

SOCIAL IMPACT ASSESSMENT AND MANAGING URBAN TRANSPORT-INFRASTRUCTURE PROJECTS: TOWARDS A FRAMEWORK TO EVALUATE POST-FACTO EFFECTIVENESS

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List of Acronyms and Abbreviations

ABS	Australian Bureau of Statistics
BTS	Bureau of Transport Statistics
CoA	Condition(s) of Approval
COA	Commonwealth of Australia
CBA	Cost-Benefit Analysis
CBD	Central Business District
CEMP	Construction Environmental Management Plan
CSI	Centre for Social Impact
DIPNR	Department of Infrastructure, Planning and National Resources
DIRD	Department of Infrastructure and Regional Development
DoP	Department of Planning
DoT	Department of Transport
DPE	Department of Planning and Environment
DPI	Department of Planning and Infrastructure
DUAP	Department of Urban Affairs and Planning
EA	Environmental Assessment
ECRL	Epping to Chatswood Rail Link
EIA	Environmental Impact Assessment
EIS	Environment Impact Statement
EMP	Environmental Management Plan
EPA	Environment Protection Authority
EP&A Act	<i>Environmental Planning and Assessment Act 1979</i>
ERMK	ERM Mitchell McCotter Pty Ltd and Kinhill Pty Ltd
GPS	Global Positioning System
GSC	Greater Sydney Commission
GSMA	Greater Sydney Metropolitan Area
IA	Impact Assessment
IAIA	International Association for Impact Assessment
ICGP	Interorganizational Committee on Guidelines and Principles
ISCA	Infrastructure Sustainability Council of Australia
ISEPP	State Environmental Planning Policy (Infrastructure)
JTW	Journey to Work
LCNP	Lane Cove National Park
LEP	Local Environmental Plan
LPI	Land and Property Information
MP	Member of Parliament
MRes	Master of Research
NEPA	<i>National Environment Policy Act (NEPA) 1969</i>
NIMBY	Not-In-My-Backyard
NPWS	National Parks and Wildlife Service
NSW	New South Wales
OEH	Office of Environment and Heritage
OEMP	Operational Environmental Management Plan
PERL	Parramatta to Epping Rail Link
PLR	Parramatta Light Rail
PPP	Public-Private Partnership
PRL	Parramatta Rail Link
PRL Co.	Parramatta Rail Link Company
RAC	Rail Access Corporation
REF	Review of Environmental Factors
RFT	Request for Tender
RIC	Rail Infrastructure Corporation
SEA	Strategic Environmental Assessment
SEPP	State Environmental Planning Policy
SIA	Social Impact Assessment
SIMP	Social Impact Management Plan
SLA	Statistical Local Area
SRA	State Rail Authority
SROI	Social Return on Investment

SMC	Sydney Motorway Corporation
SVI	Social Value International
TCA	Transport Construction Authority
TIDC	Transport Infrastructure Development Corporation
TfNSW	Transport for NSW
UQ	University of Queensland
UTS	University of Technology, Sydney
UWS	University of Western Sydney (Western Sydney University)
WSA	Western Sydney Airport
WSROC	Western Sydney Regional Organisation of Councils

Abstract

Social Impact Assessment (SIA) practitioners in major urban transport infrastructure projects, assess and facilitate the equitable distribution of social benefits and costs, while balancing governmental policy objectives and stakeholder interests. Public investment in transport infrastructure shapes the future of cities, yet post-facto evaluation of SIA for such projects is rare.

This thesis develops an evaluation framework for post-facto assessment of transport infrastructure project SIAs, which will improve societal understanding of the relationship between project, outcomes and policy objectives.

Using the Parramatta Rail Link proposal as a case study, it examines external political decision-making forces, namely government, regulatory and financial processes, that influence whether social and transport policy objectives can be met, against the influence of strategic government masterplans and the development approval process.

SIA and Environmental Impact Assessment (EIA) practitioners assist projects in meeting policy objectives by applying good practice during the EIA process. Long-term accountability is established external to political cycles, through legally-enforced effective management strategies and monitoring programs.

This research highlights that the agenda of strategic social and transport policy objectives should be considered as early as during the business case development, to achieve the greatest potential for delivering equitable social outcomes.

Statement by the Author

This thesis is my own work and contains no material published elsewhere or written by another person, except where due reference and attribution is made in the text.

Statistical data presented is derived from a publically available sources, with permission or where collected by the author during primary research.

The content of this thesis is a result of work which has been carried out since the official commencement date of the approved research program.

This thesis has not been submitted in whole or in part for the award of any other degree or diploma at any tertiary institution.

All research reported in this thesis received the approval of the Macquarie University Human Research Ethics Committee. Protocol number: 5201600247.

Signature:



Date:

20 OCTOBER 2016

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∞ *For my father* ∞

Preface

The preparation of thesis has been shaped by my positionality as a researcher and my worldviews that have been generated through my life experiences. As England (1994, p. 80) argues: “the researcher’s positionality and biography directly affect fieldwork and that fieldwork is a dialogical process which is structured by the researcher and the participants”.

Prior to undertaking this research, I worked for 12 years as a Senior Environmental Scientist in engineering consulting, predominantly preparing environmental and social impact assessments and environmental management plans for public infrastructure projects in both urban and rural environments across Australia.

I started on this research journey with the goal to improve my own practice and make a greater contribution to my profession to assist other practitioners. Philosophically, I had also started to question the very purpose of my practice. Were there ever any lasting beneficial outcomes to the environment as a result of the projects I worked on? Do politicians and bureaucrats actually consider and apply the advice I provide? How can practitioners increase their influence in the development assessment process, towards achieving improved social outcomes for current and future generations?

It was with these thoughts in mind, I began to reflect upon the voices I listened to and the observations I made while undertaking my fieldwork. During the research process in my logs and memo notes, I made critical reflections on these thoughts, in the search for answers to my questions. In adopting the multi-method approach in this research, framed by the concepts and theories of Social Geography, I was able to question my own understandings and purpose within the development assessment process for public infrastructure and reflect on the positions of others in the wider project-decision-making process.

My social position is of a white female, who is well-educated, married to a man and we have no children. I have lived in the Eastern Suburbs of Sydney, Australia for much of my life, with the exception of two years’ residing in Brisbane, Australia for work and a year abroad in the United Kingdom and Europe on University exchange. I have continued to work part-time in my professional career to help further my studies. As a science graduate with honours in Human Geography, some of the first projects I worked on in my career were the final stages of the environmental impact assessments for the Chatswood Transport Interchange and Precinct Project developments, which were modifications to the case study project investigated in this research, the Parramatta Rail Link.

1 Introduction

1.1. Background

Social Impact Assessment (SIA) practitioners in major urban transport projects have a responsibility to ensure equitable distribution of social benefits and costs, while balancing governmental policy objectives and stakeholder interests fairly and rigorously in their assessment of proposals. SIA practitioners assess, predict, analyse and develop management strategies to mitigate potential social and cumulative effects with the best information and tools available in the boundaries of political and assessment timeframes.

The author is an experienced Environmental and SIA practitioner. This research arose from concern to improve practitioner knowledge and practice in ways that might benefit long-term social outcomes.

1.2. Mega-Projects and the Decision-Making Process

In discussing mega-projects¹, Flyvbjerg et al. (2003, p.3) reported a paradox between the societal benefit of an increasing number of infrastructure projects globally and their poor performance in terms of economy, public support and environmental impacts (see also Flyvbjerg, 2014). Cost over-runs and lower-than-predicted revenues frequently limit social benefits and project viability. Predicted economic, social and environmental impacts identified in business cases, cost-benefit analyses (CBA) and Impact Assessments (IA), are often miscalculated or under reported, leading to excessive scrutinisation and public distrust in both projects and decision-makers (Flyvbjerg et al., 2003; Flyvbjerg, 2014). This is underpinned by a fear that:

...the political inequality in access to decision-making processes will lead to an unequal distribution of risks, burdens and benefits of the project (Flyvbjerg et al., 2003, p. 5).

This concern is linked to SIA as the instrument through which development assessment determines and influences fair and equitable distributions of social impacts. Trust, civil participation, good governance and accountability in the political decision-making process, therefore, weigh greatly on the effectiveness of SIA management strategies, influencing the practitioner's input during the assessment process on meeting policy objectives (Flyvbjerg et al., 2003).

Poor post-facto evaluation makes it difficult to hold decision-making processes publicly accountable in terms of stated policy goals for mega-projects. As Howitt noted: "Once you've got a project approval, there's a very poor history of going back and checking whether the impacts that were predicted have occurred or haven't occurred" (in Nogrady, 2013). Success is measured on whether a project is within budget or on time and frequently promoted social benefits turn out to be non-measurable using these methods (Flyvbjerg, 2014).

¹ Large complex projects greater than US\$1billion, taking several years to build and affecting millions of people, Flyvbjerg, Bruzelius and Rothengatter (2003, p.3)

Ex-post-facto research case studies which consider whether predicted impacts have occurred are seldom funded and rarely occur (Burdge, 2002; Howitt & Jackson, 2000). Without appropriate mechanisms to evaluate these successes it is difficult to hold governments accountable for meeting project aims.

1.3. SIA and the Regulatory Framework

Australian transport infrastructure mega-projects are generally proposed by state governments in strategic transport master plans developed as policy documents conceptualised to meet the needs of populations in specific places as part of government policies with broad social and economic objectives. In New South Wales (NSW), concept designs are progressed to development stages and assessed as proposals under the *Environmental Planning and Assessment Act 1979* (EP&A Act). The EP&A Act requires major developments in NSW to complete an Environmental Impact Assessment (EIA) (typically an Environmental Impact Statement (EIS)) that identifies and assesses environmental, social and economic impacts to inform decision-making as to whether a development should proceed. An EIS is usually prepared by a team of environmental specialists and the Department of Planning and Environment (DPE) may stipulate accredited technical experts are required. SIA is not mandated for government projects, only that 'social' factors are considered by public authorities², the public must be consulted³ and the principles of ecologically sustainable development must be considered⁴. The requirement for SIA, is determined by the DPE in response to an application, the government body/proponent⁵ or the practitioner scoping EIS requirements.

A SIA, which focuses on analysing, monitoring and managing the social consequences of actions, will typically form an Appendix to an EIS as a standalone report, albeit downplayed by presentation in this context (Vanclay, 2003). Its aim is to achieve better, more equitable outcomes and avoid or minimise adverse outcomes (Ziller, 2012). Development SIA requires assessment of social impacts and framing of impact management strategies for monitoring post-approval (Esteves et al., 2012). Project approvals may be conditional on monitoring of management strategies proposed in a development SIA post-approval, but in NSW post-facto evaluation of effectiveness of proposed strategies are virtually absent.

² See clause 228 of the Environmental, Planning and Assessment Regulation 2000

³ See clause 115Z of the EP&A Act

⁴ See schedule 2, clause 7(4) of the regulation

⁵ See section 110 EP&A Act: "proponent", in relation to an activity, means the person proposing to carry out the activity, and includes any person taken to be the proponent of the activity by virtue of section 110B.

1.4. Research Questions, Case Study and Outcomes

Given the challenges faced by SIA practitioners and implications on the long-term effectiveness of practice, the key question for this research is:

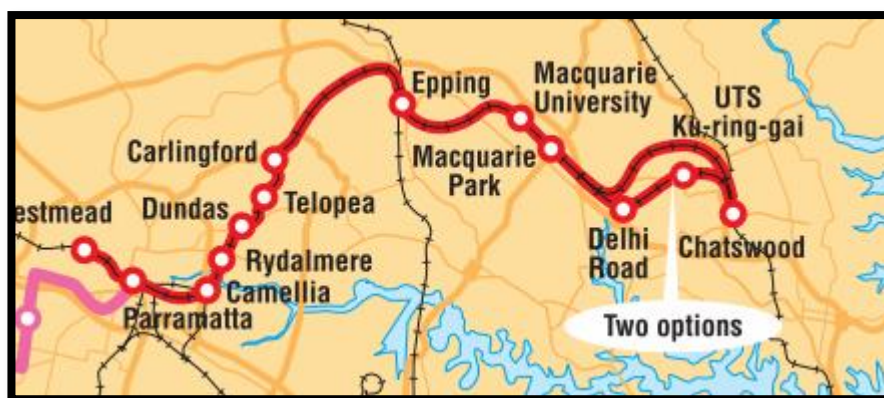
How can the effectiveness of management and mitigation strategies proposed in SIAs for urban transport projects be judged against key policy objectives?

Three sub-questions for this research are:

- 1. How has good practice evolved in SIA?**
- 2. How well are key impacts identified, mitigated and monitored in good practice SIA reporting?**
- 3. Could better post-facto evaluation improve management strategies proposed in SIAs and lead to better social and transport outcomes?**

In response to these questions, the Parramatta Rail Link (PRL) project is investigated as a pilot case study in this thesis. Connecting the Northern suburbs to the West via a heavy rail system was a transport need for Sydney and conceived as early as Bradfield's thesis for a St Leonards to Eastwood connection (Bradfield, 1924; Gooding, 2009). The PRL was proposed as part of the NSW Government masterplan *Action for Transport 2010, an integrated transport plan for Sydney* (Action for Transport 2010) (Figure 1) and was assessed for Sydney over 15 years ago (Department of Transport [DoT], 1998a).

The PRL was significantly modified before its construction as the Epping to Chatswood Rail Link (ECRL) in 2009. The Parramatta to Epping Rail Link (PERL) section was cancelled by the state government in 2003 (Kerr, 2003).



DoT (1998b, p. 18)

Figure 1 PRL Proposal

The timely focus of this research on urban transport projects is significant, as a number of projects are planned within the Sydney metropolitan area in the next 20-30 years (Transport for NSW [TfNSW], 2012a), including further modification of the ECRL. The main outcome of this research is an evaluation framework for post-facto evaluation of the effectiveness of SIA reporting and better understanding of how strategic transport and social policy objectives are influenced by a range of factors.

1.5. Thesis Structure

This thesis contains eight chapters (Figure 2).

Chapter 2 frames the research conceptually and outlines its relevance to understanding the effectiveness of SIA management strategies in transport infrastructure projects.

Chapter 3 describes the methods applied during information collection and analysis.

Chapter 4 reviews literature on evaluation frameworks for assessing effectiveness of IA post-facto and informs the evaluation of SIA good practice as a theoretical basis for the development of the research evaluation framework. Chapter 4 also reviews good SIA practice literature and introduces existing evaluation frameworks for assessing effectiveness of impact assessment post-facto as a theoretical basis for the development of the research evaluation framework.

Chapters 5-7 present the PRL case study: **Chapter 5** provides background to the PRL and reviews relevant transport infrastructure policy in NSW; **Chapter 6** presents reflections from key individuals involved in the PRL project, using seven themes, linked to the concepts presented in Chapter 2; **Chapter 7** examines the PRL EIS at the metropolitan and local-scale and considers the report against the post-facto observations as informed by field investigations and statistical data.

Chapter 8 synthesises the information collected and presented in this thesis, providing an initial evaluation framework for judging the effectiveness of social impact management strategies in the long-term and conclusions about the challenges of good SIA practice. It also suggests how the framework will be developed in further doctoral research.

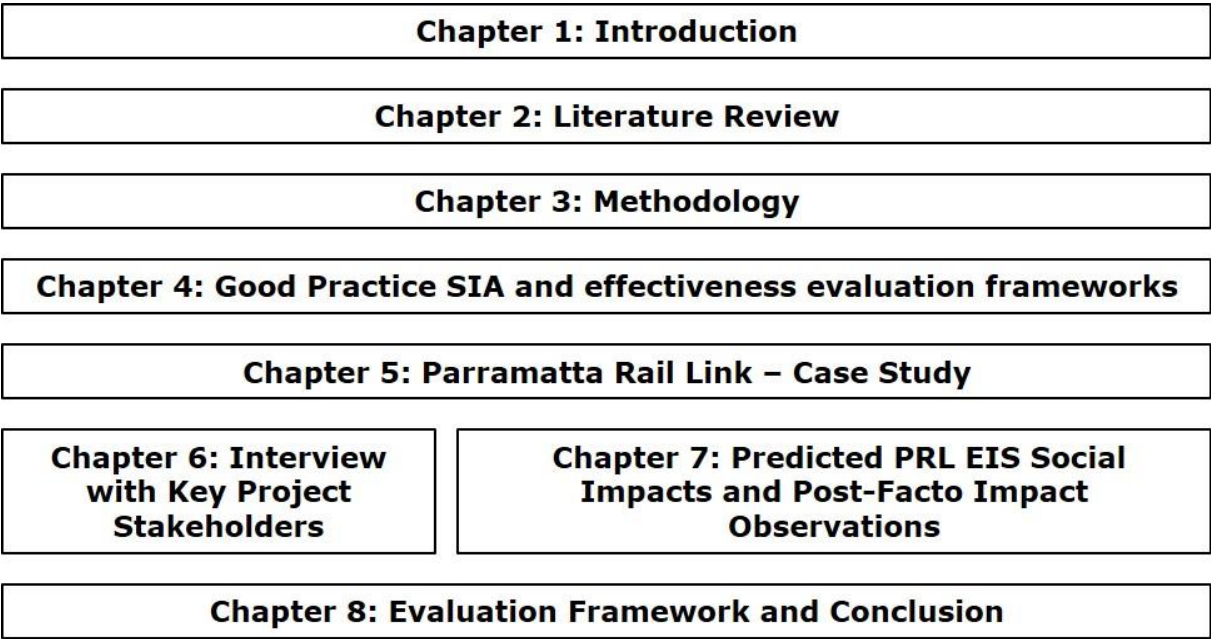


Figure 2 Thesis Structure

2 Conceptual Issues

2.1 Introduction

The post-facto assessment, management and monitoring of social impacts has been a relatively recent area of research within the field of regulatory IA for development assessment. Agreed principles for guiding the assessment of social impacts have only existed since the early 1990s and 'early' literature on this topic extends only as far back as the 1970s and 1980s. The practice of SIA, which has its origins in EIA, has evolved into a sub-discipline of social science with its own set of concepts, theories and tools and can be considered a transdisciplinary practice (Esteves et al., 2012).

Despite this, there are still weaknesses in SIA practice, particularly in the long-term monitoring and management of social impacts and the post-facto evaluation of management strategies proposed in SIAs (Arce-Gomez et al., 2015; Franks & Vanclay, 2013). Project approvals may be conditional on monitoring of management strategies post-approval, but requirements and accountability for the evaluation of their effectiveness in the long term are virtually non-existent (Howitt, 2011). Yet, it is well understood that to achieve sustainable and equitable development, environmental, social and economic impacts need to be managed across the entire life-cycle of developments (Franks & Vanclay, 2013).

To evaluate effectiveness in the longer-term requires consideration of theories, practices and influences in the creation of urban transport development-SIAs. It is generally agreed in the literature, that due to the diversity of practice and practitioners, SIA is based in social science theory, but must also integrate many different disciplines (Howitt, 2011; Ross & McGee, 2006). Taylor et al. (1995), Ross and McGee (2006) and Howitt (2011) emphasised that the complexities of SIA and differing SIA contexts suggest adopting a pre-determined theoretical framework should be avoided. Following this advice, this research identifies central concepts in the literature, which are relevant to the effectiveness of SIA management strategies for urban transport-infrastructure and meeting policy objectives.

Relevant conceptual issues have foundations in Social Geography and consider concepts of 'good practice' and 'effective' SIA, power and governance, place and scale and community participation (Esteves et al., 2012; Howitt, 2011). These key concepts guided framing of interview questions and informed analysis of data collected (Baxter & Eyles, 1997; Taylor et al., 1995).

2.1.1 Defining SIA and Social Impacts

A 'social impact', is defined in the practice and discipline of SIA by Ziller (2012, p.xiv), as: "...the consequences to groups of people or society as a whole, arising from a decision or an action".

Decisions by public authorities or private entities have social consequences, affecting, for example: how and where people live, access to work or other services, health, self-esteem, identity, values and a sense of belonging. Impacts may be long or short-term and can affect society differently, bringing social benefits to some and costs to others (Ziller, 2012). A SIA, therefore, focuses on analysing, monitoring and managing the social consequences or impacts of actions, both negative and positive and any social change processes influenced by the actions (Vanclay, 2003, p.6). The aim of a SIA is to achieve better, more equitable outcomes and a more sustainable biophysical and human environment and avoid or minimise adverse outcomes of a proposal. (Vanclay, 2003; Ziller, 2012). SIA is typically seen as a predictive tool applied within a regulatory framework to assess consequences triggered by a change in the environment (Vanclay, 2006). It is also a tool for assisting communities in identifying development priorities and a process for incorporating social dimensions into projects (Vanclay & Esteves, 2015). The focus of this research is to consider how development-focused SIA influences meeting policy objectives within the assessment process. The contemporary definition of SIA focuses on '*managing* the social issues' and there continues to be a need to devise strategies to make sure SIA outcomes are considered in decision-making, policy and practice (Esteves et al., 2012; Franks et al., 2009; Vanclay, 2003).

Public policy and commitment of public funds are driving forces behind the public infrastructure-development process in NSW and Australia. The IA of transport-infrastructure projects, requires an evaluation of public policy settings and in current practice, the implication would be that this evaluation continues post-approval during the project life-cycle (Howitt & Jackson, 2000, p. 260). Ziller (2012) notes the relationship between policy and societal impact, whereby small changes in public policy can result in large impacts when policies are applied state-wide or nationally. For example, a decision which has a policy objective 'in the public interest' and wider society-benefit may result in adverse impacts upon localities along a linear-infrastructure route (Ziller, 2012 p. 10). This is often seen in transport-infrastructure projects, as their justification is viewed as the benefit to economic development and wider-society, at the expense of locality wellbeing (Chatman et al., 2012). In this situation, the state may force local councils to support a proposal in the public interest (Howitt, 2011). This dynamic relationship between state and local government also has implications for the assessment boundaries of IA in balancing the equitable distribution of impacts and effectiveness of mitigation measures to minimise adverse impacts.

Ziller (2012) also distinguishes two types of SIA in project consent processes: one as part of the permission process (which can be refused) and one as part of an amelioration process. She notes there is a tendency for large projects to have predetermined outcomes where the assessment process may allow proposals to proceed "no matter the social damage" (Ziller, 2012, p. 53).

This issue is a concern to broader IA practice; in the case of mega urban transport-infrastructure proposals, for example, as occur under the NSW *State Environmental Planning Policy (Infrastructure) 2007 (ISEPP)*⁶. The need for the project is unlikely to be questioned and the project may proceed without development consent (Howitt, 2011). Finsterbusch (1995, p.246) noted that political agendas are the main reason why SIAs are often not conducted or biased towards a predefined outcome. The ethical practice amongst decision-makers and practitioners is extremely important in maintaining this balance of power (Baines et al., 2013; Finsterbusch, 1995; Kemp, 2011). Kemp (2011, p.24) notes that “power dynamics are one of the key contextual factors that determine how project proponents affect SIA processes and outcomes”. The role of the ‘state’ and its power is an important consideration both as an advocate in the public interest (as the ‘proponent’) and as the regulator (as the ‘determining or approval authority’⁷). This is significant in the Australian planning-context as it is the elected politicians and their bureaucrats who propose large transport-infrastructure proposals in plans and determine whether they should proceed. These are difficult challenges for the practitioner and the decision-maker to consider, as they are beyond their control, and strategies in the literature are lacking.

2.1.2 Place and Scale

The relevance of local communities, environment and place in assessing the effectiveness of management strategies, draws from the concepts and theories of Social Geography. ‘Communities’ in this context are groups of people with something in common, usually territory, interests or attachments and are not mutually exclusive (Ziller, 2012, p.xi). SIA is concerned with social relationships and structures and how actions will impact or have been impacted by social factors.

A consideration for this research is the long-term social implications on communities of transport-infrastructure and the social connections between governance, practice and space. Howitt (2011) and Howitt and Jackson (2000) note that impacts in linear-infrastructure projects will play out at different scales and different spatial configurations depending on their size and length, which greatly influences the analysis of data in SIA. Ziller (2012) and Vanclay and Esteves (2015) also note the importance of looking beyond the direct impacts upon place within the ‘study area’ to the wider area of influence in identifying impacts at these different scales. Long-term management strategies applied in SIA, including monitoring, have a significant spatial component as they are applied to address impacts on a variety of communities within the boundaries set by the proposal and the practitioner (Harvey, 2011). Dynamic spatial relationships influencing SIA practice cross geographical scales involving local community, national governance, international markets and the media.

⁶ The ISEPP facilitates government-led public infrastructure by removing development consent approvals.

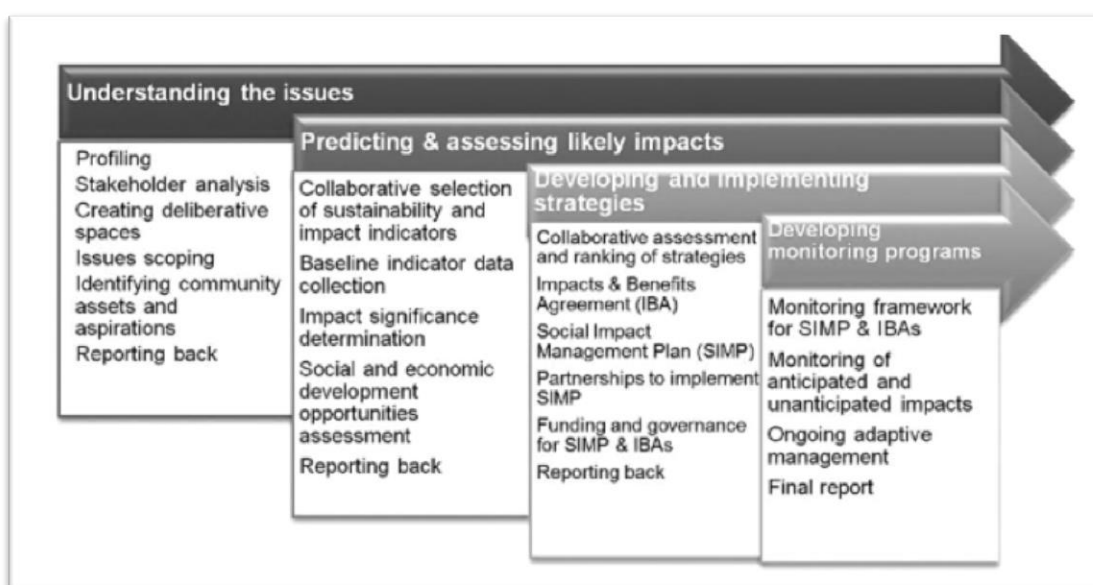
⁷ See section 110 of the EP&A Act: ‘determining authority’ means a Minister or public authority and, in relation to any activity, means the Minister or public authority by or on whose behalf the activity is or is to be carried out or any Minister or public authority whose approval is required to enable the activity to be carried out.

These contribute to the effectiveness of SIA as they influence social dynamics and frame the SIA context (Howitt, 2011; Ross & McGee, 2006).

These relationships, between and within scales of action, analysis and response, influence impacts and decision-making (Howitt, 2011). Decision-making is often at the metropolitan scale, yet IA is often focused on place impacts at the local-scale. These relationships also have implications for the long-term management and monitoring of impacts as the negative impacts are typically reported at the local-scale to councils and the positive at wider scales credited to the state.

Considerations of place and scale also arise in community and stakeholder engagement processes within IA. Local community opposition may be labelled as of a Not-In-My-Backyard 'NIMBY' group, which is referred to in the literature as a "... group that oppose a given development in a local area, usually due to the development's perceived negative externalities" (McClymont & O'Hare, 2008, p.322). The term is often mobilised with negative connotations, such as narrow-mindedness and selfishness, as groups may be perceived to fail to see wider societal benefits (McClymont & O'Hare, 2008). Thus, local groups may be represented as obstructing decisions with wider public benefits. This may result in their considerations being overlooked or, conversely, having too great an influence in the political decision-making process.

Vanclay and Esteves (2015) refer to identifying a 'social area of influence' in Phase 1 of the SIA process (Figure 3) and suggest that the practitioner should consider the community and stakeholders near and distant to identify potential consequences. In Phase 1, 'place' and 'scale' becomes a key factor in scoping the SIA and determines the quantities of people affected and impacts. This early phase is considered foundational to the overall success of SIA practice (Howitt, 2011).



Source: Vanclay and Esteves (2015, p.3)

Figure 3 Schema representing the phases of SIA

2.1.3 Linear Infrastructure and Connectivity

Transport-infrastructure projects, and in particular, linear-infrastructure projects, have a complex set of environmental and stakeholder challenges for project managers, approval bodies and practitioners (Howitt & Jackson, 2000). While good practice literature to date in Australia (see Franks, 2011 and Franks et al., 2009) has focused on mining and resource projects in rural areas, urban linear-infrastructure projects manage a wider range of environmental conditions and stakeholder interests due to the distances covered (Howitt & Jackson, 2000). Urban linear projects often directly affect society and communities through locational environmental issues involving the infrastructure, such as noise and vibration, traffic and transport, land use (direct acquisition) and visual amenity (Howitt & Jackson, 2000). In terms of SIA practice, social issues of wellbeing, health, accessibility, employment, housing stress and inequality may be more complex to identify and assess as they can affect different groups of society along a route in different ways (Howitt & Jackson, 2000; Ziller, 2012). As these issues are not geographically contained, the development of management measures and ongoing monitoring is equally complex, requiring engagement with local communities and stakeholders to understand their environmental, economic and social situation.

There is limited literature around SIA and accountability of government-led infrastructure development, particularly in comparison to the available tools for corporate-led development. Vanclay and Esteves (2015) noted current trends in SIA related to actions of corporations rather than governments in the concepts of the social licence to operate, social sustainability and corporate governance, infrastructure sharing, local social investment and procurement. This highlights a gap in the SIA literature around management and monitoring strategies for government-led transport-infrastructure.

Research in the related transport-planning discipline has sought to address the evaluation of the social impacts of transport decision-making and policy (Geurs et al., 2009; Jones & Lucas, 2012). Geurs et al. (2009) and Jones and Lucas (2012) note that social impacts are underexposed in ex-ante assessments with economic and environmental impacts taking preference as they are frequently considered easier to identify. Geurs et al. (2009, p. 71) as quoted in Jones and Lucas (2012, p.6) offer the following definition of the social impacts of transport:

... changes in transport sources [infrastructure, vehicles and movement] that (might) positively or negatively influence the preferences, well-being, behaviour or perception of individuals, groups, social categories and society in general (in the future).

Of relevance in this definition, is that impacts are both behavioural and subjective and result in effects at the individual-level and in society (Jones & Lucas, 2012). In evaluating the social impacts of transport policy, projects result in spatially, temporarily and socio-economically distributed effects which require management in the short and longer-term.

However, the related research does not offer solutions for managing and monitoring effects over time and Geurs et al. (2009) suggest that more research is required into the monitoring of social indicators to assist the decision-making process.

2.1.4 SIA Good Practice

Existing critical discussions in the literature relate to good-practice SIA methods and there is debate about accepted 'best practice' (for example, Esteves et al., 2012; Vanclay, 2003; Vanclay & Esteves, 2011; Vanclay et al., 2015). Many articles on good practice 'SIA' refer to key works by these authors in some form. Vanclay and Esteves (2015) summarise the good practice phases of SIA as shown in Figure 3. This research focuses on the development of a 'tool' to assist with ongoing management and monitoring (Phases 3 and 4) of impacts post-facto. While there is a focus on the effectiveness of management strategies in this research, the essential ingredients of SIA good practice are also relevant considerations. Good practice SIA will influence whether management strategies will reflect effective policy outcomes in the longer-term. A detailed review of current good practice guidelines is included in Chapter 4.

Development-SIAs are frequently considered an 'add-on' to EIA. Practitioner teams are typically led by physical scientists and project managers and decision-makers with few possessing the required experience in the social sciences foundational to SIA good practice (Arce-Gomez et al., 2015; Ross & McGee; 2006; Ziller, 2012). Critical discussions in SIA have emphasised community participation and engagement, particularly in fair and equitable distribution of impacts, and effects in the long-term, on disadvantaged groups, for example, Howitt (1989), Finsterbusch (1995) and O'Faircheallaigh (1999, 2009) and Howitt and Stevens (2016). An understanding of theoretical bases derived from the social sciences is essential to effective engagement and a combination of technical and participatory approaches is required for achieving desired management outcomes (Arce-Gomez et al., 2015; Becker et al., 2004; Esteves et al., 2012; Lockie, 2001).

Public participation varies from regulatory public comment periods and supply of information to active involvement of stakeholders in the decision-making processes and through qualitative research in SIA (Esteves et al., 2012, p.37). Vanclay et al. (2015) note the importance of participatory processes throughout the SIA as key to successful implementation that will assist in identifying acceptable mitigation and coping strategies, particularly when the community are engaged throughout the decision-making process. This engagement is essential for government-led transport-infrastructure projects designed to meet the needs of the population. Ziller (2012) also emphasises that the SIA consultation should be supported by social research based in academic literature as communities may bring their own agendas.

SIA also requires the assessment of social impacts and framing of management strategies (Esteves et al., 2012).

Management is essential as it ensures that the approved project will be delivered with the desired societal benefits minimising the negative outcomes (Arce-Gomez et al., 2015). A Social Impact Management Plan (SIMP) is recommended to achieve this, however, it is not a widely-adopted practice in Australia (Esteves et al., 2012; Franks & Vanclay, 2013).

Evaluation and management may be undertaken post-facto and are required to understand how well the SIA process has been implemented and to identify areas of potential improvement and learnings for the practitioner, the proponent and the SIA profession (Franks et al., 2009; Vanclay, et al., 2015). Research by Rifkin et al. (2014), Franks (2011) and Franks et al. (2009) has led to critical discussions around resource projects and monitoring the effectiveness of strategies in rural Queensland. Equivalent research supporting urban transport-infrastructure is lacking; this research contributes to a new method of post-facto assessment focused on management strategies in SIAs applied to government-led urban transport-infrastructure proposals.

2.1.5 SIA and Management Effectiveness

Consensus on a clear definition in the literature regarding 'effectiveness' is yet to be attained, and this reflects the contested and political character of SIA and IA more broadly (O'Faircheallaigh 2009, p. 6). The most frequently referenced theoretical method for evaluating EIA effectiveness in the literature is the early work of Sadler (1996), which is discussed further in Chapter 4 (Chanchitpricha & Bond, 2013).

O'Faircheallaigh (2009) offered three points to note when exploring the effectiveness of SIA:

1. There has been limited research on SIA effectiveness, therefore requiring reference to EIA practices;
2. A focus on the 'limitations' of effectiveness implying that SIA could be effective or more effective; and
3. That research may only deal with one aspect of 'impact assessment', such as policy rather the holistic process.

Noting these points, there is an opportunity to focus on SIA effectiveness in research. Rather than to define an 'effective SIA', this research is centred on the 'effective management strategies' towards meeting policy objectives and the management aspects which can influence meeting policy objectives.

O'Faircheallaigh's (2009, p.97) definition of 'effectiveness' in SIA, refers to whether a SIA works as per its intended purpose. In developing the evaluation framework for this research, 'effectiveness' can be framed by the purpose of regulatory SIA in the government-led infrastructure assessment process: to meet social policy and project objectives, guide and inform decision-making and devise fair and equitable measures for the management and monitoring of identified social impacts in the short and longer-term.

As demonstrated by the literature, the management and monitoring of social impacts post-approval are essential to ensuring the long-term effectiveness of SIA⁸.

Harvey (2011) noted that SIA lacks dynamic monitoring, with only periodic review and at later stages, which is often too late to alter any adverse impacts as actual impacts are realised (O'Faircheallaigh, 2009). Potential opportunities exist to improve this weakness in SIA from within related fields and through the development of an evaluation framework within this research.

2.2 Conclusions

Cross-disciplinary conceptual issues relevant to SIA practice are considered in this research. Key concepts needed to address the research question relate to good and effective SIA practice, power and governance, community engagement and participation, place, scale and linear infrastructure. The review of literature in these areas highlights gaps in the research relating to good practice and the long-term effectiveness of SIA strategies in government-led urban transport-infrastructure projects.

⁸ see Finsterbusch (1995); Franks & Vanclay (2013); O'Faircheallaigh (2009)

3 Methodology

3.1 Introduction

Practitioners, proponents and decision-makers all face challenges relating to methods for evaluating the effectiveness of good practice SIA (Cashmore, et al., 2009; O’Faircheallaigh, 2009). These challenges relate directly to the key question posed in this research. This Chapter outlines the methodological approach adopted and the methods applied to collecting information during the research.

3.2 Methodological Approach

O’Faircheallaigh (1991) criticised early SIA researchers for over-reliance on case studies without a commitment to wider understanding or analytical frameworks. The value of detailed case studies in understanding practice and its consequence, however, remains high. The research reported in this thesis was designed as a pilot project to investigate development of an evaluation framework for post-facto, long-term evaluation of SIA management and monitoring effectiveness. Adopting a case study approach has allowed assessment of the appropriateness of the research question as a foundation from which to respond to O’Faircheallaigh’s wider (and still relevant) challenge.

The research design process considered critical discussion of case study approaches and methods from Social Geography (Winchester & Rofe, 2016), which are derived from the social sciences and well-aligned to methods adopted in good practice SIA (Finsterbusch, 1995; Flowerdew & Martin, 2005; Vanclay & Esteves, 2011). Applying a case study approach using multiple methods for gathering information, has focused intensive research on one project as a pilot which may be expanded in future research (Baxter, 2016).

The selected case study, the PRL, was selected for three reasons:

1. Adequate time has passed to assess the effectiveness of management strategies proposed (Zhang et al., 2013);
2. The PRL had social and economic significance to Macquarie University which supported the research; and
3. PRL is a major urban infrastructure project targeting major public policy goals of continuing wider relevance.

The project as constructed did not achieve its public policy purpose: to link the population of Western Sydney to the economic and education growth centres in the North.

This ‘failure’ also contributed to the framing of the research, which compares strategies proposed during the planning approval phase to the present effects, in the longer term (greater than ten years), exploring the issues affecting effectiveness of the initial assessment and proposed management strategies. It also improves understanding of whether policy objectives have been met.

Participants also felt that they were more able to contribute, as there had been sufficient distance from the decisions and that stakeholders had moved on from their previous roles during that period.

Figure 4 depicts how the project design has addressed the research question.

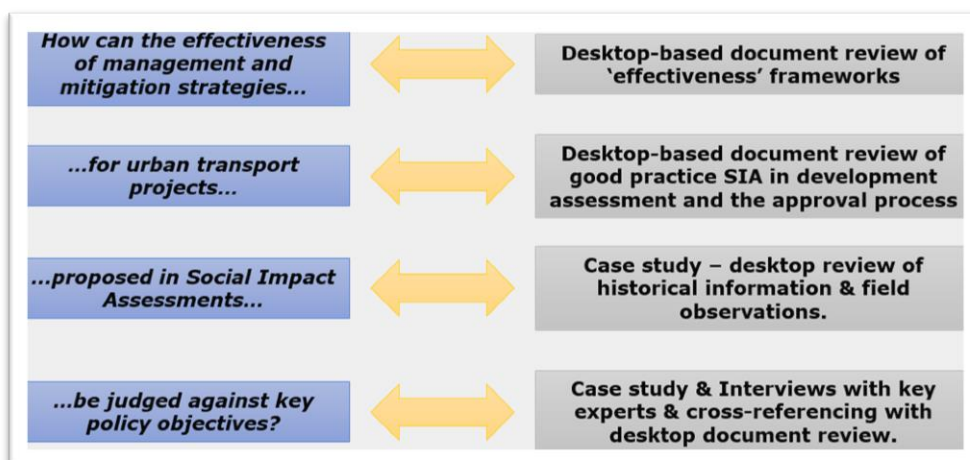


Figure 4 Research Methods and their relationship to the research question

3.3 Methods

The pilot study design adopted has used two main methods to collect relevant information:

1. **Desktop-based research of academic and grey literature to develop the post-facto evaluation assessment framework.**
2. **Case study research using the PRL Project as a pilot study.**

3.3.1 Desktop Research

Desktop-based document review⁹ was undertaken to establish good practice benchmarks in the academic literature and grey literature including identification of existing guidelines, policies, legislation and plans publicly available that mandate or identify effective good practice SIA management strategies in the longer term. The desktop review also identified methods and theoretical frameworks for evaluating the effectiveness of impact assessment post-facto from related fields, such as EIA and Strategic Environmental Assessment (SEA).

Critical review of these textual sources, using textual analysis against relevant conceptual issues¹⁰ were used to develop the assessment framework (Baxter & Eyles, 1997; Flowerdew & Martin, 2005). Given the relevance of using frameworks that have been tested in practice, the desktop-based review involved cross-referencing of good practice guidelines in the grey literature as well as academic literature.

The limitations of SIA discussed in Chapter 2, particularly its limitations in developing management and monitoring tools, suggest existing evaluation method(s) demand critical self-reflection (Harvey, 2011).

⁹ See Stake (1995)

¹⁰ See Chapter 2

Methods and tools for management and monitoring from wider Social Science discipline were also reviewed, therefore, for their applicability to post-facto social impact monitoring. This review involved the collation of sources from alternative disciplines and then cross-referencing those with relevance to SIA practice. As the case study research progressed, factors affecting the evaluation framework were modified based in response to critical reflection on the qualitative data obtained.

3.3.2 PRL Case Study

Research into the PRL case study involved two methods as discussed below.

Desktop data review

The first stage of the desktop research involved a review of historical documents to provide background to the PRL project and establish the study context (Baxter & Eyles, 1997; Roche, 2016; Stake, 1995). Key documents included:

- *Parramatta Rail Link Environmental Impact Statement* (ERM Mitchell McCotter and Kinhill [ERMK]¹¹, 1998) and associated planning approval conditions;
- *Action for Transport 2010* government masterplan (DoT, 1998a); and
- Secondary sources required to understand the progression of the project.

This historical data review was conducted iteratively throughout the research as new information was identified, including material provided by stakeholders during interviews, and collected information required verification. Key outputs of this review, discussed more fully in Chapter 5, included:

1. Documenting the project description and planning context;
2. Identifying relevant policy and objectives for evaluation;
3. Establishing the timeline of events for the project from inception to date; and
4. Conceptualising the project within the strategic context of other transport projects and development within Sydney.

It was planned for the research to include a comparative analysis of secondary data: current census data against the data and predicted impacts from the EIS, to identify any relationships that may require further investigation and compare how management strategies may have fared (Flowerdew & Martin, 2005). However, a key finding of the initial interviews conducted indicated that the politicisation of the development approval process, through NSW Cabinet, significantly influenced the effectiveness of management strategies against meeting policy objectives, which changed the framing of the research question to a focus on the wider project decision-making process.

A second stage of this desktop research included a high-level qualitative review of the effects of the project in five key locations (Macquarie University, Epping, Carlingford, University of Technology, Sydney (UTS) Ku-ring-gai and Lane Cove National Park (LCNP) documenting and reflecting on the effectiveness of management strategies and the resulting changes in the social situation.

¹¹ Joint-name for the two consultants who prepared the EIS: ERM Mitchell McCotter Pty Ltd and Kinhill Pty Ltd

This high-level review was supplemented by a review of publicly available statistics for key social and transport indicators and the field observations (see below) at selected case study locations presented in Chapter 7 and Appendix A.

Semi-structured interviews

Semi-structured interviews were undertaken during June to August 2016 with a total of 17 key informants involved in the PRL project:

- Project Consultants: EIS practitioners and Construction Personnel (five participants);
- Key affected third party stakeholders (five participants); and
- Government Stakeholders: Politicians, regulators and government bureaucrats and proponents (seven participants).

This included parties who influenced or were affected by the project since 1998 and may have undertaken more than one role during this period. The selection of participants focused on those involved at a high-level whose influence and decisions contributed to the management strategies and outcomes. Four additional informal conversations were also recorded. Appendix B records the participants consulted, interview dates and participant codes. Macquarie University Human Ethics Research Committee approved the research design (Approval 5201600247, see Appendix C). The approved consent process saw participants advised their contributions would not be individually identified and some requested confidentiality of specific information provided to assist in contextualising the research. The application of limited verbatim quotes and transparency in participant selection in the qualitative approach assisted in ensuring rigour with the multi-methods applied (Baxter & Eyles, 1997). The research themes used in Chapter 6 were identified to and discussed with participants during interviews. The interviews focused on progression of the PRL and participants' understanding and experience of impacts management against public policy objectives. Participants were generous in explaining the context of key decisions how and why they were assessed and modified with regard to government infrastructure projects and assisted with identification of and introductions to other key stakeholders. This increased the number of participants interviewed. Interview outcomes provided an understanding of the extent to which the effectiveness of management strategies can be evaluated against policy objectives, which ultimately influenced the development of the evaluation framework.

Participants were contacted privately via social media, personal contacts of the researcher/other interview participants (with permission) or their contact details as available on the internet. Key third party stakeholders affected by significant project decisions were consulted to balance the perspectives of decision-makers. However, consultation with individual community members was considered beyond the scope of the pilot phase of the research. Due to time and resource constraints and the focus on public decision-making, detailed review of locality-based impact was considered outside the scope of the research.

Semi-structured interviews were selected to provide flexibility in the timing and phrasing of questions and responses, while also conforming to a structure using an interview guide as informed by the conceptual issues identified for the research¹² (Dunn, 2016).

Interview guides were developed for each category of participants; practitioner, stakeholder, government/proponent to assist the researcher conducting the interviews (Stake, 1995; see Appendix D for an example). Each interview schedule included the following themes:

1. PRL planning approval & EIS / Planning Process for Major Transport-Infrastructure Projects;
2. Stakeholder Engagement & Decision-making;
3. Cancellation of the Parramatta-Epping section for the ECRL / Policy Objectives & Cancellation of planned projects;
4. Modifications to the Original Application / EIA / SIA and modified projects;
5. Cancellation of the UTS Ku-ring-gai, Lindfield station;
6. Long-term socio-economic Impacts of the project / Long-term management and monitoring of social impacts; and
7. Adequacy of the post-development management strategies and monitoring of the social impacts of the project.

The semi-structured interview style also facilitated general comment from participants regarding related experiences and the research themes (Dunn, 2016). Interviews were undertaken in public venues in the Sydney metropolitan area or via telephone and recorded using a laptop (if the participant allowed) and hand-written/typed notes in a research diary. Key findings of interview records were transcribed by the researcher as a form of analysis and further analysed using coding and theming as presented in Chapter 6 (Cope, 2016; Dunn, 2016). The researcher also utilised reflexive memos, generated from the research diary and notes to identify common themes, ideas and relationships for further consideration (Cope, 2016). Information collected was further sorted into a preliminary structure for the evaluation framework using research themes and common statements based on substantive relationships and the information collected during the desktop review. This aided in determining the factors which influence the evaluation of the effectiveness of management strategies against policy objectives.

Field investigations

Field investigations supplemented desktop and interview research to support high-level qualitative review of effects: in understanding the extent to which outcomes predicted in the EIS have or have not been observed and whether the recommended management strategies were appropriate or sufficient for the project as constructed.

Field work is often considered an essential part of geographical practice to supplement qualitative research and visiting the key locations affected by the PRL formed part of the research (Baxter & Eyles, 1997; Howitt & Stevens, 2016; Stevens, 2001).

These observations were essential to understanding the diverse spatial distribution of effects over time.

¹² See Chapter 2 and Appendix D for an example interview guide

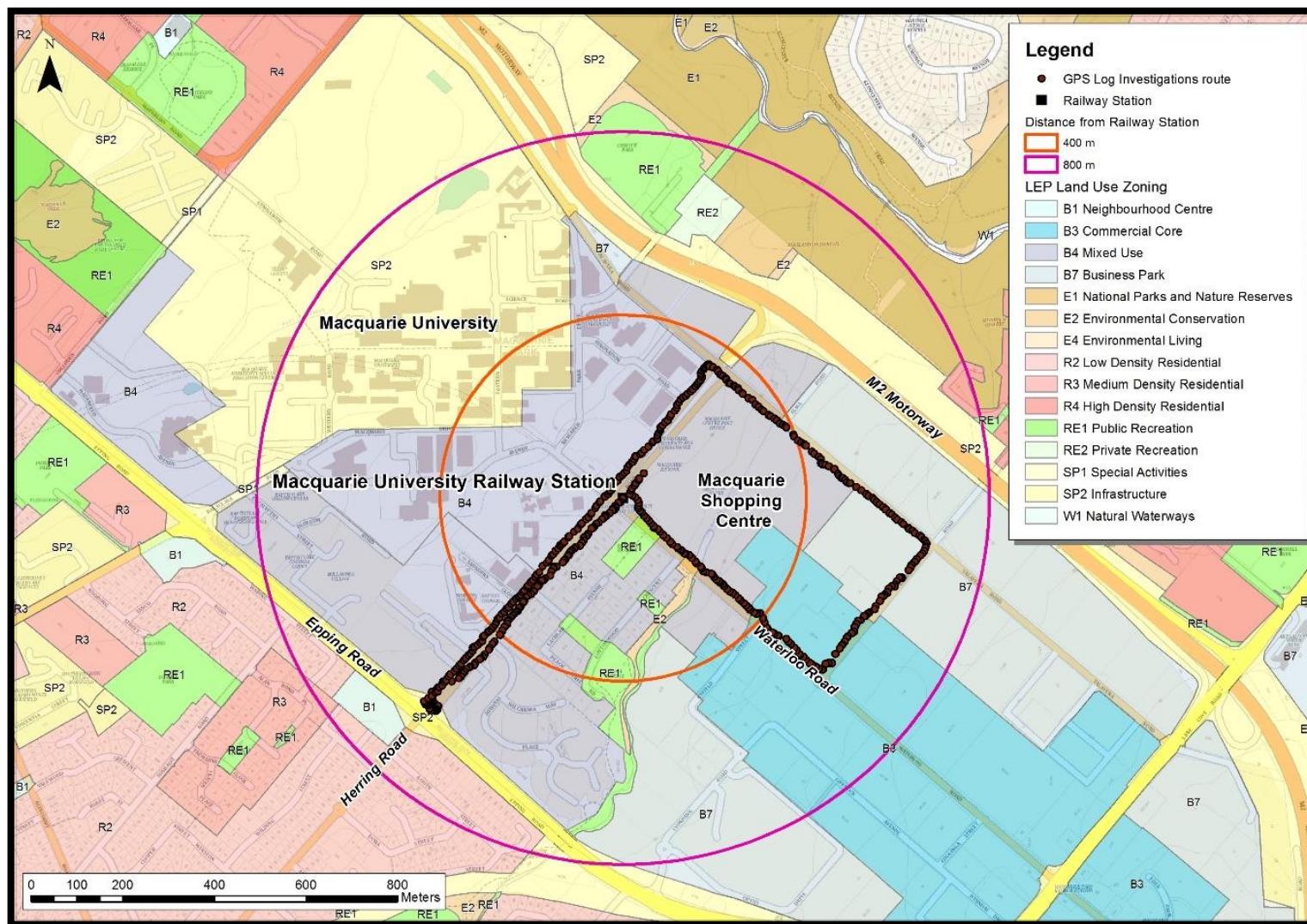
The case study locations visited predominately via rail transport and walking¹³ were:

- Macquarie University;
- Epping;
- Carlingford;
- LCNP; and
- Former UTS Lindfield Ku-ring-gai campus

Field observations were conducted during August 2016 along key shopping, educational and residential streets and land use zones as identified on the relevant Local Environmental Plan (LEP), street maps and aerial photography, as shown in Figures 5-9 and Appendix A. The study area for each location incorporated a radial distance between 400 and 800 metres from the rail station, which is the recommended walking distance for public transport accessibility during the day time (6:00am to 10:00pm) as set by the TfNSW coverage guidelines (Daniels & Mulley, 2013; TfNSW, 2013). The exception to this were observations at the former UTS Ku-ring-gai site, which included a larger catchment, as the site is located approximately 25 minutes' walk from the train station at Lindfield and LCNP, which focused on the ECRL tunnel crossing and the proposed location of the cancelled bridge over the Lane Cove River. Primary observation was utilised, with data collected in the form of diary field notes, Global Positioning System (GPS) tracking points and photographs (Kearns, 2016). This was not intended to be an exercise in participant observation, but to document and describe the spaces and landscapes central to the case study (Winders, 2016). The analysis of field notes and photographs obtained also assisted in assessing management strategies and understanding the significance of the project as a case study. Field observations were undertaken following the desktop review and initial interview research to cross-reference and verify findings and identify themes and key issues at particular locations¹⁴.

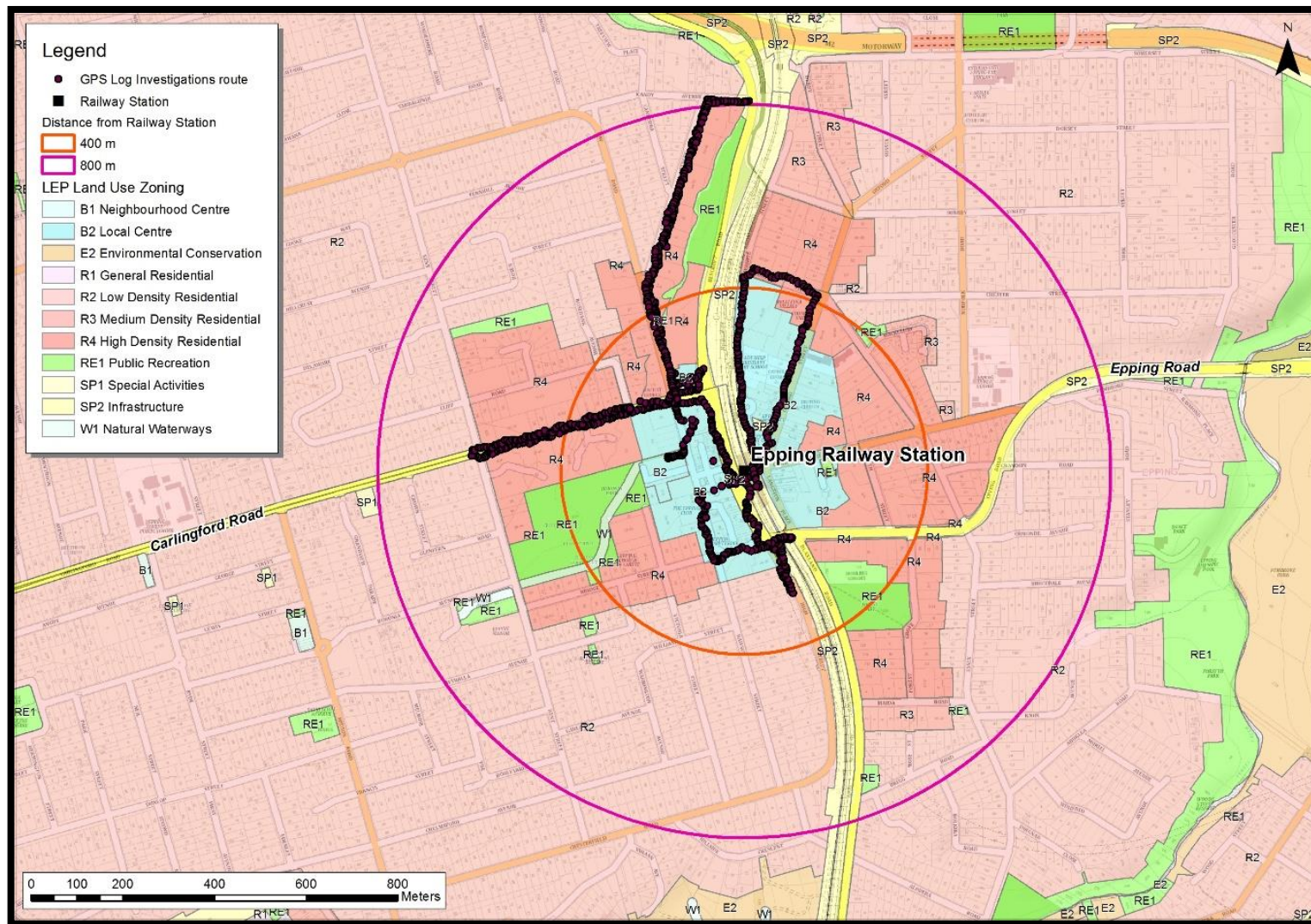
¹³ LCNP was visited by private vehicle and on foot via the Delhi Road entrance. UTS Ku-ring-gai was visited via foot to and from Lindfield Station as the shortest distance by foot. When the campus was open, a shuttle bus would operate from Roseville station to the University. The researcher was accompanied by a friend or family member during all investigations except for Macquarie University.

¹⁴ See Chapter 7 and Appendix E



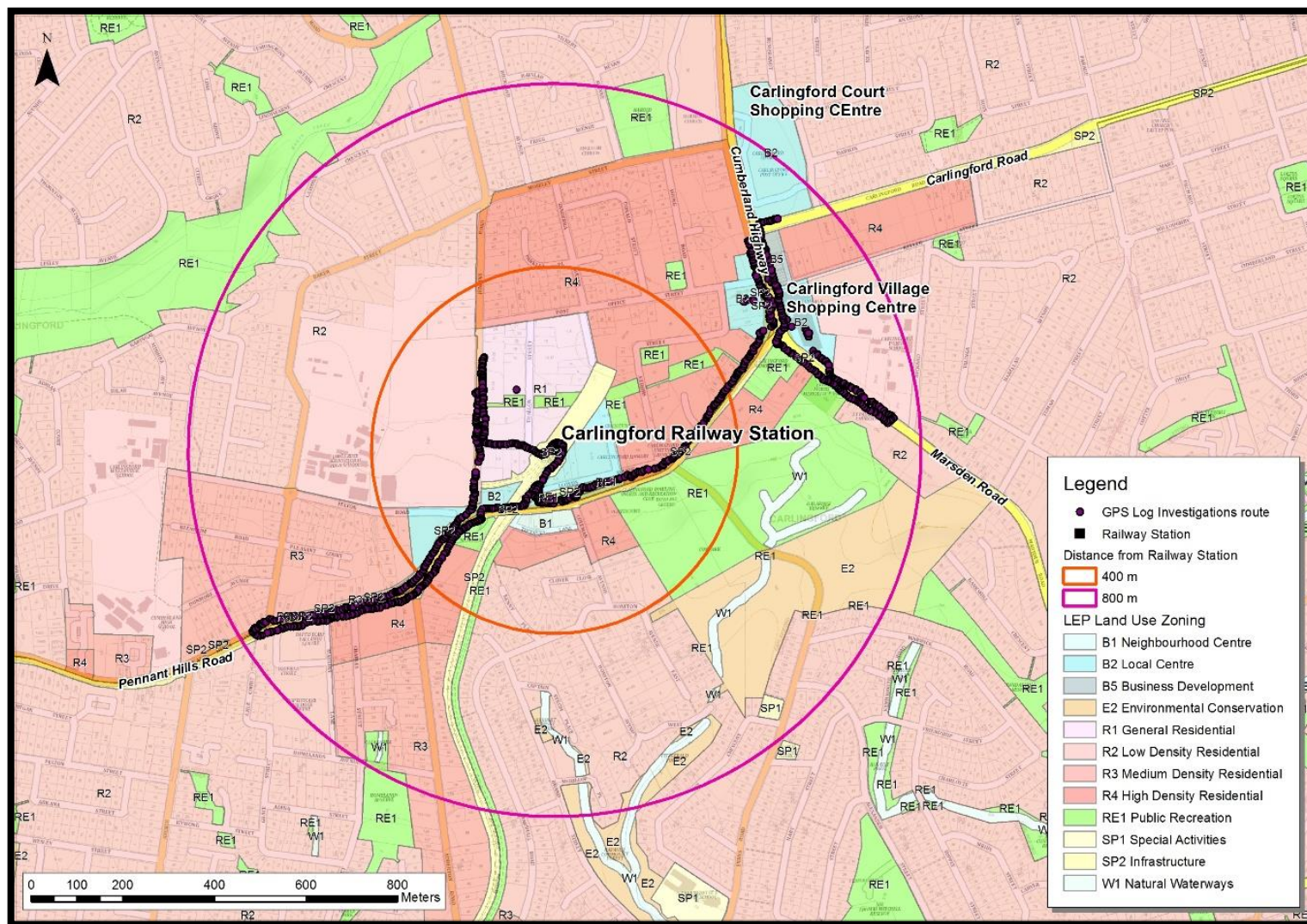
Source: DPE (2016); Land and Property Information (LPI) (2015)

Figure 5 Macquarie University Study Area and Investigations



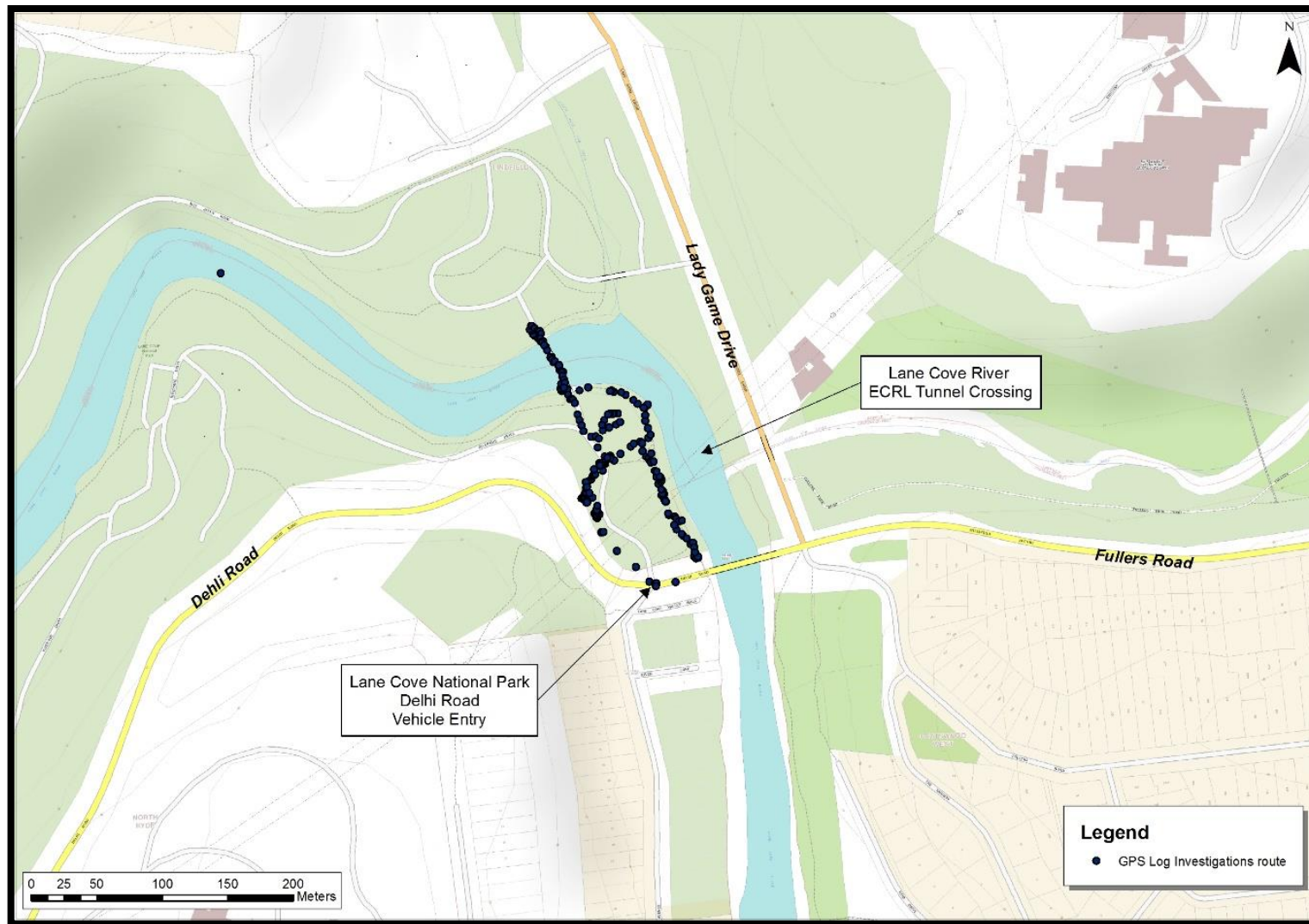
Source: DPE (2016); LPI (2015)

Figure 6 Epping Study Area and Investigations



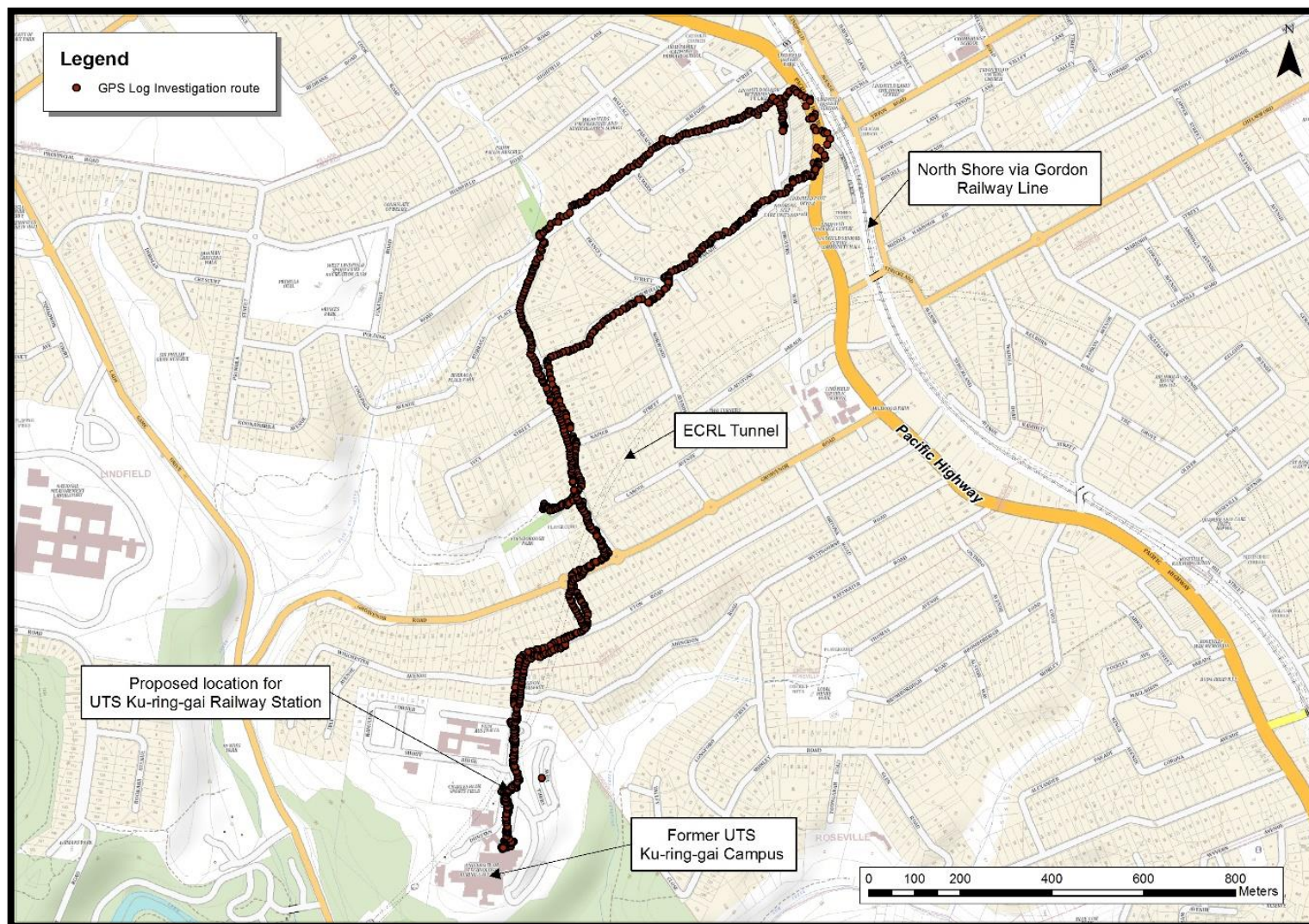
Source: DPE (2016); LPI (2015)

Figure 7 Carlingford Study Area and Investigations



Source: LPI (2015)

Figure 8 Lane Cove National Park Study Area and Investigations



Source: LPI (2015)

Figure 9 UTS Ku-ring-gai Study Area and Investigations

3.4 Limitations

The constrained timeframe of the Master of Research (MRes) program (one year) mean that opportunity for exploring of a wider range of methods and approaches was limited. The reliance on historical data as part of a case study approach presented challenges for ensuring the accuracy of information, in obtaining records of project and governmental documents and relying on the memories of interview participants. Data collection and retention has improved through the availability of digital data over the past 15 years, which greatly assisted in information gathering for the research. The case study approach adopted has meant the evaluation framework developed in this research can be tried and tested as a pilot study within the bounds of this thesis.

The case study approach also creates opportunity for utilising other methods, such as comparative analysis, quantitative analysis and grounded theory in longitudinal or cross-case study methodological approaches in future doctoral research (Baxter, 2016). Accessibility is considered a significant transport policy objective and a measure of effectiveness in achieving social policy outcomes. A quantitative approach could be applied to develop a co-efficient for measuring accessibility (considering time, mode, location and cost for example) and would be a useful metric comparison over time to determine whether the desired social policy outcomes have been achieved (Geurs & Wee, 2004; Preston & Rajé, 2007).

3.5 Conclusions

O'Faircheallaigh's (1991) concern about SIA research focusing on case studies rather than general theory remains relevant, but the research design adopted for this study has selected methods and the case for empirical focus specifically to improve theoretical understanding and predictive capacity in SIA practice. The thesis targets a practitioner audience, and by highlighting a transport infrastructure project and using a case study approach, it is designed to evaluate the PRL nearly ten years' post-development, to evaluate whether policy objectives have been met (Baxter, 2016). Findings from this pilot study will be used to inform a theoretical engagement with SIA, public policy and transport infrastructure planning that will be applied as grounded theory to other case studies (Baxter, 2016).

4 Good Practice SIA and Effectiveness Evaluation Frameworks

4.1 Introduction

Developing an evaluation framework for the longer-term effectiveness of SIA management strategies requires an understanding of the factors which influence the effectiveness of SIA and EIA practice. 'Effectiveness' and EIA practice was first discussed in the literature shortly after the introduction of legislated EIA¹⁵ with Friesema and Culhane (1976) noting poor scientific practices and pre-determined outcomes for IAs as influencing perceptions of ineffectiveness.

This Chapter reviews effectiveness evaluation frameworks from related IA fields and identifies seven key themes that are foundational to current good SIA practice. It also identifies management tools from related fields that could be applied to improve management of infrastructure-related social impacts. Practitioners who apply these tools have commonality to SIA practitioners working in development assessment¹⁶ and their application could inform decision-making and monitoring of effects post-facto (Sack, 2016).

4.2 Effectiveness Evaluation Frameworks

Sadler¹⁷ (1994) provided an important starting point for efforts to measure effectiveness in EIA, which has been replicated by many others (Joseph et al., 2015; see also Bond et al., 2013). Sadler's later work went on to define effectiveness as "whether something works as intended and meets the purpose(s) for which it was designed" (Sadler, 1996, p.37). Sadler (1996, p.39) presented three yardsticks for evaluation of effectiveness:

1. *Procedural: - does the Environmental Assessment (EA) process conform to established provisions and principles?*
2. *Substantive: - does the EA process achieve the objectives set, e.g., support well informed decision making and result in environmental protection? and*
3. *Transactive: - does the EA process deliver these outcomes at least cost in the minimum time possible, i.e., is it effective and efficient?*

Evaluation studies in the literature for the related field of SEA applying this work have focused on 'procedural effectiveness' (Cashmore et al., 2004; Van Doren et al., 2013). Van Doren et al. (2013) note a 'substantive' evaluation is required to understand the extent of influence of IA and other actors in the process, and whether the IA has contributed to decision-making, achieved its desired results and purpose.

¹⁵ EIA was first legislated in the USA under the *National Environment Policy Act (NEPA)* 1969, see Friesema and Culhane (1976)

¹⁶ For example: Cost-Benefit Analyses are routinely performed during business case development, see Flyvbjerg, 2014)

¹⁷ The Canadian Federal Environmental Assessment Review Office in collaboration with International Association of Impact Assessment (IAIA) commissioned in June 1993 an International Study of the Effectiveness of environmental assessment. Sadler (1994) presented the preliminary study framework.

Zhang et al. (2013) also identified that studies to date have paid insufficient attention to the causal factors for effectiveness in implementation, noting that the most under-researched factors influencing effectiveness are inadequacies in scoping, alternatives development and mitigation.

Cashmore et al. (2010) note the 'political effectiveness' of IAs must be considered in evaluation frameworks, including characteristics of driving change from policy, governance norms and distributional justice. Political and policy domains invite criticism from partisan political positions, which is problematic for IA effectiveness in generating public trust for mega-projects due to their scale, cost and societal impact (Flyvbjerg et al., 2003). Howitt (2001) notes that IA can be both intensely political and politicised, with SIA being a political act that implies specific power-relationships (Figure 10). The state's 'balanced advice' can become biased towards a 'corporate-power' view, where post-facto justifications may be applied to justify a project as in the 'public interest'¹⁸ (Ziller, 2012).



Source: Howitt (2001, p.329)

Figure 10 SIA and power

Chanchitpricha and Bond (2013) noted Baker and McLelland's (2003) addition of 'normative effectiveness' to Sadler's (1996) criteria, best defined by Bond and Morrison-Saunders (2013) as the extent to which a defined set of social and individual norms were achieved. Evaluations of political effectiveness may be addressed in the context of the 'normative effectiveness' as a measure of what is in the 'public interest' and whether an equitable outcome has been achieved in an ethical manner.

Hanna and Noble (2015) expanded on these earlier studies in their effectiveness of EA practice Delphi study using IA experts, suggesting nine criteria for evaluation¹⁹.

¹⁸ See Chapter 2

¹⁹ The nine evaluation criteria for effectiveness include: Stakeholder confidence, Integrative and linked to approval decision-making, Promotes betterment and longer-term and substantive gains to environmental management and protection, Comprehensiveness, Evidence-based, Accountability, Participation, A legal foundation for IA, Capacity and innovation.

Four of these nine criteria were prioritised by their participants:

1. Promoting long-term substantive gains in environmental protection and management;
2. Stakeholder confidence;
3. Comprehensiveness; and
4. Integrative and linked to decision-making.

In contrast to the earlier literature, Hanna and Noble (2015) identified that context influences effectiveness: what may be applicable in one context, sector or regulatory system may not be applicable in another. Variations may also arise in the interpretations and understandings across proponent, regulator and public inter-domains influencing SIA function (Ahmadvand et al., 2009).

4.3 Evaluation Good Practice SIA Management

It is evident that a review of good practice SIA guidance is required. Principles for good practice SIA have existed since the early 1990s²⁰ and were modified more recently by Vanclay (2003), Esteves et al. (2012), Vanclay et al. (2015) to provide improved principles, focused on collaborative, participatory consultation processes in SIA, practitioner codes of ethics and SIMPs to assist in the management and monitoring of actions over time. Vanclay's (2003) Principles for SIA²¹ are regarded as the standard for best practice by the International Association for Impact Assessment (IAIA, 2016).

A review of guidelines for good practice SIA from government, industry and academic sources included an evaluation of the following documents:

- The New Social Impact Assessment Handbook (Ziller, 2012);
- SIA Guideline (Queensland Government, 2013);
- EIA Practice Note – Socio-economic assessment (Roads and Maritime Services, 2013);
- Interorganizational Committee on Guidelines and Principles (ICGP, 1995), Acre-Gomez et al. (2015), Vanclay (2003), Esteves et al. (2012), Vanclay et al. (2015); and
- Parramatta City Council Social Impact Assessment Guidelines (Parramatta City Council, 2013; McCauley & Howitt, 2014).

Seven key themes are common in these guidelines and foundational to good practice SIA (Table 1). These themes are central to evaluating the effectiveness of SIA management strategies²² in an Australian-context. Their local relevance to Australian practitioners, Fischer and Gazzola (2006) note as essential to achieving effectiveness in practice.

The guidelines are relevant to establishing an evaluation benchmark of development SIA in the recent past. The PRL EIS was prepared in the late 1990s, and although practice has evolved over the past 30 years, good practice principles have remained consistent with ICGP (1995)²³.

²⁰ Examples include: Interorganizational Committee on Guidelines and Principles (ICGP) for SIA (1995), Finsterbusch (1995), Craig (1990), Burdge and Vanclay (1996)

²¹ See Appendix F

²² At the time of writing, SIA Guidelines in NSW for State Significant Developments were under development by the DPE, see <http://www.planning.nsw.gov.au/Policy-and-Legislation/Social-Impact-Assessment>

²³ See Chapter 7

Table 1 Themes of Good Practice SIA

Good practice SIA	Explanation
Reflects commonly agreed definitions of SIA	<p><i>...the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment</i> (Vanclay et al., 2015, p.1).</p> <p>Ziller (2012, p. xiv) has adapted the aim is to “achieve better outcomes and avoid adverse outcomes”.</p>
Considers the common definition of ‘Social Impacts’ in scoping of impacts	<p>The most common definition is derived from Vanclay (2003). Each guideline modifies the wording to suit their purposes, they all include changes (positive and negative) to one or more of the following:</p> <ul style="list-style-type: none"> ▪ people’s way of life ▪ their culture ▪ their community ▪ their political systems ▪ their environment ▪ their health and wellbeing ▪ their personal and property rights ▪ their fears and aspirations
Applies the principles of SIA	<p>The core values and fundamental principles for SIA practice as per Vanclay (2003) and IAIA (2003)²⁴ as updated by Esteves et al. (2012).</p> <p>The principles include attributes of SIA practitioners and required ethical practices for SIA (such as negotiations based on free, prior and informed consent) (Esteves et al., 2012; Kemp, 2011; Parramatta City Council, 2013; Vanclay et al., 2015; Wong & Wing-Chung, 2015).</p>
Includes SIA-orientated inclusive public and stakeholder consultation throughout all phases.	<p>Four main phases of SIA (Vanclay et al., 2015):</p> <ol style="list-style-type: none"> 1. Understand the issues 2. Predict, analyse and assess the like impact pathways 3. Develop and implement management strategies 4. Design and Implement monitoring programs <p>Applies these steps iteratively throughout the decision-making process. Engages with relevant stakeholders and the public during each phase as the project changes or new information is identified to assist in identifying mitigation and coping strategies (Vanclay et al., 2015).</p> <p>Consultation should empower the community to participate in the SIA process and involve social science qualitative research methods (Esteves et al., 2012; Howitt, 1993).</p>

²⁴ See Appendix F

Good practice SIA	Explanation
Follows a standard SIA methodology and Report Content	<p>Within the four phases there are 10 steps in the SIA methodology, which Acre-Gomez et al. (2015) have adapted from ICGP (1995) to include:</p> <ol style="list-style-type: none"> 1. Public Involvement (continuous) 2. Description of proposed action 3. Community profiles (including consultation processes) 4. Scoping 5. Investigate probable impacts 6. Determine response to impacts 7. Secondary and cumulative impacts 8. Alternatives to proposed action 9. Mitigation 10. Monitoring <p>A mixed methodology using quantitative and qualitative social science methods is required. The report should include a description of the methods utilised (Vanclay et al., 2015; Ziller, 2012).</p> <p>Ziller (2012) emphasises the inclusion of references to literature regarding likely predicted social impacts, supplemented by local expertise and consultation.</p> <p>The Parramatta City Council (2013) and Queensland Government (2012) also suggest that the SIA should address applicable social policy and legislation.</p>
Facilitates the development of a SIMP or similar management plan	<p>Includes a description of the proposed management/mitigation measures and a framework to facilitate monitoring.</p> <p>SIMP to be prepared post-SIA to facilitate the management of impacts throughout the project life-cycle (Vanclay et al., 2015; Acre-Gomez et al., 2015).</p>
Applies mechanisms for or includes monitoring and evaluation in the long-term.	<p>Monitoring and auditing of social issues throughout the project life-cycle (O’Faircheallaigh, 2009; Vanclay et al., 2015; Queensland Government, 2013).</p> <p>Management strategies from the SIA need to be embedded in business systems, policies, action plans and procedures to deliver social outcomes (Esteves et al., 2012). Application of adaptive management requiring continued management and monitoring of social issues to re-evaluate applicability and effectiveness (Vanclay & Esteves, 2015).</p> <p>Monitoring should be against an established monitoring framework established in the SIMP with social outcomes from policy/project objectives and/or approval conditions by both proponent and government (Queensland Government, 2013; Ziller, 2012).</p>

4.4 Management and Monitoring of Social Impacts in Related Fields

Other disciplines related to SIA, such as in the human rights, corporate responsibility, and social welfare movements, have seen an increase in the number of social accounting, evaluation and reporting methods, which could provide opportunities for improved²⁵ management and monitoring frameworks to address weaknesses in development SIA. Making an impact through positive 'social change' to address social problems has also seen an increase in tools and methods to provide for defined and measured outcomes (Centre for Social Impact [CSI], 2016).

Social impact organisations have also expanded, such as Social Value International (SVI). Tools for potential use in development SIA practice are listed on the SVI website, including CBA, Social Return on Investment (SROI), Theory of Change and Shared Measurement (SVI, 2016). The online SIA hub for SIA practitioners also refers to these types of tools, although some may only apply post-construction as they are reliant on a regular ongoing relationship with service users (Community Insights, 2016).

The Infrastructure Sustainability Council of Australia (ISCA) has an Infrastructure Sustainability rating tool, which evaluates the sustainability of projects under six themes²⁶ (ISCA, 2014). Its 'People and Place' theme considers social change sustainability outcomes of community health, well-being and safety, urban and landscape design and stakeholder participation. Applying the tool has been made a condition of approval for mega-projects in NSW²⁷ (Stokes, 2016). Another monitoring tool is The University of Queensland (UQ), online 'Boomtown Toolkit' designed to assist governments and community in planning for and monitoring and managing social impacts attributed to rapid mining development in a region using historical data collected on key indicators (UQ Boomtown Toolkit, 2015).

In community development Results Based Management is used to describe the framework of 'logic' models that causally link inputs to outcomes and results (Sack, 2015). Sack highlights the commonality in purpose between SIA and these models noting they are both typically applied prior to implementation of a decision, although could be applied prospectively to inform decision-making, during implementation or post-hoc (Sack, 2016). The extent to which these tools have been applied for post-facto evaluation has not been fully explored in the literature and is outside of the scope of this thesis. However, the application of these types of tools may facilitate driving accountability in decision-making processes of government-led projects by setting benchmarks aligned with meeting long-term policy objectives.

²⁵ See Chapter 2, Harvey (2011) re management and monitoring weaknesses in SIA practice.

²⁶ The six themes are: Management and Governance, Using Resources, Emissions, Pollution and Waste, Ecology, People and Place and Innovation (ISCA, 2014).

²⁷ For example, Westconnex. See Chapter 5

4.5 Conclusions

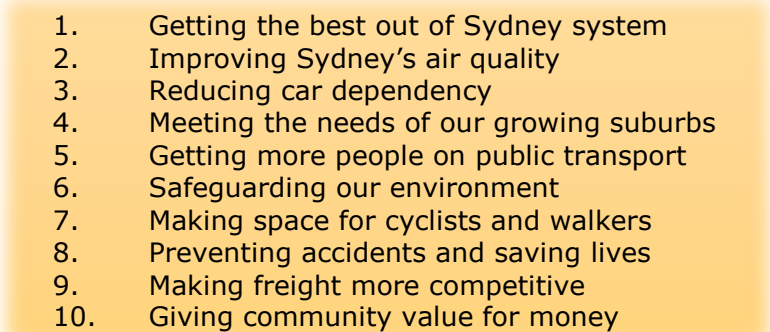
The seven key themes of good practice SIA presented in Table 1 form the basis of the preliminary evaluation framework presented in Chapter 8. By also considering tools from related fields of practice, this chapter has explored opportunities to address weaknesses in current development SIA practice towards improved long-term management of social impacts.

5 Parramatta Rail Link – Case Study

5.1. Introduction

This chapter provides a history of the PRL and review of current metropolitan transport plans for Sydney. Drawing on a review of grey literature, legislation, academic literature, interviews and project documents it outlines the proposal and the constructed project. The PRL EIS (ERMK, 1999) as updated following the community submissions period was the key reference document for the evaluation presented in this thesis.

The Chapter also reviews the key NSW Government DoT (1998a) masterplan, *Action for Transport 2010*. The Plan provided the objectives against which this research has evaluated the effectiveness of the management strategies proposed in the PRL EIS (Figure 11).

- 
1. Getting the best out of Sydney system
 2. Improving Sydney's air quality
 3. Reducing car dependency
 4. Meeting the needs of our growing suburbs
 5. Getting more people on public transport
 6. Safeguarding our environment
 7. Making space for cyclists and walkers
 8. Preventing accidents and saving lives
 9. Making freight more competitive
 10. Giving community value for money

Source: DoT (1998a, p. 3)

Figure 11 *Action for Transport 2010 10-point policy objectives*

5.2. Description of the PRL

5.2.1. Project Context

The PRL project as described in ERMK (1999), and in the proposal planning approval application, was a 27 km extension to the existing Sydney rail network, which would link Parramatta and Chatswood via Epping (Department of Planning [DOP], 2002a). The project was approved on 27 February 2002 with 260 conditions, under Part 5 of the NSW *Environmental Planning and Assessment Act 1979* by the Director-General of the Department of Planning (DOP, 2002a). The *State Environmental Planning Policy (SEPP) No. 63* was gazetted on 2 February 2001 to facilitate its assessment and other projects in the *Action for Transport 2010* plan.

Modifications were also made to the original approval for the Epping Transport Interchange (17 June 2004), Chatswood Transport Interchange (14 December 2004) and Parramatta Transport Interchange redevelopments (29 June 2004). Evaluation against those modifications was considered beyond the scope of the research to fit within the study duration. Figure 12 identifies key stakeholders involved in the project between 1998 and 2009.

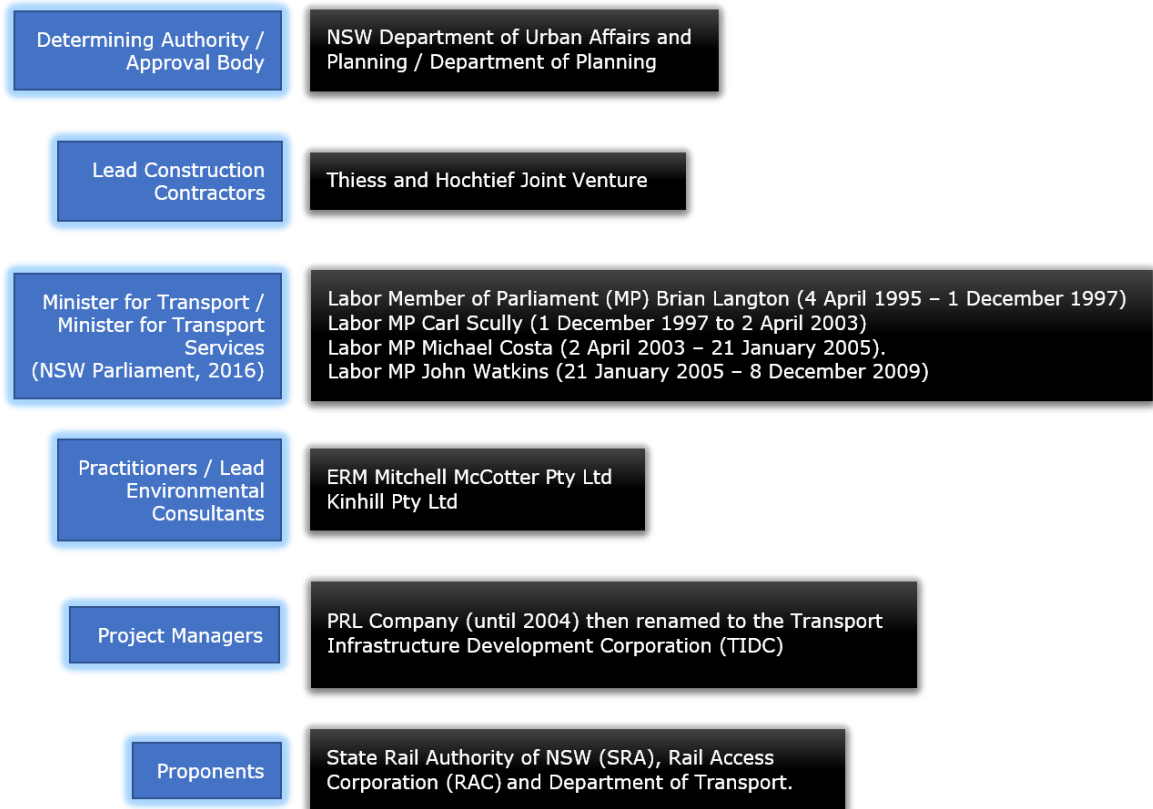


Figure 12 Key Project Stakeholders (1998 – 2009)²⁸²⁹³⁰

5.2.2. EIS and Representations Report

Figure 13 shows the original route proposed. The proposed route included the following key components (Parramatta Rail Link Company [PRL Co.], 2001, p.1-5-1-6):

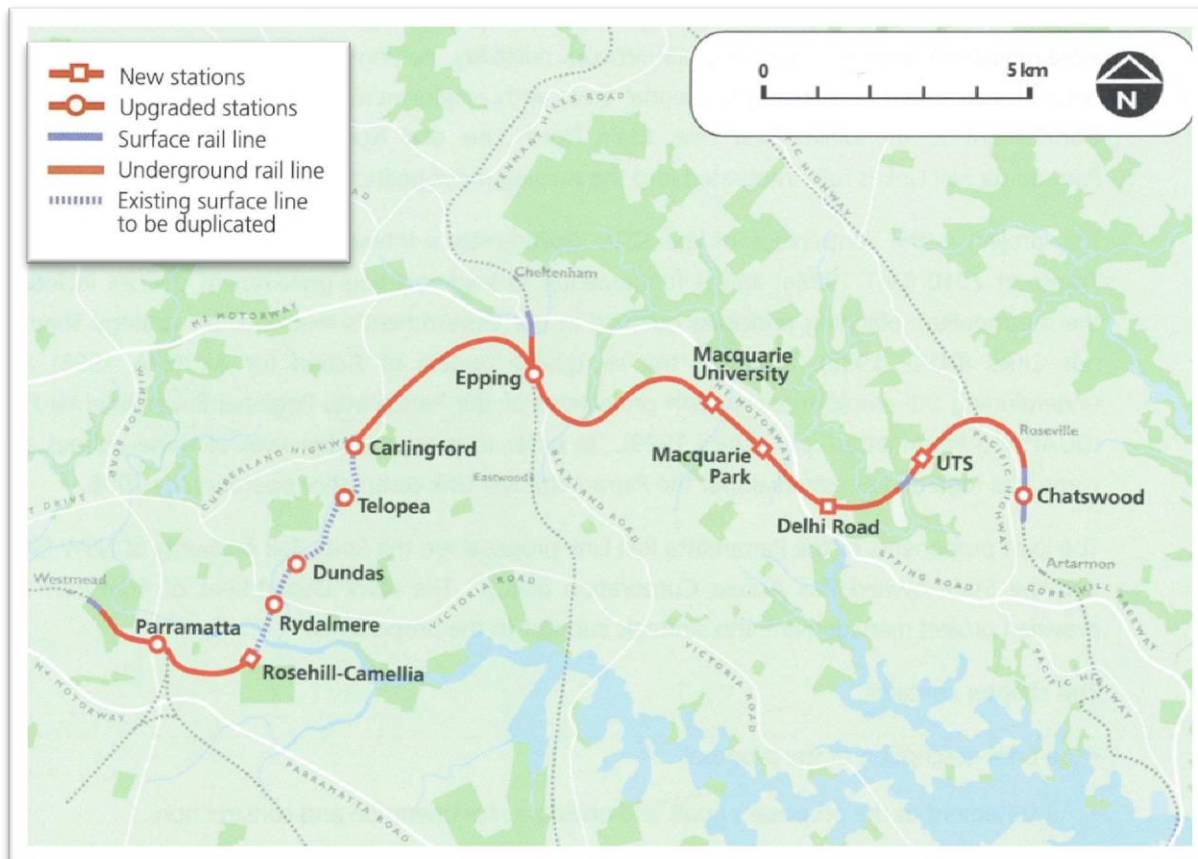
- A twin track railway linking the North Shore Line, Main North Line and Main West Line;
- Dive structures³¹ to connect the PRL with existing corridors (near Camellia, Westmead, Carlingford, Epping and Chatswood Stations);
- Upgrading of existing stations (Parramatta, Rydalmere, Telopea, Dundas, Carlingford, Epping and Chatswood);
- New Stations at Macquarie University, Macquarie Park, Rosehill/Camellia, Delhi Road (North Ryde), University of Technology (Ku-ring-gai campus), Sydney;
- Surface track along existing Carlingford Line between Carlingford and Camellia, on the North Shore Line rail corridor near Chatswood and near the dive structures at Westmead and Epping;
- 800-vehicle carpark at Carlingford Station;
- Easy access and Bicycle storage facilities at all stations; and
- Noise barriers along the Carlingford Line

²⁸ The department was also referred to as the Department of Infrastructure and Natural Resources (DIPNR) and Department of Planning and Infrastructure (DPI) during this period. It is now Department of Planning and Environment (DPE).

²⁹ SRA and RAC, later merged to become Rail Infrastructure Corporation (RIC). Since then RailCorp was formed, and has become the asset owner and operation and maintenance responsibility has been transferred to Sydney Trains.

³⁰ The NSW Department of Transport is now Transport for NSW (TfNSW).

³¹ Dive structures allow the rail alignment to drop down below ground level to the location of the tunnel portal (RailCorp, 2010)



Source: ERMK (1999, p. 1-2, Figure 1.1)

Figure 13 The original PRL route

During the project approval, design and consultation processes, the proposal underwent significant design modifications to reduce environmental effects. The final proposal as approved by the DoP in February 2002 is shown on Figure 14 (PRL Co., 2001). A summary of the modifications included (PRL Co., 2001, p. 1-6):

- Tunnel re-alignments into Parramatta and platform relocations at Parramatta Station;
- Re-alignment under Pennant Hills Road and relocation of Carlingford Station;
- Re-location of Epping dive structure, Main North Line turnouts and platforms straightened;
- Re-location of stations at Macquarie University and Macquarie Park;
- Dive structure at Chatswood re-located and a new rail bridge;
- Tunnel re-alignments at Delhi Road Station and Chatswood to accommodate a new 'cut and cover' tunnel crossing of the Lane Cove River in the LCNP. The new tunnel length is 800 metres longer than described in the EIS; and
- Re-location of the UTS station to accommodate the new tunnel depth. The passenger exit becomes 52 metres deep (15 metres lower).

The PRL was expected to have four to six trains per hour each way between Epping and Parramatta, and eight to ten trains per hour each way between Chatswood and Epping (ERMK, 1999). The capital cost for the proposal in the EIS was estimated at \$1.4 billion with funding to be provided for by the NSW State budget and private investment to be explored (ERMK, 1999). Following the modifications, the total cost to construct the ECRL alone was recalculated as \$2.3 billion (Auditor-General, 2005; GPOL_1).



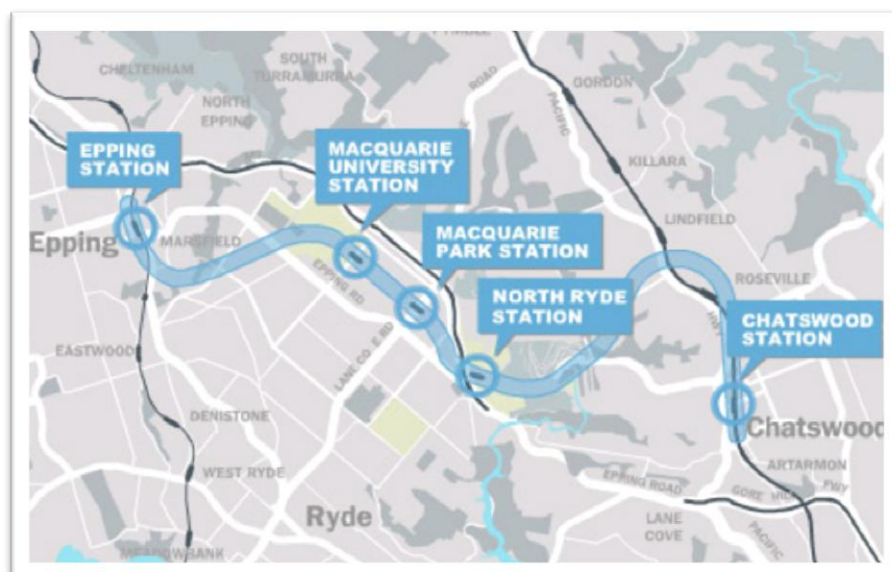
Source: PRL Co. (2001, p.1-7)

Figure 14 PRL Modifications

This increase in cost did not receive state budget approval and resulted in construction commencing only on the Epping to Chatswood section of the project (GPOL_1).

5.2.3. Post-EIS Modifications

Following approval of the PRL the relevant Minister for Transport and the NSW Government Treasury modified the project, which resulted in the as constructed ECRL route as shown in Figure 15.



Source: Transport Infrastructure Development Corporation (TIDC, 2008)

Figure 15 ECRL

5.2.4. Cancellation of the UTS Ku-ring-gai Station

The Minister's Conditions of Approval (CoA) No.4 stated that no substantial construction of the UTS station could go ahead without the Minister's approval and the DoP final decision on the University's expansion. By mid-2002 the NSW Government cancelled the Station and a statement on the PRL website stated that "Owing to the NSW Government's decision not to proceed with the expansion of the UTS Campus at Lindfield, the station at UTS Ku-ring-gai will not be constructed" (PRL Co., 2002).

5.2.5. Cancellation of the Parramatta-Epping Section

During a post-election cabinet reshuffle, the Minister for Transport responsible for the PRL and *Action for Transport 2010* was replaced (Dempster, 2004). The incoming Minister, Michael Costa, was seen as a strong replacement for Carl Scully who Dempster (2004, p. 37) saw as "damned by sections of the Sydney media over perceived failings in his handling of the public transport in the leadership to the [March 2003] election". Costa requested that a report be prepared from the PRL Project Director into the alternative options for the PERL. In August 2003, the *PRL West Options Project Director's Report* was published. The report showed that the EIS (modified) option was the best direction connection to the west, with the highest patronage, but also the highest cost option, compared with the lowest cost, highest patronage option which terminated at Granville (PRL Project Director, 2003). The review was caveated that its outcome was not to be utilised as the final decision on the postponement of the delivery of the PERL, which should consider the long-term transport and urban planning needs for Sydney (PRL Project Director, 2003). However, in August 2003, the Minister announced the indefinite postponing of the PERL due to low projected patronage and value for money, along with the NSW Government's 10-year plan to redesign the CityRail System³² (Kerr, 2003).

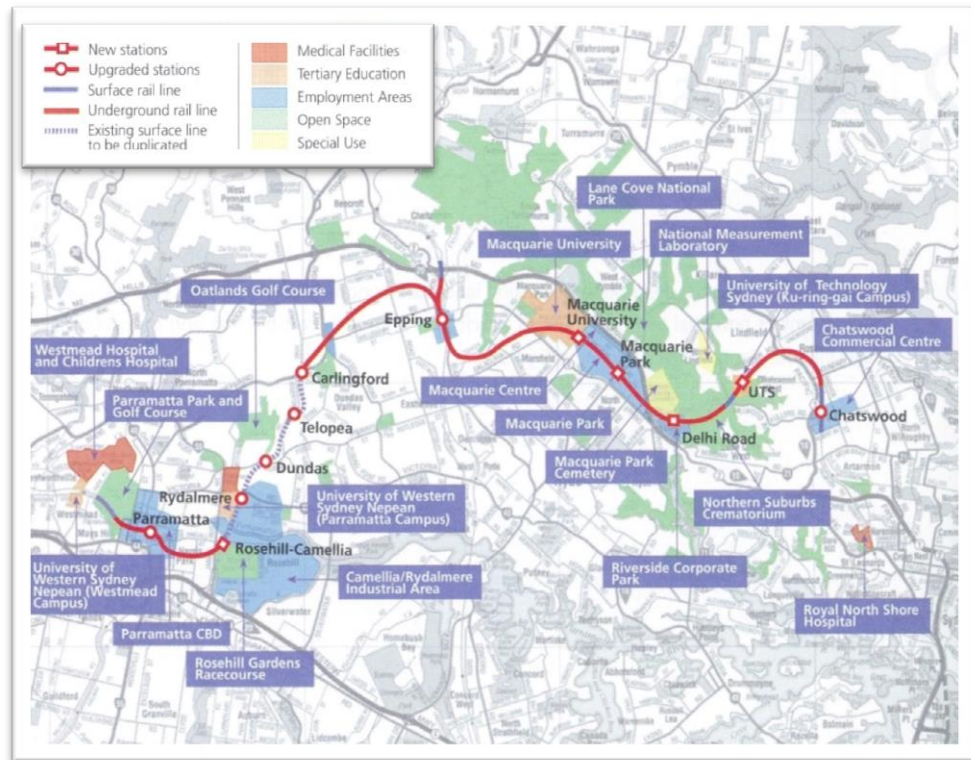
5.3. PRL – Strategic Need & Key NSW Government Policy

5.3.1. Strategic Need for the PRL

The PRL EIS argued the project was required to address increasing transport challenges around accessibility to employment, educational and health services from an expanded Metropolitan Sydney residential zone and demand for improved frequency of services, due to the longer distances required to be travelled across Sydney to reach destinations (ERMK, 1999).

³² Despite this decision, the legislation enacted (SEPP 63) to facilitate the PRL development, remained in force until it was repealed in 2008 by Schedule 4 of the SEPP (Infrastructure) 2007. At the time of writing, clause 80 and Schedule 2 of the ISEPP lists the PRL as a project that may be carried out by a public authority (or on their behalf) without consent.

Public transport had not kept up with rate of Sydney population growth and additional capacity provided by the PRL was required to cope with Sydney's peak period demand, cater for future passenger demand and provide fair and equitable access cross-regionally to employment, education and health centres between Westmead, Parramatta, Macquarie/North Ryde, St Leonards and Chatswood (Figure 16) (ERMK, 1999).



Source: ERMK (1999, Figure 13.1, p. 13-2)

Figure 16 Key land-use features

5.3.2. Key NSW Government Policy

Several NSW government policies and principles described in the Chapter 2 of the EIS indicated that the PRL was fundamental to achieving policy objectives (ERMK, 1999, p.2-4) These include:

- *Shaping our Cities* (Department of Urban Affairs and Planning [DUAP], 1998) – Sydney's Metropolitan Strategy to address planning priorities for the Greater Sydney Metropolitan Area (GSMA);
- *Action for Air* (Environment Protection Authority [EPA], 1998) – increasing public transport usage from 20% to 30% and reducing car dependency to meet air quality targets; and
- *Action for Transport 2010* (DoT, 1998a) – PRL was considered the centrepiece of this plan, which addressed the NSW Government transport strategies for the GSMA.

The objectives of these policies were all linked through common transport-related objectives to reduce car dependency, increase public transport usage and more accessible transport opportunities to access employment and economic centres across Sydney. To focus on the key documents relevant to the SIA management strategies for the project, the key objectives of the *Action for Transport 2010* are discussed as the evaluation criteria.

Action for Transport 2010

With the media release announcement of the *Action for Transport 2010* list of projects³³ (Ministry of Transport, 1998) the NSW Government released two Action for Transport documents, one for NSW and one for Sydney (DoT, 1998a, 1998b). The Sydney plan is referenced in the PRL EIS. *Action for Transport 2010*, identified western and north-western Sydney as having poor public transport service and outlined several new heavy rail, bus-only transit-ways and cross regional bus services to address these concerns (ERMK, 1999).

The 10-point action plan (Figure 11) forms the key objectives of the Plan to address transport challenges for Sydney. Figure 17 shows how the PRL would meet these ten goals as described in the EIS. The final two goals of the plan are omitted in the EIS: the ninth goal is unrelated to PRL, which is a passenger-only route, however, it is not known why the tenth goal was omitted from the EIS.

Goal	Relevance of PRL
Getting the best out of the rail system	Improved capacity, journey times and incorporates the under-utilised Carlingford Line
Improving Sydney's air quality	Increases rail patronage, provides an alternative to car and integrates with land use and networks of other modes (e.g. cycle)
Reducing car dependency	Integrated transport and land use and new public transport services and destinations
Meeting the needs of growing suburbs	Facilitates urban growth and transport capacity in the western suburbs to the northern suburbs and Parramatta's growth as second CBD.
Getting more people on public transport	Provides a new rail service, with extra capacity and improved interchanges with other modes
Safeguarding the environment	Improves air quality and urban amenity, with less motor vehicles on roads
Making space for cyclists and walkers	Connects to walking and cycle paths and provides new bicycle lockers and pedestrian friendly access at stations.
Preventing accidents and saving lives	Reduces motor vehicle trips.

Source: ERMK (1999, Table 2.1, p. 2-4)

Figure 17 Meeting the goals of Action for Transport 2010

5.4. PRL Project Timeline of Events

The project development life-cycle for the PRL spanned nearly 20 years from the early 1990s to the PERL cancellation in 2013. Figures 18 and 19 present the timeline for the key events that shaped the PRL project. Prior to *Action for Transport 2010*, Sydney had not seen a new heavy rail project for 30 years (Ministry of Transport, 1998).

³³ See Appendix E, Figure E.1 for a map of projects.

5.5. Epping to Chatswood Rail Link

The ECRL is part of the Sydney Trains network, which services trains across the GSMA³⁴. It is on the 'T1 North Shore & Northern' route, which utilises two routes³⁵ (in both directions) and starts at Chatswood on the City to Hornsby via Macquarie University or 'Northern via Macquarie University' Route³⁶. The ECRL trip takes approximately 15 minutes with six trips per hour during peak times and four per hour during other times. The 'T1 North Shore & Northern' route has a total of approximately 18 trains per hour during peak times into the city.

5.6. Sydney's Transport Future

The future of Sydney's transport infrastructure is encapsulated in the NSW Long Term Transport Master Plan (TfNSW, 2012a). This is aligned with the NSW Government's (2014) *A Plan for Growing Sydney*³⁷ and the goals of the newly created statutory body, the Greater Sydney Commission (GSC), to provide independent advice leading the metropolitan planning of Sydney (GSC, 2016). Sydney's current transport modelling shows that demand exceeds capacity and will continue to result in further congestion, longer travel times, and overcrowding along key corridors (TfNSW, 2012a). Figure 20 shows the current transport challenges and action plan summary with Government transport mega-project examples under construction of note including WestConnex motorway and Central Business District (CBD) and South East light rail (Sydney Motorway Corporation [SMC], 2016).

³⁴ See Appendix E, Figure E.2 & E.3

³⁵ City to Hornsby via Macquarie University and the City to Berowra via Gordon

³⁶ See Appendix E, Figure E.2

³⁷ See Chapter 7 for further discussion regarding this plan.

1995-1997	Jacana consulting engaged to develop some options to assist in relieving congestion across Sydney. A proposal is brought to cabinet for a Carlingford to Epping connection. The cabinet determines that only an Epping to Chatswood line is viable, dismissing a Western suburbs connection (GPOL_5).
July 1998	NSW Government announces in principle approval for a new heavy rail link from Parramatta to Chatswood (PRL Co., 2001). Public consultation commences.
Late 1998	PRL Company was formed to project manage the approvals and building of the project (PPCON_1).
23 November 1998	Action for Transport 2010 and list of Sydney transport projects announced by media release to the public by the Transport Minister Carl Scully, including (Ministry of Transport, 1998): <ul style="list-style-type: none"> • Airport Rail Link, • Bondi Beach Rail Link, • PRL, • Epping to Castle Hill Line, • Hurstville to Strathfield Rail Link, Liverpool 'Y' Link. Construction is planned to commence in December 1999, with the PRL to be opened in 2006.
26 November 1998	DUAP, Director General's requirements for the PRL issued to the Director General of the Department of Transport (see ERMK, 1999, Appendix A).
December 1998	Preparation of the PRL EIS commences (PRL Co., 2001). Community Interest Group workshops are conducted and letters are issued to key stakeholders.
February 1999	Various consultation activities commence including, mobile display, community meetings, open days, and letterbox drops (PRL Co., 2001).
22 December 1999	The Final EIS is released to the public (ERMK, 1999)
1 February 2000 - 1 March 2000	Formal EIS public exhibition period. A total of 4,216 submissions are received. (Scully, 2001)
25 March 2001	NSW Government announces that the PRL will be delivered progressively due to a blow out in cost estimates (WSROC, 2001). Funding is confirmed for \$1.6 billion in 2001/2002 State Budget for the Chatswood to Epping section by 2008 and improvements to the Parramatta Rail Interchange. Options are to be investigated for funding for the Parramatta to Epping Section with a revised completion date of 2010 (DOP, 2002a) <p>The DOP include a provision in the approval conditions to prevent the project from proceeding in the event that work has not commenced before 2007 (DOP, 2002a).</p>
23 August 2001	Minister for Transport and Roads, Carl Scully MP media release announces nine modifications made to the PRL following the exhibition of the EIS, including (Scully, 2001): <ul style="list-style-type: none"> • Tunnel under the Lane Cove River, instead of the proposed bridge, • Minor relocations of the UTS and Delhi Road stations and revised tunnel alignment, • Realignment of the rail corridor through Parramatta to reduce impacts on Parramatta Park, Lancer Barracks and the Arthur Phillip High School and local buses.

Figure 18 Timeline of Events (1995-2001)³⁸

³⁸ Of the *Action for Transport 2010* rail projects listed, only the Airport Rail Link has been fully constructed (see Appendix E.1 for a map of projects). A variation of the Epping to Castle Hill Line, the Sydney Metro Northwest project and is under construction (see Section 5.6)

21 February 2002	Director-General for Planning, Sue Holliday, approves the PRL project with recommended conditions (DOP, 2002a)
Mid-2002	The UTS Station is cancelled (UTS, 2016a). The exact date is unknown.
November 2002	Construction commences on the ECRL with the Thiess-Hochtief Joint Venture (CityRail, 2009; Thiess, 2016).
3 June 2003	The new Minister for Transport Services, Hon. Michael Costa requests a review be undertaken of the Epping to Parramatta section of the PRL (PRL Project Director, 2003).
21 August 2003	The PRL West Options Project Director's Report is released. Michael Costa announces the postponing of the PERL indefinitely due to low projected patronage and value for money and his 10-year plan to redesign the CityRail System (Kerr, 2003; Western Sydney Regional Organisation of Councils [WSROC], 2003).
1 January 2004	TIDC is established as a state owned incorporation to deliver a portfolio of major transport-infrastructure projects as directed by the transport Minister on behalf of the state Government (Auditor-General, 2005; PRL Company, 2009). The operations of the PRL Company are handed to TIDC and the company is deregistered 7 November 2004 (Auditor-General, 2005).
October 2008	Reports in the media announce that the ECRL has failed noise testing and that additional noise attenuation will be required at an additional cost to the project. Construction costs have since increased from \$1.4 billion to \$2.3 billion and the project is 2 years behind schedule ("Now it's too Loud", 2008)
23 February 2009	The ECRL is open to the public, initially as a shuttle service. Free travel between Epping and Chatswood is announced until 8 June 2009 for customers accessing the stations along the route (CityRail, 2009)
Late 2009	The shuttle ECRL service becomes integrated into the Northern Line. (CityRail, 2009)
21 February 2011	Federal Government (Prime Minister Julia Gillard MP) and State Government (NSW Premier Kristina Keneally MP) entered into an Intergovernmental Agreement committing funds to a new 14 kilometre rail line from Parramatta to Epping, including (Commonwealth of Australia [COA] & State of NSW [NSW], 2011): <ul style="list-style-type: none"> • New terminus at Parramatta Transport interchange, • New twin rail tunnel from the Parramatta CBD to the Carlingford Line at Camelia, • Rosehill-Camellia station, • Carlingford line duplication between Carlingford and Camellia, with station upgrades at Telopea, Rydalmere, Dundas, • New station underground at Carlingford and • Twin rail tunnels connecting Epping station to Carlingford. It was announced by the premier that the link would cut travel time between Chatswood and Parramatta by about 25mins and improve services and capacity on the Western line (Keneally, 2011). She also noted that it was the 'missing link' for Western Sydney and the target completion date was 2017.
March 2011	The proposal for a new PERL is cancelled as the NSW Premier, Kristina Keneally, is defeated in the March 2011 NSW state election, after the state opposition refused to support the idea of a new link in January 2011 (Robins, 2011).
29 May 2013	Federal Transport and Infrastructure Minister, Anthony Albanese announces that the new Liberal State Government rejected funding for the PERL, resulting in its deferment until at least 2019-20. (Aston, 2013)

Figure 19 Timeline of Events (2002-2013)³⁹

³⁹ TIDC later became the Transport Construction Authority (TCA). Its functions have since been replaced by the current TfNSW.

Our Sydney transport challenges

The major transport challenges facing Sydney are:

- Keeping the city's most important transport corridors moving
- Providing travel options that support and enhance the strength and success of the CBD
- Improving connections across an expanded Sydney CBD
- Building a fully integrated city-wide transport system
- Sustaining growth in Greater Sydney—discussed in more detail in Chapter Five
- Providing better connections and services to Sydney's growth areas
- Adopting a customer focus and adapting to the changing needs of customers.

This chapter recognises the challenges posed by the unique geographical features of Sydney, with a CBD that is confined by water on two sides and which needs to provide efficient access to jobs and services for communities in Greater Sydney and inter-city areas.

Taking action

The Long Term Transport Master Plan proposes a coordinated and integrated approach to meeting these challenges. Highlights include:

- **Sydney's Rail Future** – a once in a generation modernisation of our metropolitan rail network, including investment in network capacity, new links to the city's South West and North West, more frequent services and faster journey times, and a second tunnel under Sydney Harbour as part of a new CBD rail link.

- **A redesign of the city's bus network** to create a connected system that gives customers a wider choice of services to reach more destinations more often, including the new Bus Head Start program to provide bus services for the North West and South West Growth Centres as those areas develop, and a redesigned bus network in Sydney's urban area that covers more areas and improves service reliability on inner Sydney's congested corridors, such as Parramatta Road, Oxford Street and Victoria Road
- **Build light rail in the CBD and South East, and the Inner West Light Rail extension**
- **Improvements to Wynyard precinct** to streamline bus operations and enhance customer interchange facilities in the northern CBD
- **Integrating roads, public transport and freight** to better meet customer needs across transport modes
- A long term plan to **complete critical links in Sydney's motorway network, with the 33 kilometre WestConnex being the immediate priority**
- A program of work to **expand capacity on Sydney's most congested corridors**, including road, rail and bus improvements
- **Improved pedestrian infrastructure**, including better wayfinding at interchanges and priority at signalised intersections
- **Major upgrades to our busiest CBD interchanges**
- A **Barangaroo Ferry Plan** that will improve ferry services to the CBD
- **An integrated electronic ticketing system** and other measures to integrate and align Sydney's transport networks (described in Chapter Three)
- A better **cycling network** around Sydney's urban centres and the CBD and a cycling investment program.

Source: TfNSW (2012a, p. 73)

Figure 20 'Getting Sydney Moving Again'.

Focussing on rail transport, the TfNSW (2012b), *Sydney's Rail Future – Modernising Sydney's Trains* plan includes five stages of improvement⁴⁰. Figure 21 shows the future three-tier railway system planned for Sydney, where Carlingford still remains disconnected from Epping on the heavy rail network.

In September 2016, the federal Department of Infrastructure and Regional Development (DIRD) and TfNSW released the *Western Sydney Rail Needs Study – Discussion paper* with the purpose of improving understanding of the service requirements for the proposed Western Sydney Airport (WSA) and western Sydney.

⁴⁰ 1. Operational efficiencies; 2. Network efficiencies; 3. New Rapid transit system, 4. Second Harbour Crossing and 5. Southern sector conversion (TfNSW, 2012b).

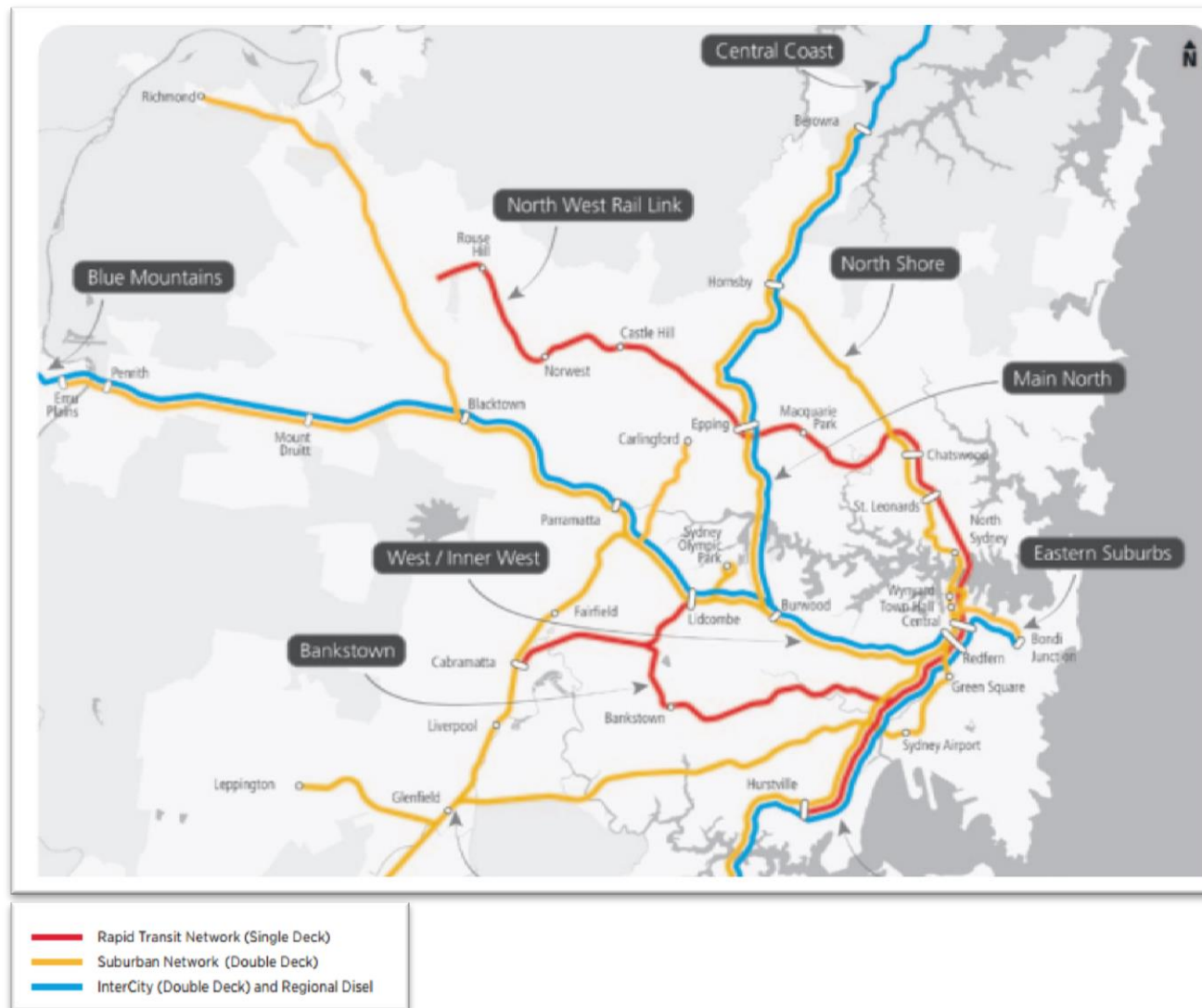
The study, which is focused on options for passenger rail requirements, is open for community comment until late October 2016. Of the five options presented to service western Sydney, all were via the Sydney CBD route only⁴¹.

To address the need for connecting the western suburbs to northern suburbs, two key transport projects are various stages of construction and planning:

The *Parramatta Light Rail (PLR)* was announced by the NSW Government in 2014 (TfNSW, 2016a). The preferred option for the PLR route involves converting the Camellia to Carlingford section of the Carlingford Line to light rail and an improved frequency service (Figure 22) (TfNSW, 2016a). A key purpose of the line is to facilitate Parramatta as Sydney's second CBD and connect Western Sydney growth areas (TfNSW, 2016b). An EIS is yet to be prepared (TfNSW, 2016a).

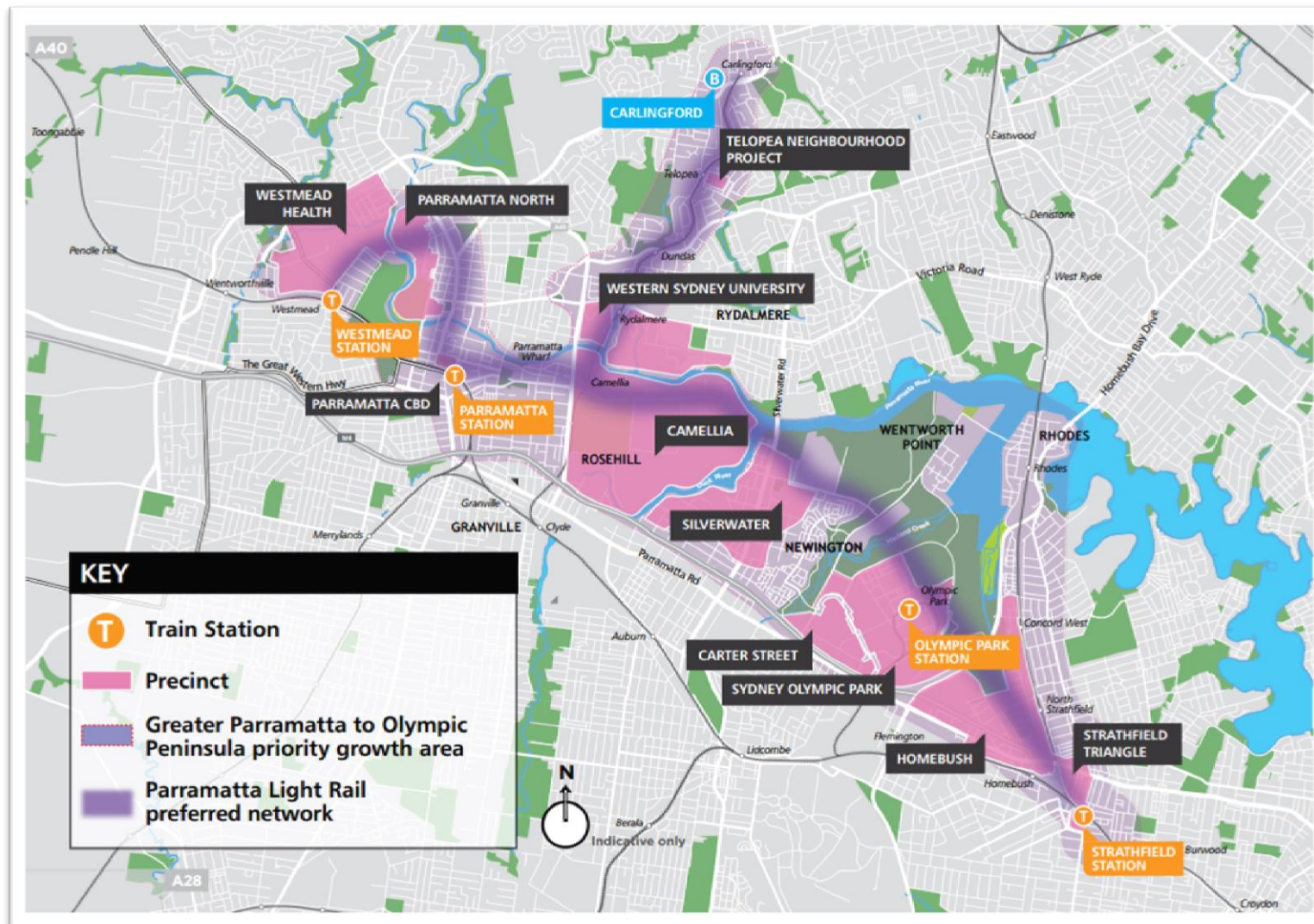
The *Sydney Metro Northwest* project forms part of the future Sydney Metro and will link Chatswood to a new station at Rouse Hill over a distance of 36 kilometres (TfNSW 2016c). It involves the construction of eight new railway stations, 23 kilometres of tunnel and viaduct and the upgrading of the ECRL to a rapid transit metro system (TfNSW 2016c). The new line will have a train every four minutes or 15 trains per hour meaning that there will be a train every three minutes on the North Shore line. The upgrade of the ECRL will require its closure for approximately seven months from late 2018. The *Epping to Chatswood Railway Conversion to Rapid Transit Review of Environmental Factors* (REF) report was prepared in 2014 to address the impacts of the closure (TfNSW 2016c).

⁴¹ See Appendix E, Figure E.4.



Source: TfNSW (2012b, p.11)

Figure 21 Sydney's Future Rail Network



Source: TfNSW (2016b)

Figure 22 Preferred Parramatta Light Rail Route

6 Key Project Stakeholder Insights

6.1 Introduction

To obtain a deeper understanding of how the events outlined in Chapter 5 unfolded, key individuals were invited to reflect on the project, its progression and policy and practice issues. In discussing those interviews, this Chapter identifies challenges that regulators, decision-makers, proponents and IA practitioners faced in matching the process and its outcomes to policy objectives.

The interviews relied on a guide⁴², which was structured under key themes and conceptual issues⁴³, the researcher's knowledge of the project and good practice standards in SIA⁴⁴. The semi-structured interviews encouraged open and wide-ranging reflection by participants, often well-beyond the themes highlighted in the interview guides. This Chapter presents the findings and themes that emerged from these interview discussions.

6.2 PRL Planning Approval and EIS

Most participants recognised the EIS process as part of the approval pathway, which had been effective as the proposal was approved. One participant had no recollection of the PRL EIS or the PRL as a project, referring to it as a "line on a map" in a government policy document, a long-term vision, which had not gone through the appropriate processes (GPOL_4), saying:

It would be wrong to say that there was an actual project.

as "an actual project" needed approval by a budgetary committee. They believed that the *Action for Transport 2010* plan was a vision document, not a proper business case.

PPCON_1, reflecting on their practitioner experience in the EIS process, recalled it as effective as it:

addressed all the issues [and involved] ... a massive team of people ... probably the most complicated EIS undertaken in Australia at the time.

Reflecting on the EIA team structure, PPCON_1 recalled:

a team of environmental specialists ... we also had some social impact community consultation people, who both did the analysis of the social impact and helped run the community information sessions.

PPCON_2 confirmed PRL had a standard EIS Process with DOP, as a regulator only initially and later becoming the approval body, taking a "lead role in the adequacy of the assessment".

42 See Chapter 3

43 See Chapter 2

44 See Chapters 4 and 5

There were political pressures on the process through unrealistic (“ridiculous” and “completely unachievable”) initial timeframes and Ministerial expectations given the design progress:

we didn't have a project definition ... Fundamentally it takes a long time to plan complicated infrastructure, it's not a quick tick off process (PPCON_1).

Despite these issues, PPCON_2 indicated the team made certain that the EIS process followed EIA good practice and did not assume a predefined outcome for the proposal, while noting, however, that “a proponent can have a set view on what they want to deliver”.

Reflecting on what was ineffective, PPCON_2 recalled the alternatives and options section was weak regarding the bridge through the LCNP, which may have contributed to the community opposition. They also felt that the DoT was “reluctant” to address issues with the options and would not allow further discussion, noting that “they [the client] had a pretty set view on the option”.

GREG_1 also felt that the EIA process was effective, until politics became involved, “which was the decision, for example, in response to some of the community outrage about the bridge”, which was a political decision, that the DoP would not have necessarily agreed with. They felt that the DoP were convinced the bridge was a viable option, however,

... the community were very active and effective in persuading the then government it needed to change that aspect of the development (GREG_1).

Participants’ reflections on the EIS process identified the challenges practitioners faced during the EIS process. Individuals’ ethical practices in resisting the assessment being defined by a pre-determined political outcome demonstrated good practice SIA/EIA. The extent of social scientists’ involvement in the EIS remained unclear, although this is an element of good practice SIA. The interviews also confirm that, in the early stages of the PRL, key agencies were influenced by the power of the government proponent and political pressure for a particular outcome.

6.3 Stakeholder Engagement and Decision-making

Participants commented on PRL’s stakeholder engagement process and its adequacy. Participants were also asked to comment on whether they felt community and key stakeholders assisted in achieving desirable project outcomes. Most felt the process was effective and extensive and the community understood the impacts and benefits:

The local community in that area were quite vocal and savvy and took a strong interest in the project ... the local community fairly quickly formed an action group... (PPCON_2)

The proposed bridge in LCNP engendered much community comment and ultimately influenced a significant project design change to a tunnel option (PPCON_2; PPCON_3; GPOL_1; GREG_1).

There was opposition from heritage advocates regarding impacts on Parramatta Regional Park, but this was “done at a more high-level situation” by the local Member, rather than by local community (PPCON_2). Both 3RDPARTY_1 and 3RDPARTY_2 felt they were adequately consulted during the EIS process and were involved in decisions made about the project.

Some participants felt the community engagement process had been influenced by a narrow focus on “local presence” issues in the LCNP and the development of the area around the UTS Ku-ring-gai station (GPROP_1; PPCON_2; GPROP_2). Interview participants indicated that this opposition may not have been warranted and their reaction may be labelled as of a ‘NIMBY’ group⁴⁵.

Reflecting on their underlying concerns for the longevity of the LCNP for future generations of the population of Sydney, it is arguable that the resident groups are acting selfishly. However, as noted previously, PPCON_2 commented, perhaps more significantly, this concern identified weakness in the EIS that could have been addressed prior to consulting the community with a stronger strategic justification from the government presented to the community.

GPROP_1 felt that the government did not ensure “the greater good”:

[They] probably considered the community too much [I wonder] are they [the community] the most informed to make the decision?”

Some felt a “small group applied pressure” (PPCON_1) and a “small number of very vocal folk who did just not want a bridge” (GPROP_1) influenced the outcome:

a small community group for their own personal private interest decided that they did not like the look of the bridge ... half of Sydney was disadvantaged because of a few wealthy opposers ... on balance, in terms of public interest, it was a disgrace (GREG_1).

However, PPCON_3 and GPOL_1 both noted that politicians listen and respond to loud voices as they have a responsibility to the community. GPOL_1 and GPOL_4 indicated that this would have influenced the Minister’s decision to approve the change from the bridge option.

In politics ... you’re only there with the approval of the public ... politicians are always mindful of public opinion, but there’s always other factors that need to be considered (GPOL_3).

Significant lobbying was undertaken obtaining the support of the Greens and cross-bench for the bridge, so it was unclear to some why community opposition was given so much weight (GPROP_1). PPCON_2 also noted this and added the National Parks and Wildlife Service (NPWS) supported the bridge and legislation (SEPP65) was passed to enable the bridge to be built in the LCNP (PPCON_3). PPCON_1 felt that there was a good response from the community and the process was honest and open, however, they were not sure that the community “added value” but it was “important they did it”. PPCON_1 also suggested that although the community concerns were listened to, they missed out on

⁴⁵ See Chapter 2

opportunities of potential benefit to them and resulted in a "diminished rail experience" and a longer travel time, due to the extra 800 metres in length (PPCON_3). PPCON_2 also noted that the tunnel option "may have been dismissed if it was properly assessed in the EIS", and been reviewed earlier.

GREG_1 felt consultation came too late in the process:

People are very cynical about EIS's ... they don't really believe they are independent [as] they haven't had enough refusals, to see it as an honest document, they see it was a proponent document [and therefore] they need to be consulted early (GREG_1).

When the bridge option was first shown to the community as part of the EIS:

There was a lot of worry from the community about visual impacts... so, once the momentum got going on ... they were able to mount an argument that was unable to be countered by the EIS or the evaluation that [DoP] did. So the route had to be changed (GREG_1).

This theme, which is fundamental to good practice, produced responses that were surprising, as the consultation process was so influential on the future trajectory of the decision-making process. For the PRL, participants concluded that the empowered local community significantly re-defined the project, which may not have been the best public good outcome. For GPOL_1, it was evident that the ultimate power and decision on how to respond to these changes resided with the relevant politicians, rather than the bureaucrats, specialists or the community. Such decisions are the burden of politicians throughout their political term and ultimately influence whether the policy objectives they advocate are met. Removing the 'politics' in engaging the community on projects is effectively impossible once the planning approval process has commenced and, as GPROP_1 noted, "thinking of proposals on 'balance'", needs to occur outside of politics.

Ultimately, the political nature of the EIS consultation process and desire to keep the community happy to 'save the project' (GPOL_1) influenced the design of the final project and resulted in the increased cost that rendered the Parramatta-Epping section unviable for purely strategic planning reasons alone⁴⁶.

6.4 Cancellation of the PERL and Modifications to the Original Application and EIS/SIA

The factors leading to the cancellation of the Parramatta-Epping section of the project, are complex, and interview discussions highlighted this, reflecting passionate and polarised views amongst all involved. Many participants felt that the Parramatta-Epping section should have been built. Some suggested that the proposal in its original design may not be the correct one to solve transport problems and is now unlikely to be cost-effective (PPCON_1; PCCON_4). GPOL_4 felt transport needs addressed by PERL have now been resolved by localised transport options, such as community transport and new Metrobus services.

⁴⁶ See Section 6.4

GPROP_1 thought that the proposed “Parramatta Light Rail would service the small amount of people” who were affected by the loss of the PERL⁴⁷. 3RDPARTY_1 noted that bus transitways had provided some accessibility to western areas, but with little benefit in terms of connectivity:

The shape of the city has changed over time... It's probably too late to put it in a new link anymore... other things have happened and we've still pursued this strongly radial approach to construction in Sydney of transport corridors (3RDPARTY_1).

The cancellation of PERL had consequences that left many disappointed:

[It is] sad it has not been built ... Car reliant in these [the areas that missed out] areas (PPCON_1)

(also commented by GPOL_1, GREG_1, and PPCON_3)

For some, the change from bridge to tunnel for the Lane Cove River crossing increased:

CAPEX [capital expenditure] and OPEX [operational expenditure] ... [and] contributed to whether the Parramatta-Epping section would go ahead (PPCON_1, also GPOL_3 and GREG_2).

PPCON_1 also noted that the cost was political decision and in the end, there is “no role in the planning system to influence these decisions in the outcome”. PPCON_2 reflected that the PRL:

... was a classic example when you can get the planning approval, but the money committed only allows for half the project.

More seriously, the political nature of the decision-making marginalised expert advice:

it went to cabinet as the Chatswood to Parramatta Rail Link project, and came out of the cabinet that day, as the Chatswood to Epping Rail Line. The primary reason was, there is no demand and we can't afford it ... putting aside the strategic policy and plan ... [meant there] was a political decision in the end... without getting expert advice (GREG_1)

But funding for the PRL was problematic from its initial discussion.

They [Treasury] took a very early preliminary estimate of \$1.4 billion, to build the whole lot [but] it was never ever going to build even half the product ... The big reason why the PRL got shelved ... was that the number was ambitious, was way too ambitious (GPOL_1).

For one participant, PRL was “doomed from the start” as RailCorp believed operationally the Parramatta-Epping section did not work and patronage would be limited:

PRL was an elected government view ... but from an operational RailCorp perspective, it did not stack up ... a large amount of money for limited numbers of people ... The fundamental purpose of public transport is public transport. So you have to work out, what public is this serving? (GPROP_1).

GPROP_2 recalled the initial capacity studies were based only on the Chatswood-Epping alignment and the Epping-Parramatta section was added later. Therefore, the renamed PERL required political support to obtain funding for it to proceed. GREG_1 recalled that the “transport planners didn’t think the Parramatta-Epping section was needed” and conversely the DoP believed it was needed to grow Parramatta as a second CBD. It was

⁴⁷ See Chapter 5

also difficult for DoP to straddle its dual role as both proponent of the strategic planning agenda for metropolitan Sydney and as an independent regulator.

PPCON_2 noted that patronage was potentially going to be low given the length of the line from Carlingford and changes to the alignment in Parramatta Regional Park following community consultation meant that the line could not service the Westmead Medical precinct.

The opposition to the impact on Parramatta Park played a significant role in the whole western half the project being put in the too hard basket (PPCON_2).

With assessments predicting low patronage and competing priorities for rail funding, and with no bureaucratic champion for the project, the Minister felt few people would want to travel from Parramatta via Epping to Chatswood (GPOL_4). The Minister also felt that money would be of greater benefit spent elsewhere, on the 'Rail Clearways Project'⁴⁸ to improve on-time running of existing rail operations (GPOL_3; GPOL_4). At this point, the decision became "operational" rather than "strategic planning" with no consideration of social or "city-shaping" benefits prioritised in *Shaping our Cities*⁴⁹ metropolitan strategy (GPROP_2).

The key stakeholders interviewed knew little of the post-cancellation situation as the decision was not made transparently. Modifications were made to the approved proposal to facilitate the redevelopment of Epping, Chatswood, and Parramatta Interchanges. However, even when those documents were being prepared, the practitioners' understanding was that the PRL would eventually proceed:

it wasn't classified as an abandonment it was a deferral ... although as time transpired, it appeared to be an abandonment (PPCON_1).

Several participants noted that no further IA was conducted as legally required in the planning approval or gateway process for the cancellation. This remains current, as projects can be cancelled by a relevant Minister with no assessment to consider the effects required. 3RDPARTY_1 recalls they were not consulted about the decision to cancel the Parramatta-Epping section; an announcement was just made.

Participants also commented on the adequacy of this process and whether it was just. PPCON_1 reflected that the decision reflected budgetary constraints for the project and "really, it was a political decision, not a technical decision". GPOL_1 noted that:

The amazing thing is that there is a process to get a decision in favour of something, but there's no process for cancelling something. So a Premier comes out and says, 'oh well, we've decided we're not doing that'. It's just like building something takes a long time, destroying something is done in a moment.

⁴⁸ An initiative to improve capacity and reliability on CityRail's network, comprising 15 key projects, which involved separating the metropolitan rail routes into five independent clearways. It was successful in improving on time running by reducing the impact of disruptions and increasing the capacity of the network (GPOL_4; Auditor-General, 2005).

⁴⁹ See Chapter 5

Both PPCON_4 and GREG_1 noted that during the ECRL construction, the tunnel boring machine “stopped 200 metres from the Carlingford line”. Despite its proximity and the significant cost associated with removing the machine to return at a later date, the contractors were told not to proceed as “it wasn’t part of the project” (GREG_1).

Based on these discussions, the decision to cancel the project was clearly politically based on budgets rather than strategic-planning. Reflecting on the diverse opinions as to why the project was cancelled, it is concluded that the inability of diverse stakeholders to develop a consensus solution and present a unified front on the purpose of the project influenced its fate. Practitioner efforts to develop effective management strategies were futile as government agencies could not agree and demonstrate value for money to NSW Treasury. This highlights the political nature of the ultimate budget decision, which reduced the effectiveness of advisory input from practitioners.

While a project can be cancelled with no repercussions, with little transparency or accountability, practitioners have little scope during SIA/EIA to influence the achievement of policy objectives. This was the case for PRL, as practitioners had no opportunity to revisit the EIS and the strategies, in the context of the modified ECRL project.

6.5 Cancellation of the UTS Ku-ring-gai Station

The exact reason for cancelling the UTS station was not clear in available documentation, so the views of key stakeholders are important in understanding this modification and its impacts. An early thought was that cancellation of the station was related to the change from the bridge to the tunnel option, meaning that the depth was not suitable to construct the station. However, full approval for the construction of the UTS station awaited a Ministerial decision regarding re-development of the campus⁵⁰ and post-EIS studies were undertaken to relocate the station (PRL Co., 2001). During the interviews other factors emerged, which may have led to the cancellation of the station.

All participants agreed that engineering design problems arose from cancelling the bridge across Lane Cove River. However, participants recalled different reasons as to why the station was cancelled.

GPROP_2 recalled it was the increased cost of the tunnel option, fire and life safety due to the increased depth and the operational power requirements that resulted in the loss of the UTS station.

GPOL_1 felt the UTS Station was cancelled because “it would be very expensive to build and challenging to design and construct”. At the time, it was noted that “the station would be deeper than the deepest London underground station” (3RDPARTY_2).

GPOL_1 also felt that there was little interest from UTS regarding the proposal and redevelopment of the Kur-ing-gai campus was not a University priority and, in the absence of protest about its cancellation, UTS was not concerned about a station.

⁵⁰ See Section 5.2.4

3RDPARTY_2 offered a different perspective, noting that the NSW Government requested a signed commitment from UTS “essentially in blood”, that they would redevelop the site. This was provided, but the Government did not go on to approve the site redevelopment and cancelled the station. Thus, the University decided to close the campus and transfer its departments to the city campus⁵¹. PPCON_3 recalled UTS was furious about the government’s decision to cancel the project and felt there were “big negative social impacts”.

Cancelling the UTS station had repercussions for UTS, but, again, there was no need for any formal IA of those consequences. As 3RDPARTY_2 noted, eventually, there was benefit to UTS, as it has grown with centralisation on the city campus, however, initially there were negative impacts on students and staff. More significantly, PPCON_1 noted that the station’s cancellation meant that one of the public policy drivers for the project, linking educational campuses, had failed.

This discussion further reinforces the importance of political power in decision-making for the PRL project. Consultants involved in preparing the SIA were not privy to political decisions made post-EIS and social implications were not considered. A lack of transparency in how decisions were made, even in consultation with the affected stakeholders, was evident. The potential opportunities and benefits reported in the EIS, towards meeting educational accessibility objectives proposed NSW Government plans, ultimately were lost.

6.6 Long-term Socio-Economic Impacts of the Project

Where participants felt there were negative consequences resulting from the cancellation of the Parramatta-Epping section and the UTS station, these were discussed here as the ‘negative’ impacts of the proposal. Several participants agreed that the western suburbs missing out on the connection to the Macquarie Park area was the most significant negative outcome of the project. However, during the discussions, no significant ‘negative’ long-term impacts of the ECRL operation were raised.

PPCON_3 did note that the location selection for the North Ryde station has had negative side-effects, as it was “isolated from the local population... and 15 minutes’ walk to the nearest offices”. GREG_1 added that the residents were over-looked, particularly as no commuter carpark was constructed. PPCON_3, PPCON_1, and PPCON_2 also recalled short-term environmental impacts on the LCNP⁵², noting “they made a mess of the National Park with the cut and cover [tunnelling technique]”.

Participants talked positively about the long-term benefits of the ECRL to the users along the line including Macquarie University, businesses at Macquarie Park and North Ryde and at Chatswood and Epping interchanges. PPCON_2 indicated they were “very proud” of the benefit the station has brought to Macquarie University and medical research area

⁵¹ See Chapter 7, Table 3

⁵² The long-term effect of this is discussed in Appendix A and Chapter 7, Table 3.

in Macquarie Park. Selecting the tunnel option meant there was “very little impact at the surface” (PPCON_3). Within four to five years, locations along the rail line had “blossomed” (GPROP_1). It was also noted that there was a benefit in providing a corridor for the new Sydney Metro Northwest⁵³ project, however, this was contradicted by the comment that this has now meant that the metro stations are further apart than the usual one kilometre or less for rapid transit (PPCON_1; PPCON_3).

3RDPARTY_3 and 3RDPARTY_4 discussed how the rail line has allowed Macquarie Park to grow and how it has helped with marketing of Macquarie University. New student numbers have remained stable, although there may have been an influx in the first year of operation (3RDPARTY_3). 3RDPARTY_5 noted it has put Macquarie University “on the map” and made it far easier to access. There have been some negative impacts, with the “awful services building” located at the station entrance on Herring Road, which is virtually “on the front door” at the main entrance to the university and the easement for the rail line limiting future development along its alignment (3RDPARTY_4). However, 3RDPARTY_3 and 3RDPARTY_4 agreed the positives outweigh the negative consequences.

3RDPARTY_4 did raise concern about current problems with the local traffic and impending closure of the line for the rapid transit upgrade⁵⁴ and, in particular, the lack of cohesive consultation between government transport agencies and with the university. 3RDPARTY_3 noted that the “agencies don’t work together” and this lack of collaboration has meant that it was difficult for them to communicate confidently with affected stakeholders.

Key reflections on the long-term impact issues highlighted operational management of major infrastructure assets is challenging for governments and poor collaboration can lead to unpredicted impacts on surrounding communities. They also demonstrate that, despite the cancellation of the PERL, the ECRL could achieve positive outcomes towards meeting some policy objectives. Conversely, the current problems with local traffic indicate that other objectives, such as ‘reducing car dependency’ have not been as effective (DoT 1998a, p.3).

6.7 Adequacy of Post-Development Management Strategies and Monitoring of Social Impacts

Participants noted the difficulties of post-development and monitoring of social impacts. GPOL_2 noted that local council/service agencies were expected to monitor and respond to changes in social issues (such as wellbeing, disadvantage) in the longer term, rather than the infrastructure proponent or project operator. Other processes are enacted once a development is operational, such as the local council complaint process if a project is too noisy.

⁵³ See Section 5.6

⁵⁴ See Section 5.6

GPOL_2 added the planning system is designed to prevent unacceptable social impacts proceeding and that local councils and MPs have an important role in following up on reported effects.

One concern for improving SIA practice is the inclusion of management measures that are little more than “motherhood statements” (GPOL_4) that would be impossible to develop any long-term monitoring strategy against. Unless management strategies are mandated as legally binding conditions of approval they are also likely to be ineffective (GREG_1). This did occur for some environmental impacts of PRL⁵⁵ including water quality and noise and vibration post-operation (GPROP_1).

Despite this, almost all participants concluded that the project had been successful in achieving government policy objectives, even if only partially. The goals of the *Action for Transport 2010* plan⁵⁶ were presented to participants during the interview. Given their non-locality specific aims, most agreed that the ECRL has had a positive effect on meeting the goals in the plan.

Three participants did not agree with this conclusion. GREG_1, 3RDPARTY_1, and PPCON_1 had concluded that the failure of the project to achieve the metropolitan policy planning outcomes, combined with the strategic need for the PRL⁵⁷, meant that it was mostly unsuccessful in meeting policy objectives. GREG_1 noted that by not proceeding with the PERL, the following significant failing occurred:

You are denying what is close to 50% of the population of Sydney access to the knowledge precinct. They make a big deal, huge deal about the knowledge precinct, this is the future of innovation of jobs... and 50% of the population can't access it without getting in their car ... It's a disgrace They are condemned to travel on the M5 every day and ... to blue collar work, because that's what there is in Western Sydney, and they're unable to get on a train and travel to where there is an intelligent sophisticated future of the world, knowledge industry. It's a disgrace.

GREG_1 did not believe that any of the objectives of *Action for Transport 2010* had been met and that the project failed at a metropolitan-scale as it does not provide access to the most disadvantaged groups as reported in the EIS. PPCON_1 reflected that the:

over-arching policy objective to improve public transport accessibility ... wasn't achieved as there was no PRL

and that the project only “partially met policy objectives”. GPOL_2 also commented that the cancellation of the PERL undermined the government objectives. 3RDPARTY_1 also felt that in its fundamental aim the project had failed and was unjust:

There was a bit of sense of betrayal in Western Sydney, not only because it failed to link Parramatta, but by failing to link to Parramatta, in a sense it became another example of investment in eastern Sydney.

⁵⁵ See Chapter 7. At the time of writing, no response was received from DPE regarding whether post-approval auditing of environmental impacts proposed by DoP in the PRL approval conditions has been undertaken.

⁵⁶ See Chapter 5

⁵⁷ See Chapter 5: to improve equitable accessibility to employment, health and education centres cross-regionally

and that the plan itself was an “action plan that wasn’t really implemented”. GPOL_4 also did not believe the project had been effective in meeting policy objectives, as the objectives were weak and as “they’re ripping it up now, aren’t they?” referring to the conversion to rapid transit.

Reflecting on these discussions it is evident that there were weaknesses in the SIA methodology and tools for management and monitoring of impacts in the long-term⁵⁸. Good practice has improved since the EIS was prepared, but these weaknesses remain in development SIA. The failure of PRL in meeting long-term metropolitan policy outcomes are linked to this weakness in practice to an extent, however, they were worsened by the poor accountability of politicians for decisions affecting development approval processes. It also highlights disconnection between government agencies, particularly as comments regarding the project’s failure relate primarily to the broader metropolitan-planning aims of the PRL rather than the operational need, which were the two opposing viewpoints regarding the project presented by interview participants.

6.8 Other Emerging Themes

During the interviews, several other key themes not raised in the existing literature emerged in relation to the PRL. This has shaped the evaluation framework presented in Chapter 8. Most important among these specific issues are:

1. Procurement and Treasury Approvals;
2. Environmental Impacts and Management;
3. Strategic Assessments and Scoping; and
4. ‘Placism’

6.8.1 Procurement & Treasury Approvals

Procurement and Treasury approval processes were both identified as significant by participants. Evaluation of procurement processes is outside of the scope of this research, however, these discussions highlighted their significance as a factor limiting contractors’ capacity for, and interest in, implementing innovative practices and philanthropic and social sustainability practices, beyond what is prescribed in the planning approval. When financial and time risks are placed on the contractor during a competitive tendering process, the contractor is less likely to have the time or budget to facilitate improved social outcomes (PCCON_4). GPOL_3 and 3RDPARTY_1 also highlighted the NSW Government’s preference for sharing financial risk as parties commented on the successful projects of the *Action for Transport 2010* plan, being those road and rail projects which were undertaken by ‘public-private partnership’ (PPP) arrangements, where the financial risk is shared. It was also thought that the Government would give more attention to details for the PPP arrangements, as they would be entering into a contract, rather than with public sector projects when they just tended to get ticked off (GPOL_3).

⁵⁸ See also Chapter 7, Table 2

GPOL_3 noted that their political colleagues thought that these types of arrangements had improved accountability within governments. However, GPOL_1 noted that it was not sharing the financial risk that resulted in PPP arrangements for roads projects, but the competition for funding within government budgets.

Treasury approval processes also provoke discussion. The current 'Gateway Review process', is an evolution of the process that existed at the time of the PRL (PCCON_5; Schur, 2010). The previous process included the development of a business case and strategic needs analysis, which resulted in the allocation of budgetary funding for the project (PCCON_5). This process occurred externally from the planning approval process, meaning that, regardless of whether a project had approval from the DoP, it would not proceed without allocated funding and support from the NSW Treasury (GPROP_1). As such, the final decision, to cancel the PERL was a political one, that resided with the NSW Treasurer and the relevant Minister(s). As GPROP_1 noted:

You have it so the politicians can cut ribbons, so the politicians can go 'I did this, it's fantastic and I'm going to do some more!' You have to have it [a project] a commercial success, because ultimately Treasury funds it and Treasury needs to be convinced it's commercially viable.

Adding to the complexity of this, GPROP_1, GPROP_2, PPCON_3 and GPOL_1 all commented that there were always insufficient funds and the Minister's decision required the reallocation of funds from other sources to allow the PERL to be built. This was a significant finding for this research as the long-term effectiveness of strategies at the metropolitan-scale were influenced by these funding problems.

The Gateway Review System process now includes an additional step to evaluate the project against the business case deliverables, during a 'post-implementation' evaluation, one to two years' post-facto (NSW Treasury, 2016). This process has been in place since 2010, however, several participants noted it is not known whether any projects have undergone this process (Schur, 2010).

6.8.2 Environmental Impacts and Management

Section 6.4 discussed the critical factors participants believed influenced the effectiveness of management strategies. A key catalyst in this process was the shift from the bridge to a tunnel under the LCNP. The potential environmental impacts of the proposed bridge over the Lane Cove River were assessed as justifiable as part of an EIA, however, the related social impacts (amenity and recreational) were considered unacceptable by the local community which had significant consequences for part of the project. This highlights the link between EIA and SIA processes as they both inform the decision regarding the development approval. PPCON_1 noted that the EIA team had "researched bridges in National Parks around the world" before coming to their conclusion on the bridge option, which the community found unacceptable.

As noted by PCCON_5/PCCON_4, a significant problem that arose during operational testing⁵⁹ was the ongoing management of noise and vibration, which also directly affected the local community. As the practice of SIA in development assessments sits within the regulatory planning framework, the evaluation of monitoring and management strategies of socially significant environmental impacts is an essential part of a post-facto evaluation of effectiveness.

6.8.3 Strategic Assessments and Scoping

Several participants discussed what conditions they considered necessary to ensure SIA management strategies are effective in meeting policy objectives. GREG_1 indicated that applying strategic planning assessment at early stages of decision-making proved to be more effective in achieving metropolitan-wide social policy outcomes. They noted that strategic transport planning needs to be conducted early so that the community has an opportunity to "get on board". GPROP_2 also noted that it is in the development of the business case, strategic SIA/EIA would have the most influence upon meeting policy objectives, as this is the point where the costs versus benefits of the project are justified, "show-stoppers" are identified and funding is secured. They noted that beyond this point it is difficult to influence the wider project outcomes and if the initial case for the project is not strong enough the justification will fail at later stages.

There is also a driver to be transparent, in the distribution of positive and negative effects, which are assessed at this strategic-stage (GPROP_2). GPOL_2 similarly indicated that consideration of the broader social issues and effects of transport proposals should be more strategic, rather than project-based because the linear effects that affect multiple communities and local governments cannot be resolved at the project-scale (GPROP_2). This is directly linked to how management strategies can be judged against policy objectives, as policy objectives are typically set at the metropolitan-scale, rather than the local project-objective-scale at which they are typically monitored using development approval conditions (GPROP_2).

By undertaking these assessments early on during the business case development, at the strategic level, it reduces the likelihood of the project development becoming politicised that currently occurs with transport-infrastructure projects (GPOL_4). Early assessment also assists in preventing politicians committing to projects ahead of public interest before they are evaluated properly (Grattan Institute, 2016).

PCCON_1 had noted the problems at the start of the PRL EIS project, having no "project definition", which took "many months to resolve", highlighting the difficulties with scoping the EIS early on. The business case phase and the strategic assessment are directly linked to SIA scoping as they determine the framing and justification for the project on a whole of society scale, rather than the localised impacts.

⁵⁹ See also "Now it's too Loud" (2008) and Chapter 5, Figure 19

6.8.4 'Placism'

'Placism' is a term defined by Jimerson (2006, p.211) as "the discrimination against people based on where they live", as distinct from racism, which is a discrimination based on race or ethnicity. Although its occurrence was not explicitly identified by interview participants, the researcher identified this as a theme in the interviews and subsequent discussions. The subtleties in how the proposal was referred to over the years, the 'Parramatta to Epping Rail Link' compared with the 'Epping to Parramatta Link' and the flavour of the community submissions highlighted undertones of placism experienced by those of the Western suburbs (GREG_1). GPROP_3 and GREG_1 informed the researcher of difficulties experienced amongst NSW Government stakeholders in communicating the need for the project to connect the disadvantaged 'others' located in the Western suburbs to the affluent Northern areas. GREG_1 noted, when discussing the viability of the PERL, transport planners had said, "Who from the lower north-shore would want to go to Parramatta?", "there is absolutely no demand from the north shore to go to Parramatta". GPROP_1 also noted they had heard many times over the years that residents of the north-shore did not want people from Parramatta coming to their suburbs. This debate, between the Western suburbs and the Northern and Eastern suburbs, forms part of a wider entrenched social discussion regarding Sydney and is beyond the scope of the research project.

6.9 Conclusions

This Chapter has identified key issues that constrain SIA practice in influencing the effectiveness of SIA reporting towards achieving public policy objectives and managing the long-term impacts (and benefits) of major urban transport projects. While many of these themes were consistent with issues identified in the literature, some were more project and context-specific but have wider implications. They provide the basis for thinking about the evaluation framework in Chapter 8. The discussion with participants also identified key findings and conclusions for the research regarding the practicalities of achieving the long-term effectiveness of SIA management strategies, which inform future recommendations to assist practitioners and decision-makers.

7 PRL Social Impacts: Predicted and Observed

7.1 Introduction

The scope of the PRL EIS, outlined in the Director General's statutory requirements (ERMK, 1999, Appendix A), was established to facilitate decision-making regarding the project as proposed in the *Action for Transport 2010* plan (DoT, 1998a). The EIS report presented predicted positive and negative consequences and proposed management strategies in accordance with these requirements.

The research aimed to understand the extent to which outcomes predicted in the EIS have or have not been played out 'on the ground' and the extent to which recommended management strategies were appropriate or sufficient. Three challenges to the evaluation emerged during the research:

1. The EIS falls short of good practice SIA benchmarks available at the time, making it difficult to replicate and review what was assessed in the report⁶⁰;
2. The PRL was not constructed in full, meaning that some predictions and strategies were rendered irrelevant; and
3. The decision to cancel the Parramatta-Epping section was not transparent and there was no opportunity to revisit impacts and strategies proposed⁶¹.

Acknowledging the limitations of these challenges, this chapter presents an evaluation of the published EIS against good SIA practice standards, reviews its predicted impacts and management strategies and considers how long-term outcomes have been achieved against the original policy objectives formulated in the *Action for Transport 2010 Plan*⁶² at the research-case-study locations⁶³.

⁶⁰ See Section 7.2

⁶¹ See Chapters 5 and 6

⁶² See Section 5.1

⁶³ See Section 3.3.2

7.2 PRL SIA

The statutory requirements for the PRL EIS stipulated investigation of potential social issues in both the construction and operation phases, including urban design, pedestrian safety, noise and vibration, traffic and air quality as well as a specific requirement to consider opportunities and constraints (Figure 23).

Opportunities and Constraints from Potential Landuse Intensification
and resultant impacts on residential amenity and character, social and community changes, changes to the surrounding community, property values, pressure for rezoning, potential loss of industrial sites, community linkages/networks/amenities, privacy, safety/security

Results of consultation *with relevant government agencies, service providers and community groups.*

Source: ERMK (1999, Appendix A, "Specific Operation Issues", para. 1 & 12)

Figure 23 Extract from the PRL Statutory requirements.

Advisory guidelines were attached and identified social issues to consider, referencing the NSW Government's *Techniques for Effective Social Impact Assessment: A Practical Guide* (Cox, 1995; DUAP, 1997).

No separate specialist SIA study was prepared as part of the EIA process. The evaluation of social impacts was included in Chapter 14 of the EIS⁶⁴. An assessment against SIA practice standards applicable at the time is discussed in Table 2.

The shortfalls in the SIA methodology were also compounded by the absence of clear project scope reported by interview participants⁶⁵. It is beyond the scope of this research to apply better methods, data and scoping to the original EIS task to identify and assess predictable impacts, rather the scope is to focus on framing good practice in a stronger post-development evaluation framework.

⁶⁴ Environmental impacts with indirect social effects were also discussed in the following chapters: Urban Design (Chapter 8); Transport (Chapter 12); Noise and Vibration (Chapter 17); Land Use (Chapter 13) and Visual (Chapter 18).

⁶⁵ See Chapter 6, comments from PCCON_1

Table 2 SIA practice standards applicable to the PRL

Good practice SIA ⁶⁶	Relevance to PRL
Includes SIA-orientated inclusive public and stakeholder consultation throughout all phases.	A participatory approach to SIA (and the EIS report), including extensive consultation with stakeholders and community, was adopted (Vanclay et al., 2015).
Follows a standard SIA methodology and Report Content	<p>Includes nine of ten steps stipulated in ICGP⁶⁷ (1995, pp. 25-32) guidelines.</p> <p>Issues their application in the EIS include:</p> <p>Baseline conditions and scoping. A methodological approach to the study is not reported. In presenting statistical baseline data, the 'area of influence' (referred to as the 'rail corridor') for the SIA is not clearly defined and the assessment inconsistently draws from a variety of government reports (Vanclay & Esteves, 2015). This potentially leads to misrepresentations and resulting in poor transparency in documenting the scale of impacts (Ziller, 2012).</p> <p>Monitoring program. It is not clear in the EIS whether the tenth step was proposed or had occurred for social impacts.</p>
Facilitates the development of a SIMP or similar management plan and Applies mechanisms for or includes monitoring and evaluation in the long-term.	<p>The management strategies in the EIS (Section 15.8) are broad and difficult to apply in practice and monitor in a SIMP. The requirement to monitor social strategies post-approval is not included.</p> <p>The EIS (Chapter 27) notes the need for ongoing environmental monitoring, Operational Environmental Management Plan (OEMP) and a community and stakeholder engagement plan during operation.</p> <p>The Minister's CoA include ongoing consultation with local councils, management plans and monitoring relating to environmental impacts and Environmental Impact Audit Report(s) to assess details on actual versus predicted impacts for all key issues raised in the EIS (DOP, 2002a; DOP, 2004).</p>

⁶⁶ Based on the elements identified in Chapter 4

⁶⁷ Public involvement, identification of alternatives, baseline conditions, scoping, projection of estimated efforts, predicting responses to impacts, indirect and cumulative impacts, changes in alternatives, mitigation, monitoring.

7.3 Predicted Key Impacts and Opportunities Presented in the EIS

7.3.1 Metropolitan-scale Operational impacts

At the time of the EIS preparation, Sydney's population was expected to reach 4.3 million people between 2011 and 2016. In 1998-1999 there were 270.5 million passenger trips on the CityRail network⁶⁸ (ERMK, 1999). Congestion was identified as a limiting factor challenging economic and employment growth in the GSMA (DoT, 1998a). Public transport use had increased in the 15 years preceding the EIS, however, only 20% of worker journeys to work utilised public transport. The need for the PRL in the EIS identified that the forecast employment growth in outer suburbs would exceed the capacity of the available public transport and that inaccessibility and unavailability of public transport to employment destinations was one of the reasons people were choosing a private vehicle as their mode of transport.

The operational impacts of the PRL at the metropolitan-scale were primarily related to (ERMK, 1999, p. 14-6):

- Travel and accessibility;
- Urban planning and development; and
- Social equity.

Metropolitan impacts and opportunities as reported in the EIS are summarised in Figure 25.

During the final project determination stage, the Director-General prepared a report recommending to the Minister of Planning to approve the PRL (DOP, 2002b). Figure 24 shows how her report concluded regarding potential social and land use issues (DOP, 2002b, p. 91).

The proposal would improve accessibility for health, employment, education, leisure and other opportunities for local residents, the western suburbs of Sydney and the broader community during operations. The proposal has the potential to significantly reduce some travel times and reduce congestion on nearby roads. The Department considers that the land use and social issues are adequately addressed by the modifications to the EIS and generally represent a reduced impact.

Figure 24 Excerpt from the Director-General's report on the PRL

Despite the opposing viewpoints regarding the need for the PRL⁶⁹, at the conclusion of the development assessment process all parties, practitioner, proponent (DoT) and approval body (NSW DoP), appeared to be in agreement about the potential significant metropolitan accessibility and social equity benefits of the PRL.

⁶⁸ Now the Sydney Trains network

⁶⁹ See Section 6.7

Predicted Long-term Operational Impacts – Metropolitan Scale
Help achieve significant urban planning equity and accessibility goals for metropolitan Sydney as outlined in strategic planning documents
Reinforce the growth of employment in existing centres by encouraging more compact city development and efficient use of existing infrastructure.
Reinforce the role of Parramatta as second CBD for Sydney and Chatswood as major commercial and community centre. Facilitate modal shift from car to public transport for accessibility to growth areas
Encourage development and population growth on the rail corridor consistent with government policies of encouraging growth in inner and middle-ring areas of Sydney, which offer high amenity, accessibility to good transport and good levels of community services.
Growth in high technology/light industrial and research employment in Macquarie park area and opportunities for change and growth in Camellia and Rydalmere.
Significant equity benefits within the metropolitan area, especially improved access to health, employment, education, leisure and other opportunities in the north shore and Sydney CBD to those in generally disadvantaged suburbs (Western Sydney, South-Western Sydney, Blue Mountains and Central Coastal), who are forced to travel long distances and inconvenient journeys.
Greater catchment areas for tertiary institutions and improved student access to public transport, improved quality of educations through these linkages and associated research and business activities.
Increased frequency of rail services at the Carlingford Line stations from one per hour (off-peak) and one per half hour (peak periods).
Address potential rail service quality decline as it fails to keep up with population growth in Western Sydney.
Reduced vehicle kilometres travelled in metropolitan Sydney, improving air quality.
Improved accessibility by those on the rail line to education facilities Westmead, Rydalmere, Macquarie and Ku-ring-gai and employment areas of Parramatta, Macquarie Park, Delhi Road and Chatswood.
Improved access to medical facilities (Royal North Shore and Westmead Hospital) and medical research facilities.
Benefits to future residents of the suburbs along the line who can share in high levels of amenity, access and increased housing choice.

Source: ERMK, (1999, pp.14-6-14-11)

Figure 25 Summary of predicted Metropolitan-scale operational impacts

7.3.2 Predicted Local-scale Operational Impacts

Operational impacts of the PRL at the local-scale were primarily related to changes in (ERMK, 1999, p. 14-11-14-12):

- Urban planning and development;
- Improved access particularly for the impaired;
- Severance;
- Changes in commercial activity;
- Community health;
- Community safety; and
- Changes relating to recreation and open space.

Local impacts and opportunities as described in the EIS are summarised in Figure 26.

Predicted Long-term Operational Impacts – Local Scale
<p>Increased accessibility encouraging growth and reinforcing changes occurring at locations along the corridor:</p> <ul style="list-style-type: none"> • Benefits in terms of travel and accessibility for those located near the rail corridor and improved station facilities for the less mobile. • Alternative and improved access route to suburbs, centres and facilities along the Rail Link (Parramatta, Epping, Macquarie, Chatswood, University of Western Sydney (UWS), Macquarie University and UTS) • Elevated community concern regarding safety at rail stations. • Increased population numbers due to increased accessibility
<p>No loss of community cohesion or severance, as the proposal incorporates tunnelling and existing rail alignments:</p> <ul style="list-style-type: none"> • Few displacements due to the small number of private properties to be acquired.
<p>Positive benefits to the communities along the Carlingford line from improved pedestrian and rail accessibility.</p>
<p>Land use and urban character changes due to increased development in existing commercial centres (Parramatta, Macquarie Park, Chatswood):</p> <ul style="list-style-type: none"> • Opportunities for intensification of commercial and other land uses
<p>Increased redevelopment at the UWS Rydalmere campus, UTS Lindfield and Macquarie University, supported by improved rail accessibility</p>
<p>Improved transport access to Dundas, Telopea and West Lindfield, however, less significant growth, influenced by future economic conditions and local council planning decisions.</p>
<p>Neutral to positive effect on property values in the vicinity of new and upgraded railway stations.</p>
<p>Reinforcement of trends towards higher residential densities and more diverse housing types. Anticipated to be highly varied depending on the area:</p> <ul style="list-style-type: none"> • Existing trends and changes in urban character within the corridor may be supported by some residents and undesirable to others.
<p>Gradual change in local business types in existing commercial tenants around stations and commercial property values and rents may increase.</p>

Source: ERMK (1999, pp.14-11-14-12)

Figure 26 Summary of predicted Local-scale operational impacts

7.3.3 Key Case-Study Locations

Rather than attempt to assess local-impacts at all locations affected by the PRL and to fit with the timeframes of this research project, five key case-study locations were identified that allow the most important impact and opportunity issues to be further analysed.

A summary of impacts and opportunities in the long-term operation of the PRL at these key locations as documented in the EIS are shown in Figure 27.

Predicted Long-term Operational Impacts – Key case study locations
Macquarie University Station
General character to remain the same as recently developed, stronger local identity with Macquarie Shopping Centre gaining greater focus as a commercial and recreational venue.
Improved accessibility by public transport
Increased attractiveness for education, employment and research activity
Potential intensification of development contingent on changes to current planning controls
Epping Station
Projected increased housing and employment forecasts
Expansion of the station encouraging redevelopment and commercial upgrades and reinforcement of its role as sub-regional transport hub.
High-density mixed use commercial could occur and potential for redevelopment of medium density housing to higher density.
Carlingford Station
Promotion of Carlingford as a significant regional centre and transport interchange
Development as a lively focal point, with redevelopment and intensification of land use.
Increased rail patronage and significant improvement in public transport options for local residents.
Lane Cove National Park – Bridge crossing
Potential for people's perception to change of the LCNP as a quiet relaxing area due to the bridge.
No reduction in visitors anticipated as the area near the bridge is already disturbed by proximity of roads, carpark and picnic areas and has a high level of accessibility and popularity.
Improved accessibility to the LCNP by creation of the UTS Lindfield station.
Former UTS Ku-ring-gai site, Lindfield
Limited change in local character, potential for low scale development and scope for future redevelopment of the campus to include student accommodation.
Improved accessibility and reduced car dependency for students, staff and residents.
Limited potential for future development restricted to the University and adjacent Film Australia site due to steep topography and little vacant land.

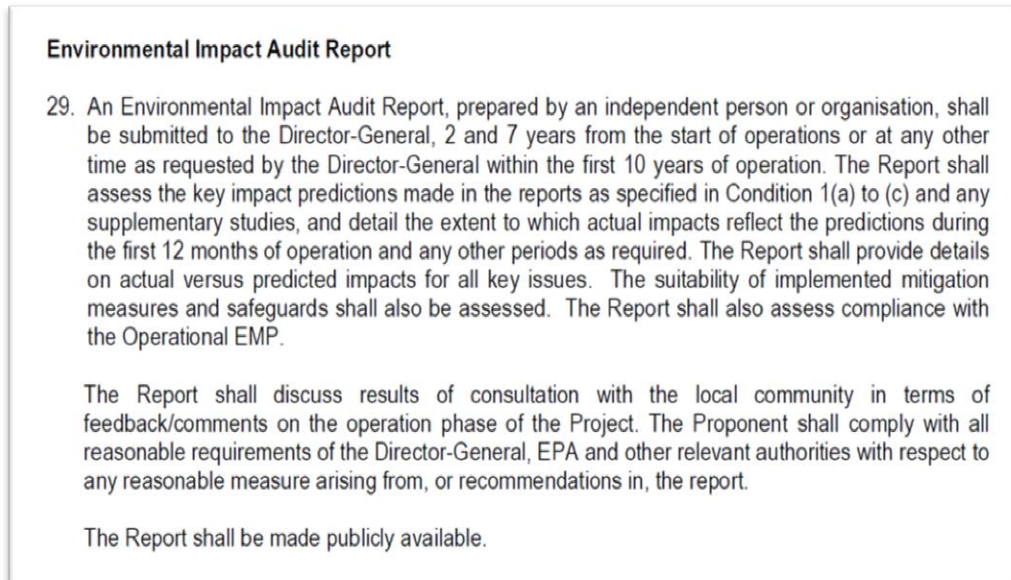
Source: ERMK (1999, pp.14-11-14-18)

Figure 27 Summary of predicted Local-scale operational impacts at key case-study locations

7.4 SIA Management Strategies proposed in the PRL EIS

The EIS presented few social impact management strategies for the PRL during operation and lacked detail and guidance in facilitating monitoring as required (see Section 7.2). The *Representations Report* prepared post-exhibition of the PRL EIS included further information regarding modified impacts as a result of design changes, however, concluded that no further SIA management strategies were needed (PRL Co., 2001).

The Minister's CoA included monitoring of environmental impacts that resulted in potential social effects, such as traffic and noise and vibration, however, this was only required for 12 months following the operation of the PRL omitting any longer-term monitoring (DOP, 2002a; DOP, 2004). CoA 29 required that *Environmental Impact Audit Report(s)* are prepared and made publicly available (Figure 28).



Source: DOP (2002a)

Figure 28 PRL CoA 29

No records were retrievable from the DPE information centre⁷⁰ or website during the research. It is unknown whether DPE has held TfNSW accountable for this condition.

No mitigation measures were proposed at the metropolitan-scale for the operation of the PRL due to the purported significant accessibility improvements and benefits predicted. Requirements to monitor whether they had been achieved over time were also absent. Apart from CoA 29, there was no motivation to drive accountability in the long-term and monitor the progress of these matters on the wider population. Interview participants in the research noted it was at this metropolitan-scale that strategies had failed due to the PERL's cancellation⁷¹.

Figure 29 shows the mitigation measures included for managing operational impacts at a local-scale (ERMK, 1999, p. 14-20). Many of the participants interviewed in the research believed the local-scale management strategies were implemented, either during the detailed design development or decision-making post-approval (PPCON_2).

⁷⁰ Formerly DoP. A response from information centre was received noting the request has been forwarded to a departmental planner on 5/9/16 and confirmed again 15/9/16. No response has been received to date.

⁷¹ See Chapter 6

Proposed measures to mitigate potentially adverse impacts include:

- An integrated approach to other metropolitan and local planning matters that are closely connected with the successful operation of the Rail Link, including other major infrastructure projects, feeder bus services, and local traffic planning;
- Adoption of design principles intended to promote safety and reduce crime in and around stations
- Incorporation of noise and vibration mitigation measures (see Chapter 17 'Noise and vibration');
- Involvement of the National Parks and Wildlife Service in discussions on project activities associated with the Lane Cove National Park; and
- Reasonably prompt decision-making relating to the Rail Link, which will increase certainty and confidence relating to the property and property markets.

Figure 29 EIS social Local-scale operational impact mitigation measures

7.5 Present Day Key Observations and Impacts

7.5.1 Local-scale Observations and Impacts

The PRL, as assessed in the EIS, was modified as a result of submissions received from the community during the approval process and subsequent engineering studies and post-approval political decisions⁷².

The subsequent evolution of EIS outcomes and observations made resulted in significantly different outcomes. Table 3 presents a summary of impacts and opportunities proposed in the EIS that relate to the policy objectives of *Action for Transport 2010* that have and have not occurred at the five key case-study locations selected for this research. A detailed description of the present environment, statistical and photographic data for each location is presented in Appendix A.

⁷² See Chapters 5 and 6.

Table 3 Observations and post-operation impacts at key case-study locations on the PRL Corridor

Source: Australian Bureau of Statistics (ABS, 2006, 2011, 2013abcd); Bureau of Transport Statistics (BTS, 2014a)

Location	Observations/Post-Operation Impacts
Macquarie University Station Located in the suburb of Macquarie Park, which has benefited from two new railway stations on the ECRL	Land-use development: visible increased residential density, manufacturing, technology and retail businesses, increased no. of units/apartment dwellings (2006-2011, ↑12%) Macquarie University Station (Herring Road) Priority Precinct development area identified (DPE, 2016b) Increased population (2006-2011, ↑10%) Increased business growth (2009-2011, ↑8%) Increased rail modal share for Journey to Work (JTW) and worker trips initially post-opening. Private vehicle remains the dominant JTW mode for workers travelling into and from the area (75%, 49%)
Epping Station Existing station and transport interchange on northbound lines, upgraded as the underground termination point for the ECRL	Land-use Development: visible increased residential density & commercial businesses, increased no. of units/apartment dwellings (2006-2011, ↑15%) Epping Town Centre Priority Precinct development area identified (DPE, 2015) Increased population (2006-2011, ↑7%) Increase in business growth (2009-2010 ↑9%), slowed since 2011 Increased rail modal share for Journey to Work (JTW) and worker trips initially post-opening. Private vehicle remains the dominant JTW mode for workers travelling into and from the area (75%, 62%)
Carlingford Station Located on the cancelled PERL section. Termination point of the existing Carlingford railway line	Land-use Development: visible increased residential density, increased no. of unit's/apartment dwellings (2006-2011, ↑32%) and empty and run-down shops visible. Increased population (2006-2011, ↑1%) Increased business growth (2009-2010, ↑8%), stagnant since 2011 Decreasing rail modal share for JTW and worker trips. Private vehicle remains the dominant JTW mode for workers travelling into and from the area (87%, 75%) M54 bus service operates every 10-15mins until midnight seven days between Parramatta and Epping ⁷³ . The journey takes approximately one hour, compared to a 25min journey with a service every 10mins proposed on the PRL
Lane Cove National Park – Bridge Crossing Removed by the decision to proceed with a tunnel under the Lane Cove River	The modified ECRL with a tunnel through LCNP instead of a bridge has avoided any potential negative public amenity impacts as predicted in the EIS One negative long-term impact noted by NPWS on vehicle safety due to a poor restoration of the LCNP resulting in damage to the vehicle entry station (NSW NPWS, 2016)
Former UTS Ku-ring-gai site, Lindfield Cancelled by NSW Government post-EIS approval	The former UTS site was sold to Defence Housing Australia with the campus buildings retained by the NSW Government The site has been redeveloped into Defence Housing and the former Film Australia Lindfield studios sold for redevelopment as residential flats A bus service operates two to three times per hour on weekdays peak times to the former campus bus stop and one to two services off-peak between 6:40am and 8:40pm and provides the same connection to Chatswood and Macquarie University and other rail lines, as the PERL had proposed

⁷³ Bus patronage data is not collected by Sydney Buses at present.

The data in Table 3 suggest there have been detrimental effects at some locations, however, this has not precluded development and population growth. There remains a need for public transport to service the former PRL corridor. Along the ECRL corridor it was evident that positive impacts had occurred and potential opportunities are expanding.

7.5.2 Metropolitan-scale Observations and Changes

Evaluation of the effectiveness of management strategies at the metropolitan-scale is not possible since no strategies were proposed in the EIS. An attempt to evaluate the overall effectiveness of the SIA is also problematic, as disentangling the cumulative consequences of both the cancellation of the PERL and development other projects and services in the past 15 years is not possible given the weaknesses in the original study and the availability of suitable data. An evaluation of an overall accessibility/wellbeing index and statistical modelling, such as proposed by Preston and Rajé (2007) and Geurs and Wee (2004), would be required to quantify the presence or absence of these benefits. Developing these indices would also be difficult due to data unavailability and considered beyond the scope of this research⁷⁴.

What we do know about Greater Sydney more broadly is that its population has grown, already reaching the predicted 4.39 million at the 2011 Census, estimated to be 4.9 million at 30 June 2015 (ABS, 2011, 2016). The population is expected to reach 6.2 million by 2031 (Infrastructure Australia, 2016). Public transport annual rail passenger trips have increased on the Sydney Trains network from 272 million in 2001 to 316 million in 2014. However, the public transport modal split for JTW for Greater Metropolitan Sydney remains the same as the 1999 split, at only 20%, hinting that some of the problems with public transport usage in the 1990s remain (BTS, 2014c).

The *Action for Transport 2010 Plan* (DoT, 1998a) objective to address the needs of growing suburbs in the Western regions is still the key focus of Government reports, including *A Plan for Growing Sydney* (NSW Government, 2014). However, the PERL has disappeared from current transport masterplans in favour of light rail and rapid transit metro⁷⁵ for connecting Western Sydney⁷⁶.

A designated 'Global Economic Corridor', extends from Sydney Airport and Port Botany, through the CBD, Parramatta, Macquarie Park and Norwest and Sydney Olympic Park (NSW Government, 2014, p.6). The area is considered a high concentration knowledge-job⁷⁷ employment area and currently generates over 41% of the NSW Gross State Product.

⁷⁴ See Chapter 3, this type of analysis may be undertaken during doctoral research

⁷⁵ See Section 5.6

⁷⁶ Reports as recent as 2010 suggest that a revised form of the PRL is needed to connect services from the South-West with Parramatta as the 'missing link' priority to managing the growing transport demands of Western Sydney (see Independent Public Inquiry, Long-term Public Transport Plan for Sydney, 2010).

⁷⁷ Such as communications, high-tech manufacturing

The NSW government has committed to expanding this corridor by promoting more efficient land use, through updating of planning controls to devise commercial core zonings and prioritising infrastructure to meet population growth demands (NSW Government, 2014).

7.6 Conclusions

Evaluating the effectiveness of SIA management strategies based on predicted versus actual outcomes arising from the PRL is not straightforward. IA practitioners had limited opportunity to reassess impacts predicted, which influenced the potential effectiveness of management strategies in the long-term and rendered some predictions irrelevant.

This research has highlighted that although the ECRL resulted in a modal shift towards public transport initially, current JTW trips and rail line patronage do not necessarily reflect a continued growth. Two policy objectives of the *Action for Transport 2010* plan involved reducing car dependency and getting more people onto public transport, however, there still remains a preference in the GSMA for travel by private vehicle.

This chapter has highlighted that the inadequacies of SIA's in defining management strategies are linked to their effectiveness in the longer-term. Difficulties with the poorly replicable SIA methodology, combined with the incomplete project and political decision-making forces⁷⁸ also present challenges for post-facto evaluation and highlight the need for a whole of project life-cycle evaluation framework as proposed in this thesis.

⁷⁸ See Chapters 5 and 6

8 Evaluation Framework and Conclusions

8.1 Introduction

This thesis has identified key factors supporting good SIA practice. Focusing on evaluation of the PRL, it has integrated research literature, key stakeholder experience and field observation to frame the task of evaluating SIA effectiveness. Political power, governance, place and scale emerged as important in evaluations of good practice SIA. This chapter presents a framework to evaluate procedural effectiveness of SIA that would allow assessment of how well a project met its intended objectives and whether value for money was delivered. These factors all influence preparation an effective SIA.

In researching the PRL project, and its EIS, this thesis identified factors outside the EIS process that influenced how effective management practices in assessment, construction and operations could be in the long-term. The PRL case study found weaknesses in the SIA's execution, but, more significantly, demonstrated that outcomes were directly influenced by the interplay between regulatory frameworks, budgetary processes and political-decision-making outside the EIA process.

8.2 Effectiveness Criteria for The Evaluation of SIA Practice

Chapter 4 identified criteria for evaluating effective SIA. Integration of effectiveness criteria discussed in the literature⁷⁹ with current discussions of good SIA practice provided, suggests the following elements for judging the effectiveness of current project assessments:

- Assessment against explicit good practice criteria including:
 - Disclosure of practitioner qualifications, ethics and behaviours;
 - Specification of participatory and inclusive community and stakeholder engagement;
 - Explicit recommendations regarding management and monitoring of impacts and evaluation management strategies;
 - Comprehensive assessment reporting, including identification of planned and predicted impact outcomes in the longer term; and
 - The equity implications of predicted outcomes.
- Independent discussion of the strategic context, policy and plans in which a project is proposed including:
 - Project objectives and management strategies;
 - Strategic policy objectives and broader social policy and plans;
 - Wider societal benefits (such as improved equity, quality of life); and
 - Changes in policy / development / lessons learnt.
- Evaluation of project decision-making process and the political drivers of decisions, including investigation of:
 - Compliance of public consent processes with principles of free, prior and informed consent;
 - Transparency and accountability of decision-making process; and
 - Consistency of planning and environmental approvals with procedural requirements and standards.

⁷⁹ See Baker & McLelland (2003); Chanchitpricha & Bond (2013); Hanna & Noble (2015); Sadler (1996)

Fragmentation of assessment, approval and management processes means that different stages of project development may be treated inconsistently. The practitioner preparing the SIA may be different to the practitioner preparing the SIMP, which may influence how management strategies recommended in the SIA are implemented in the SIMP and how the effectiveness of management strategies may be judged. While a SIMP (or other type of Environmental Management Plan (EMP) incorporating social values) may be prepared, delivering and monitoring such plans and other environmental values may be undertaken by another party, such as an agency representative or local council. Such discontinuity between assessment, development and post-development monitoring and response requires consideration of the capacity and resources available to relevant agencies for long-term evaluation and response.

Sadler (1996) proposed a transactive review of management strategies, which is excluded from the evaluation framework proposed here. This was because Sadler was concerned with the execution and efficiency of the entire EA/SIA process, rather than the effectiveness of the management strategies against policy objectives. However, as demonstrated by the PRL case, a transactive review of the project decision-making process, including its applicable local regulatory and budgetary approval contexts, would indicate whether policy objectives will be met in the longer-term.

8.3 Case Study Outcomes PRL – Evaluation Criteria

Iterative application of an initial desktop framework against the findings of the PRL case study research, identified additional factors beyond the established understandings and factors influencing the effectiveness of management strategies.

Chapter 2 highlighted power and governance, place and scale, community engagement and the planning approval/decision-making process as key factors in conceptualising SIA effectiveness. Key stakeholder evidence in PRL case study⁸⁰ further confirmed this and demonstrated how these concepts are so influential that they may pre-determine the outcome for longer-term effectiveness of strategies and whether a project will achieve the policy aims it was intended to meet.

Politicisation of decision-making processes and SIA preparation was a significant theme across discussions with all interview participants. The SIA and regulatory processes are known to be highly political and the evaluation of this politicisation process is therefore significant for any post-facto evaluation framework. Changing practice is driven by exemplars of good practice as established by IAIA, and the work of Vanclay and others, in providing guidelines informed by recent research. These exemplars increase professionalism in SIA practice. The PRL case study highlights how poor practice, such as during early EIA scoping, can contribute to ineffective SIA.

⁸⁰ See Chapter 6

The case study also supports an improved understanding of the wider processes which limit the effectiveness of good practice: Good practice may be implemented, appropriate technical studies commissioned, correct bureaucratic and regulatory processes followed, however, the final decision on project progression resides with relevant Ministers.

The PRL project demonstrates transport infrastructure decision-making occurs at the metropolitan-scale, yet IA is focused on local place impacts with management and monitoring strategies also reflected at this scale. Similarly, policy objectives may be set in transport masterplans by politicians at a metropolitan-scale, are enacted by government agencies through projects and the planning approval process at more local-scales. However, state politicians and politically-framed budget processes ultimately determine whether and how projects proceed. Decisions happen, regardless of whether SIA practitioners prepare 'effective' SIA reports and management strategies during the approval process and project decisions may be made in political contexts without further expert assessment of evidence, accountability or evaluation against policy objectives by the politicians. Although a decision may not be supported by the public or technical specialists, it may nevertheless be made without the consideration of long-term effects. Similarly, agencies may recommend changes without undertaking appropriate assessments. For SIA practitioners, this is a significant challenge for robust post-facto evaluation of project-based SIA against policy objectives and must be explored in specific applications of the framework.

The PRL case study highlighted difficulties in achieving accountability: three to four year political terms which can be changed at any time a Premier decides, such as when there is a partisan political shift at election time or even a cabinet shuffle⁸¹. PPCON_1 made an important reflection relevant to the evaluation framework, that "projects of this scale, should not be subject to short-term government decisions" and "projects should be caught up in 10–20-year budget programs by an independent body". GPROP_1 echoed these comments, suggesting a 5, 10 and 15-year plan is required to depoliticise projects. This malalignment of the strategic planning process and democratic process, driven by the political cycle, is a significant factor influencing whether social management strategies can be judged against policy objectives (GPROP_1). PCCON_4 also suggested that "bi-partisan support" along with effective community consultation, collaborative contracting with governments and strong leadership are essential to the success of large transport-infrastructure projects, which echoes Flyvbjerg's (2014) findings regarding mega-projects. These considerations are highly relevant for the evaluation framework in determining pre-conditions for achieving policy objectives.

Since preparation of the SIA in the PRL case study, IA has been applied in earlier concept planning phases of project development, such as participative and collaborative front-end SIA of policies and SEA of infrastructure.

⁸¹ See Section 5.2.5

IA of policies and during strategic project planning are not a new concept (see Friesema & Culhane, 1976; Sadler 1996), yet in Australia they are still poorly applied for transport infrastructure (GPROP_2) and early business case and strategic project planning frequently fails to seek or adequately consider community inputs (GREG_1).

Incorporation of consultation and strategic assessments early in the strategic planning phases are therefore included in the first evaluation criterion.

The PRL case study also emphasises the importance of considering design alternatives and design modifications in the IA process in developing effective management strategies in the longer term. Throughout the IA process there are opportunities for project redesign with key points at which decisive interventions reconfigure significant aspects of the proposal. In the case of PRL, the change from a bridge to a tunnel option following community consultation and modifications arising as a result of the separation of the Parramatta-Epping and Epping-Chatswood element. Therefore, a general understanding of the design development and modifications and the influence of stakeholder and community consultation in this process are important to the evaluation framework.

8.4 Evaluation Framework

The evaluation framework proposed here to assess the effectiveness of social impact management strategies against policy objectives is shown in Table 4. The evaluation framework includes the following 11 assessment criteria:

1. Transport Plans and Concept and Policy Objectives;
2. Regulatory - Environmental Planning Approvals;
3. Financial Approvals;
4. Design Development & Modifications;
5. Social Impact Assessment / EIS;
6. Social Impact Management Plan;
7. Social Impact Monitoring;
8. Environmental Impact Management and Monitoring;
9. Stakeholder & Community Engagement;
10. Political decision-making process; and
11. Transparency & Accountability.

The evaluation framework presents each of these assessment criteria, the types of evidence that would be gathered to assess a project against the criteria and broad assessment guidance for evaluation. Applying this framework about ten years' after the project proposal EIS/SIA process, and repetition over several time periods (for example, 10, 15, 20 years), would allow comparison of both changing outcomes and the changing policy frameworks that emerge to influence post-development decisions, management and interventions. However, timing of the application of the framework will also be linked to the specific policy objectives and the progression of project milestones. For example, if a policy objective has a target of 2030 and a project finishes in 2015, broader policy objectives may not yet have been met. The next phase of research (PhD) will expand on this initial framework and seek to apply the evaluation framework to the PRL case study (and other examples) to reach a conclusion on management strategy effectiveness (see Section 8.5).

Table 4 Evaluation framework for judging the effectiveness of SIA management strategies against long-term policy objectives

Assessment Criterion	Assessment Guidance	Types of Evidence
1. Transport Plans and Concept and Policy objectives – Strategic Review	<ul style="list-style-type: none"> Includes consideration of and alignment with social policy and outcomes and social implications within the development of transport and strategic planning policy Informed by social scientists and social planners and other relevant technical advisors Incorporates feedback from the community and local and state governments with government plans Alignment between government agencies – across policy objectives and project need and aims 	<ul style="list-style-type: none"> Strategic need documented in government policy and plans Green papers / White papers / Discussion papers Documented Transport/Social policy objectives SEA Business case
2. Regulatory - Environmental Planning Approvals	<ul style="list-style-type: none"> Includes consideration of options and alternatives to the project based on the grounds of social, environmental, engineering and economic considerations equally weighted Involves effective participatory community and stakeholder engagement Includes identification of SIA requirements Conditions of approval reference long-term management and monitoring requirements of social impacts Informed by feedback from the community and local and state governments 	<ul style="list-style-type: none"> Business case and options development Development approval conditions and modifications Development Assessment Terms of reference for the IA
3. Financial Approvals	<ul style="list-style-type: none"> Followed the application procurement process for financing and funding pre-approved for all stages An approved business case Achieved project milestones Delivered on time and on budget Demonstrated value for money to financiers and to the public 	<ul style="list-style-type: none"> Staged financial approvals NSW Gateway approval (Financial approval process commenced in 2010 NSW Treasury, (2016)) Annual Financial Reports Media reports/articles Approved business case
4. Design Development & Modifications	<ul style="list-style-type: none"> Documents which reflect extent to which design modifications have changed the assessed project Design changes requiring planning approval modifications Design changes which have occurred as a result of community consultation The existence of additional SIA/EIA and specialist studies as a result of design changes 	<ul style="list-style-type: none"> Design Drawings Specialist Engineering Technical Reports Representations / Submissions / Consultation feedback reports following EIS process Additional Environmental Assessment & Planning Approvals

Assessment Criterion	Assessment Guidance	Types of Evidence
5. Social Impact Assessment / EIS	<ul style="list-style-type: none"> Adheres to good practice guidelines and the IAIA's principles⁸²; Key items to include: <ul style="list-style-type: none"> Documents a clear methodology Applies relevant literature Incorporates community consultation, supplemented by relevant demographic data Follows local guidelines as required by statutory processes Has been prepared by appropriately qualified IA practitioners 	<ul style="list-style-type: none"> SIA An EIS containing a SIA SEA Triple bottom-line assessment Health Impact Assessment Cultural Impact Assessment Cost-benefit analysis
6. Social Impact Management Plan	<ul style="list-style-type: none"> Reflects the issues identified during the SIA process Informed by social scientists and social planners and good practice guidelines Prepared in a consultative manner with relevant affected stakeholders Has political and senior-level government agency commitment Establishes benchmarks in the current socio-economic situation and the likely change socio-economic changes Incorporates key socio-economic indicators for monitoring the need for a monitoring program 	<ul style="list-style-type: none"> Publicly available operation-phase SIMP Strategic Plans OEMP Local council social policy reflecting desired social outcomes from the project
7. Social Impact Monitoring	<ul style="list-style-type: none"> Included in the SIMP, which is informed by good practice guidelines and tools Incorporates monitoring based on key socio-economic indicators that are relevant to the project and at the appropriate scale for comparison e.g: <ul style="list-style-type: none"> Accessibility Patronage Population characteristics; disadvantage index and wellbeing indices Development approvals in station areas / development precincts Incorporates impact triggers for modifying management strategies Applicable in the long-term (10, 15, 20+ years) 	<ul style="list-style-type: none"> Government reports on key social impacts Established project monitoring framework based on policy objectives (such as by a government agency) The application of monitoring tools detailed in Chapter 4
8. Environmental Impact Management and Monitoring – the interaction between the biophysical & human environment	<ul style="list-style-type: none"> Environmental impacts having social significance are identified Management strategies reflecting the preservation of items of cultural significance to the community Wider Operational Environmental Management Plans referencing social issues or referring to related SIMP, with integrated strategies Ongoing monitoring of project environmental impacts (such as noise and vibration) in areas of social significance based on the EIS Agency monitoring and auditing of significant project environmental impacts in the long-term 	<ul style="list-style-type: none"> Ministerial / Agency audit reports State of the Environment reporting OEMP Other sustainability monitoring tools⁸³

⁸² See Chapter 4 and Appendix F

⁸³ See Chapter 4

Assessment Criterion	Assessment Guidance	Types of Evidence
9. Stakeholder & Community Engagement	<ul style="list-style-type: none"> ▪ Project was informed by feedback from the community and local and state governments ▪ Follows ethical social science practice, IAIA principles⁸⁴ in the tools, techniques and methods of engagement ▪ Involves engagement before, during and after the EIS process 	<ul style="list-style-type: none"> ▪ Community surveys and feedback ▪ Representation / Submissions / Consultation feedback reports ▪ SIMP / Stakeholder and Community Engagement Plans
10. Political decision-making process	<ul style="list-style-type: none"> ▪ Demonstrated a ministerial commitment in legislation, government plans and clear bureaucratic and political champions ▪ Committed procurement strategy and contracts that reflect broader policy and social aims of the project ▪ Informed by social scientists, expert practitioners and research ▪ Transparent process, which incorporates mechanisms for accountability (linked to Assessment Criterion 11). 	<ul style="list-style-type: none"> ▪ Ministerial press releases ▪ Request for Tender (RFT) Documents ▪ Interim IA and re-evaluation / consideration of impacts ▪ Submissions report / Consultation feedback report responses ▪ Interviews with key parties involved ▪ Treasury budget reports and plans
11. Transparency & Accountability	<ul style="list-style-type: none"> ▪ The project decision-making process is easily understood and logical and information regarding decisions is publicly available ▪ Incorporates accountability amongst government officials, politicians and sub-contractor practices in longer-term project commitment 	<ul style="list-style-type: none"> ▪ Media Releases ▪ Government announcements ▪ Publicly available technical reports ▪ Interviews with key parties involved

⁸⁴ See Chapter 4 and Appendix F

8.5 Future Directions

This framework presents a way of framing factors influencing long-term achievement of policy objectives and practitioners' preparation of management strategies in EIAs and SIAs against policy goals. These findings form part of this pilot MRes study. The intention is to further explore these factors in doctoral research. The next phase of the research will involve development of the assessment criteria and guidance to facilitate applying the framework in practice. A potential scoring or rating scheme, including a weighting of criteria, could also be developed following further examination of the framework against other case studies to develop a more robust framework for practical application. As the framework is intended for expert practitioner and government use, feedback will also be sought from SIA practitioners and other relevant stakeholders who may apply the framework in the future. Further research is also warranted to determine the appropriate timing, scoping tools and methods to incorporate strategic social outcomes into project decision-making and mitigation to ensure optimal effectiveness.

8.6 Conclusions

This thesis presents a framework as a tool for evaluating transport-infrastructure projects and SIA reporting, which leads to improved societal understanding of the relationship between project, outcomes and meeting policy objectives. As Flyvbjerg (2014) identified for mega-projects generally, the PRL case study has demonstrated that the SIA and EIA processes are important in building trust in major project decisions. However, this research has demonstrated that the practitioner cannot be held accountable for the political decision-making process, as major decisions may have no recourse regarding the implications. The PRL case exemplifies how politics intervenes in mega-project development process in ways that make it difficult to hold public decision-making accountable for outcomes, resulting in the inequitable and unequal distribution of benefits and risks (Flyvbjerg, et al., 2003). This research suggests that external political forces, namely state government bureaucracy, its financial processes and political terms of office have the greater influence upon whether social and transport policy objectives can be met, when compared to the influence of strategic masterplans and statutory planning and development approval processes. SIA and EIA practitioners can assist in meeting policy objectives through sound EIA processes that apply good practice methods and build long-term accountability, which can be legally enforced beyond political terms through the development of effective management strategies and monitoring programs. This research also suggests application of good practice SIA earlier in the development process for transport-infrastructure projects would be beneficial, such as during business case development and project scoping. The agenda of strategic metropolitan social and transport policy objectives should be considered during business case development, while a project is still "a line on a map", to achieve the greatest potential for delivering equitable social outcomes.

References

- Ahmadvand, M., Karami, E., Zamani, G. H., & Vanclay, F. (2009). Evaluating the use of Social Impact Assessment in the context of agricultural development projects in Iran. *Environmental Impact Assessment Review*, 29(6), 399-407.
- AMP Capital Shopping Centres. (2016, January). Transforming Macquarie Centre. Retrieved from <http://www.ryde.nsw.gov.au/files/assets/haveyoursay/documents/environment-and-planning/macquarie-centre/macquarie-town-centre-development-newsletter-issue-1-jan-2016-v2-final.pdf>
- Arce-Gomez, A., Donovan, J. D., & Bedggood, R. E. (2015). