construction phase. Information concerning the Project should be regularly updated on Transport NSW website along with the provision of a 24 hour toll free number during construction to ensure any urgent concerns regarding works can be addressed.
- The considered and detailed design of the Site to ensure that it integrates with existing surrounding uses allowing for easy pedestrian access and forming an attractive focal point for the local area.
- The implementation of measures to manage risks associated with the potential for overlooking into residential properties, ways to maintain the quality of the public realm and open spaces and ensure the maintenance of CCTV at stops and / or other security measures.

Proposed mitigation measures we have made reference to for inclusion during operation include:

- The regular maintenance of infrastructure and equipment within the light rail corridor to ensure air and ground borne noise levels and disturbances (as a result of train movements and related equipment usage) are kept to a minimum.
- The implementation of location specific noise testing to sensitive receivers within the Study Area to ensure that necessary mitigation measures can be implemented to minimise any adverse impacts of the Project (i.e. greater rail frequency), particularly during evening periods.

# 10. CONCLUSION

Overall this Specialist Study has found that the Project would result in a range of positive and negative economic and social impacts. The impacts would however vary in their distribution across different geographic areas, business and social groups.

The Project would support capacity improvements to Sydney's existing transport network, increasing the accessibility of residents, workers and visitors to the Inner West in addition to major activity centres such as Pyrmont and Sydney CBD. Improved accessibility supports access to jobs, labour, services, cultural and entertainment areas. The Project would also enhance opportunities for recreation, healthy living and sustainable lifestyles that create a more attractive location to live.

These benefits would also have positive wider economic merits including a reduction in the level of road based congestion, the generation of economic multipliers on account of investment and the resulting direct and indirect generation of employment from construction.

In the short term, not all the economic or social impacts of the Project would be positive. The construction of the Project could have temporary negative impacts to operation of businesses located within close proximity of proposed stops or the amenity of households. Potential adverse impacts in this regard could relate to: noise, dust and vibration, disruptions to traffic and pedestrian movements, customer access, changes to passing trade, business servicing facilities and travel times.

Owing to the proposed use of the former freight corridor for access and construction and the short duration of works, the negative impacts of the Project are considered moderate. Furthermore, through the use of appropriate forms of mitigation and management, the negative impacts of the Project could be addressed to an acceptable level.

In summary, the implementation and ongoing monitoring of these impacts and their mitigation, coupled with Transport NSW commitments, would combine to create a Project that positively supports many of the economic and social objectives of the Inner West draft Subregional Strategy in addition to those of Leichhardt, Ashfield and Marrickville LGAs.

# DISCLAIMER

This report is for the confidential use only of the party to whom it is addressed (the client) for the specific purposes to which it refers. We disclaim any responsibility to any third party acting upon or using the whole or part of its contents or reference thereto that may be published in any document, statement or circular or in any communication with third parties without prior written approval of the form and content in which it will appear.

This report and its attached appendices are based on estimates, assumptions and information sourced and referenced by Hill PDA and its sub consultants. We present these estimates and assumptions as a basis for the reader's interpretation and analysis. With respect to forecasts we do not present them as results that will actually be achieved. We rely upon the interpretation of the reader to judge for themselves the likelihood of whether these projections can be achieved or not.

As is customary, in a report of this nature, while all possible care has been taken by the authors to prepare the attached financial models from the best information available at the time of writing, no responsibility can be undertaken for errors or inaccuracies that may have occurred both with the programming or the financial projections and their assumptions.

This report does not constitute a valuation of any property or interest in property. In preparing this report we have relied upon information concerning the subject property and/or proposed development provided by the client and we have not independently verified this information excepted where noted in this report.

# Appendix 1 - DEMOGRAPHICS

Table 9 - Profile of Population and Ages for selected suburbs and LGA's as of 2006 Census

| Population and Dwellings | Ashfield LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Total Population | 39,667 | 71,813 | 48,776 | 8,286 | 21,260 | 12,209 | 16,565 | 6,589 | 4,769 | 12,248 | 2,761 | 6,761 | 23,161 | 7,391 | 6,130 | 4,119,190 | 6,549,177 |
| Total Dwellings | 17,074 | 33,057 | 24,060 | 3,956 | 9,287 | 5,719 | 6,153 | 2,505 | 1,941 | 6,027 | 1,211 | 3,136 | 9,968 | 3,502 | 2,968 | 1,643,615 | 2,728,719 |
| Occupied Private Dwellings | 15,937 | 30,810 | 21,994 | 3,664 | 8,664 | 5,348 | 5,846 | 2,346 | 1,832 | 5,433 | 1,125 | 2,871 | 9,242 | 3,270 | 2,755 | 1,521,465 | 2,470,451 |
| Occupied Private Dwellings (%) | 93.3% | 93.2% | 91.4% | 92.6% | 93.3% | 93.5% | 95.0% | 93.7% | 94.4% | 90.1% | 92.9% | 91.5% | 92.7% | 93.4% | 92.8% | 92.6% | 91.1% |
| Average Household Size | 2.4 | 2.3 | 2.2 | 2.1 | 2.3 | 2.3 | 2.8 | 2.7 | 2.6 | 2.2 | 2.3 | 2.3 | 2.5 | 2.2 | 2.1 | 2.7 | 2.6 |
| Age Distribution | | | | | | | | | | | | | | | | | |
| 0-14 | 15% | 14% | 14% | 14% | 14% | 16% | 18% | 18% | 17% | 14% | 14% | 17% | 15% | 13% | 14% | 20% | 21% |
| 15-29 | 22% | 22% | 19% | 20% | 25% | 19% | 17% | 15% | 19% | 20% | 19% | 15% | 21% | 23% | 21% | 21% | 20% |
| 30-44 | 26% | 31% | 33% | 34% | 26% | 30% | 22% | 21% | 23% | 34% | 27% | 31% | 28% | 32% | 32% | 23% | 23% |
| 45-59 | 19% | 19% | 20% | 19% | 18% | 20% | 20% | 21% | 22% | 18% | 21% | 20% | 19% | 20% | 20% | 19% | 19% |
| 60-74 | 10% | 10% | 10% | 9% | 10% | 10% | 15% | 14% | 14% | 9% | 11% | 10% | 11% | 9% | 8% | 11% | 11% |
| 75+ | 8% | 5% | 4% | 4% | 8% | 4% | 8% | 11% | 6% | 4% | 7% | 7% | 6% | 4% | 6% | 6% | 6% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Median | 37 | 35 | 36 | 36 | 35 | 36 | 39 | 42 | 39 | 35 | 39 | 38 | 36 | 35 | 36 | 35 | 37 |

Table 10 - Profile of Dwelling and Household Types for selected suburbs and LGA's as of 2006

| | Ashfield LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Home Ownership | | | | | | | | | | | | | | | | | |
| Owned or Being Purchased | 54% | 53% | 56% | 55% | 47% | 55% | 77% | 77% | 68% | 57% | 57% | 60% | 54% | 48% | 46% | 65% | 67% |
| Rented | 42% | 44% | 41% | 43% | 47% | 42% | 19% | 20% | 29% | 41% | 39% | 37% | 42% | 50% | 51% | 31% | 30% |
| Other/Not Stated | 4% | 3% | 2% | 2% | 5% | 3% | 4% | 3% | 3% | 3% | 4% | 3% | 4% | 3% | 3% | 4% | 4% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Household Structure | | | | | | | | | | | | | | | | | |
| Family Households | 64% | 59% | 61% | 58% | 61% | 61% | 80% | 77% | 73% | 62% | 60% | 64% | 64% | 57% | 56% | 73% | 72% |
| Lone Person Households | 29% | 31% | 31% | 33% | 31% | 32% | 18% | 20% | 23% | 29% | 32% | 30% | 29% | 33% | 37% | 23% | 24% |
| Group Households | 7% | 10% | 8% | 9% | 8% | 6% | 2% | 3% | 4% | 9% | 7% | 6% | 7% | 10% | 7% | 4% | 4% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Family Type | | | | | | | | | | | | | | | | | |
| Couple with children | 45% | 38% | 38% | 37% | 42% | 41% | 52% | 53% | 49% | 38% | 40% | 44% | 42% | 37% | 41% | 49% | 46% |
| Couple no children | 37% | 42% | 46% | 48% | 39% | 37% | 33% | 32% | 33% | 44% | 41% | 38% | 36% | 44% | 39% | 33% | 36% |
| One parent family | 15% | 17% | 13% | 12% | 16% | 19% | 14% | 13% | 16% | 14% | 16% | 16% | 19% | 17% | 16% | 16% | 16% |
| Other family | 3% | 3% | 3% | 3% | 4% | 3% | 1% | 2% | 3% | 3% | 3% | 3% | 3% | 3% | 4% | 2% | 2% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Dwelling Type | | | | | | | | | | | | | | | | | |
| Separate house | 40% | 37% | 35% | 24% | 28% | 40% | 81% | 78% | 60% | 42% | 51% | 57% | 42% | 37% | 23% | 64% | 71% |
| Townhouse | 13% | 26% | 37% | 48% | 13% | 10% | 10% | 11% | 19% | 36% | 15% | 23% | 18% | 20% | 16% | 12% | 10% |
| Flat-Unit-Apartment | 46% | 36% | 26% | 26% | 59% | 48% | 7% | 10% | 19% | 21% | 33% | 20% | 39% | 40% | 60% | 24% | 18% |
| Other dwelling | 1% | 1% | 1% | 2% | 1% | 1% | 1% | 1% | 2% | 1% | 1% | 0% | 1% | 2% | 1% | 1% | 1% |
| Not stated | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 11 - Profile of Employment and Income for selected suburbs and LGA's as of 2006

| | Ashfield LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Labour Force | | | | | | | | | | | | | | | | | |
| Managers | 11% | 12% | 19% | 18% | 9% | 11% | 13% | 16% | 13% | 16% | 14% | 18% | 11% | 12% | 13% | 12% | 13% |
| Professionals | 30% | 31% | 39% | 40% | 29% | 30% | 20% | 30% | 25% | 35% | 33% | 35% | 26% | 33% | 34% | 23% | 20% |
| Community & Personal Services Workers | 7% | 8% | 6% | 6% | 7% | 8% | 7% | 7% | 7% | 7% | 6% | 6% | 8% | 8% | 7% | 8% | 8% |
| Clerical and Administrative Workers | 15% | 15% | 13% | 13% | 16% | 16% | 17% | 15% | 15% | 14% | 15% | 14% | 14% | 15% | 16% | 16% | 14% |
| Sales Workers | 9% | 7% | 7% | 7% | 9% | 7% | 9% | 8% | 8% | 8% | 6% | 7% | 7% | 8% | 7% | 9% | 9% |
| Technicians & Trade Workers | 10% | 10% | 7% | 7% | 10% | 10% | 13% | 10% | 11% | 9% | 9% | 9% | 11% | 9% | 8% | 12% | 13% |
| Machinery Operators & Drivers | 4% | 4% | 2% | 2% | 4% | 4% | 6% | 3% | 5% | 2% | 4% | 3% | 5% | 3% | 3% | 6% | 6% |
| Labourers & Related Workers | 7% | 7% | 3% | 3% | 8% | 7% | 8% | 5% | 9% | 4% | 6% | 4% | 9% | 5% | 6% | 8% | 9% |
| Inadequately described or N.S. | 2% | 2% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 1% | 2% | 1% | 2% | 1% | 2% | 2% | 2% |
| Unemployed | 5% | 5% | 3% | 4% | 6% | 5% | 4% | 3% | 5% | 3% | 5% | 4% | 6% | 5% | 5% | 5% | 6% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Weekly Household Income | | | | | | | | | | | | | | | | | |
| $0-$299 | 14% | 13% | 11% | 9% | 16% | 12% | 13% | 12% | 13% | 11% | 13% | 15% | 15% | 11% | 12% | 13% | 15% |
| $300-$599 | 19% | 17% | 11% | 11% | 20% | 19% | 19% | 17% | 20% | 14% | 17% | 14% | 20% | 16% | 17% | 18% | 21% |
| $600-$999 | 22% | 22% | 15% | 18% | 23% | 23% | 21% | 18% | 20% | 17% | 23% | 15% | 22% | 21% | 24% | 21% | 22% |
| $1,000-$1,499 | 21% | 22% | 21% | 23% | 20% | 23% | 22% | 19% | 21% | 23% | 20% | 18% | 21% | 22% | 22% | 21% | 19% |
| $1,500-$1,999 | 14% | 16% | 32% | 31% | 11% | 14% | 13% | 22% | 15% | 25% | 18% | 27% | 12% | 20% | 17% | 16% | 12% |
| $2,000+ | 7% | 8% | 8% | 7% | 7% | 7% | 10% | 9% | 9% | 8% | 7% | 8% | 8% | 8% | 6% | 9% | 8% |
| Partial income stated | 3% | 2% | 2% | 2% | 3% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 3% | 2% | 2% | 3% | 3% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Median | $1,101 | $1,160 | $1,733 | 1,673 | $1,041 | $1,121 | $1,121 | $1,291 | $1,119 | $1,516 | $1,138 | $1,431 | $1,048 | $1,269 | $1,161 | $1,154 | $1,036 |

Table 12 - Profile of Population and Ages for selected suburbs and LGA's as of 2001

| | Ashfeild LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Population and Dwellings | | | | | | | | | | | | | | | | | |
| Total Population | 38,981 | 72,589 | 61,101 | 8,111 | 20,346 | 12,409 | 16,846 | 6,733 | 5,013 | 12,487 | 2,930 | 6,945 | 24,833 | 6,567 | 6,257 | 3,948,015 | 6,311,168 |
| Total Dwellings | 16,512 | 32,105 | 30,303 | 3,972 | 8,762 | 5,482 | 6,273 | 2,537 | 1,954 | 5,905 | 1,267 | 3,066 | 9,952 | 3,120 | 2,910 | 1,546,691 | 2,571,540 |
| Occupied Private Dwellings | 15,457 | 29,105 | 27,914 | 3,652 | 8,172 | 5,160 | 5,867 | 2,403 | 1,825 | 5,546 | 1,170 | 2,889 | 9,288 | 2,867 | 2,729 | 1,438,394 | 2,343,677 |
| Occupied Private Dwellings (%) | 93.6% | 90.7% | 92% | 91.9% | 93.3% | 94.1% | 93.5% | 94.7% | 93.4% | 93.9% | 92.3% | 94.2% | 93.3% | 91.9% | 93.8% | 93.0% | 91.1% |
| Age Distribution | | | | | | | | | | | | | | | | | |
| 0-14 | 16% | 14% | 13% | 12% | 15% | 17% | 18% | 18% | 17% | 13% | 15% | 15% | 16% | 13% | 15% | 20% | 21% |
| 15-29 | 22% | 24% | 25% | 24% | 23% | 22% | 19% | 17% | 21% | 25% | 22% | 19% | 23% | 26% | 23% | 22% | 20% |
| 30-44 | 26% | 30% | 30% | 33% | 26% | 31% | 23% | 22% | 25% | 32% | 29% | 30% | 27% | 30% | 31% | 24% | 23% |
| 45-59 | 17% | 17% | 19% | 18% | 17% | 18% | 18% | 19% | 19% | 17% | 19% | 19% | 18% | 18% | 17% | 18% | 19% |
| 60-74 | 11% | 10% | 9% | 8% | 11% | 9% | 15% | 15% | 13% | 9% | 9% | 10% | 11% | 9% | 9% | 10% | 11% |
| 75+ | 8% | 4% | 5% | 4% | 8% | 4% | 7% | 9% | 5% | 5% | 5% | 7% | 5% | 4% | 6% | 6% | 6% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 13 - Profile of Dwelling and Household Types for selected suburbs and LGA's as of 2001

| | Ashfeild LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Home Ownership | | | | | | | | | | | | | | | | | |
| Owned or Being Purchased | 51% | 49% | 47% | 48% | 45% | 51% | 73% | 75% | 65% | 53% | 52% | 55% | 49% | 43% | 42% | 63% | 64% |
| Rented | 38% | 41% | 44% | 44% | 44% | 41% | 17% | 19% | 29% | 40% | 39% | 37% | 39% | 47% | 46% | 29% | 28% |
| Other/Not Stated | 11% | 10% | 9% | 8% | 11% | 8% | 10% | 7% | 6% | 7% | 8% | 8% | 11% | 9% | 12% | 8% | 8% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Household Structure | | | | | | | | | | | | | | | | | |
| Family Households | 64% | 60% | 57% | 56% | 61% | 64% | 80% | 78% | 75% | 61% | 59% | 62% | 66% | 55% | 58% | 73% | 73% |
| Lone Person Households | 29% | 30% | 33% | 34% | 32% | 29% | 18% | 19% | 21% | 28% | 32% | 30% | 26% | 34% | 34% | 22% | 23% |
| Group Households | 7% | 10% | 10% | 11% | 8% | 7% | 2% | 3% | 4% | 11% | 9% | 8% | 8% | 11% | 9% | 4% | 4% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Family Type | | | | | | | | | | | | | | | | | |
| Couple with children | 60% | 55% | 46% | 48% | 58% | 58% | 69% | 66% | 65% | 48% | 52% | 52% | 60% | 53% | 53% | 50% | 48% |
| Couple no children | 25% | 28% | 36% | 38% | 25% | 25% | 20% | 22% | 21% | 34% | 28% | 30% | 22% | 31% | 29% | 32% | 35% |
| One parent family | 12% | 15% | 15% | 11% | 13% | 15% | 10% | 11% | 13% | 15% | 18% | 15% | 16% | 14% | 14% | 15% | 15% |
| Other family | 3% | 3% | 3% | 3% | 3% | 2% | 1% | 1% | 2% | 4% | 2% | 2% | 2% | 3% | 3% | 2% | 2% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Dwelling Type | | | | | | | | | | | | | | | | | |
| Separate house | 37% | 34% | 30% | 27% | 27% | 36% | 83% | 74% | 60% | 46% | 41% | 57% | 40% | 30% | 19% | 63% | 70% |
| Townhouse | 12% | 27% | 38% | 42% | 10% | 12% | 6% | 14% | 15% | 31% | 19% | 20% | 19% | 24% | 18% | 11% | 9% |
| Flat-Unit-Apartment | 47% | 36% | 30% | 28% | 59% | 49% | 8% | 10% | 22% | 21% | 37% | 22% | 39% | 43% | 59% | 24% | 18% |
| Other dwelling | 1% | 3% | 1% | 2% | 1% | 2% | 1% | 2% | 3% | 1% | 1% | 1% | 2% | 2% | 1% | 1% | 2% |
| Not stated | 3% | 1% | 1% | 0% | 3% | 1% | 1% | 0% | 0% | 1% | 2% | 1% | 1% | 1% | 3% | 1% | 1% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |

Table 14 - Profile of Employment and Income for selected suburbs and LGA's as of 2001

| | Ashfeild LGA | Marrickville LGA | Leichhardt LGA | Annandale | Ashfield | Dulwich Hill | Earlwood | Haberfield | Hurlstone Park | Leichhardt | Lewisham | Lilyfield | Marrickville | Petersham | Summer Hill | Sydney SD | NSW |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Labour Force | | | | | | | | | | | | | | | | | |
| Managers and Administrators | 7% | 7% | 14% | 13% | 6% | 7% | 7% | 10% | 6% | 12% | 9% | 12% | 6% | 9% | 8% | 8% | 9% |
| Professionals | 26% | 26% | 34% | 35% | 26% | 25% | 17% | 26% | 23% | 30% | 29% | 30% | 20% | 29% | 30% | 20% | 18% |
| Associate Professionals | 11% | 10% | 12% | 12% | 10% | 11% | 11% | 12% | 11% | 12% | 11% | 12% | 9% | 11% | 12% | 11% | 11% |
| Tradespersons & Related Wrkrs | 8% | 8% | 6% | 6% | 8% | 9% | 12% | 10% | 9% | 7% | 6% | 7% | 10% | 7% | 7% | 10% | 11% |
| Clerical, Sales and Service Wrkrs | 28% | 27% | 23% | 23% | 28% | 26% | 30% | 29% | 28% | 26% | 27% | 24% | 26% | 27% | 26% | 29% | 28% |
| Production & Transport Wrkrs | 5% | 6% | 3% | 3% | 6% | 6% | 8% | 4% | 8% | 4% | 5% | 4% | 8% | 4% | 5% | 7% | 7% |
| Labourers & Related Wrkrs | 6% | 6% | 3% | 3% | 7% | 7% | 7% | 4% | 8% | 4% | 5% | 4% | 9% | 5% | 5% | 6% | 7% |
| Inadequately described or N.S. | 2% | 2% | 1% | 1% | 2% | 2% | 2% | 2% | 2% | 1% | 1% | 1% | 2% | 2% | 2% | 2% | 2% |
| Unemployed | 6% | 7% | 5% | 5% | 7% | 7% | 5% | 4% | 6% | 4% | 7% | 5% | 9% | 6% | 6% | 6% | 7% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Weekly Household Income | | | | | | | | | | | | | | | | | |
| $0-$299 | 5% | 5% | 5% | 3% | 5% | 4% | 4% | 3% | 3% | 4% | 3% | 6% | 5% | 5% | 4% | 10% | 12% |
| $300-$599 | 20% | 18% | 15% | 13% | 22% | 18% | 21% | 19% | 19% | 14% | 19% | 17% | 21% | 17% | 18% | 17% | 21% |
| $600-$999 | 15% | 15% | 11% | 12% | 16% | 17% | 13% | 12% | 14% | 12% | 15% | 12% | 16% | 15% | 17% | 18% | 19% |
| $1,000-$1,499 | 19% | 20% | 16% | 18% | 20% | 21% | 18% | 16% | 19% | 19% | 20% | 16% | 20% | 20% | 22% | 17% | 16% |
| $1,500-$1,999 | 8% | 8% | 5% | 6% | 7% | 8% | 9% | 7% | 10% | 7% | 7% | 5% | 8% | 7% | 7% | 13% | 11% |
| $2,000+ | 12% | 13% | 16% | 18% | 11% | 14% | 13% | 14% | 12% | 16% | 12% | 14% | 11% | 14% | 13% | 14% | 10% |
| Partial income stated | 13% | 14% | 23% | 23% | 11% | 12% | 13% | 19% | 13% | 21% | 17% | 21% | 10% | 16% | 14% | 8% | 8% |
| All incomes not stated | 7% | 8% | 7% | 7% | 7% | 7% | 10% | 9% | 9% | 7% | 7% | 7% | 9% | 7% | 6% | 3% | 4% |
| Total | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |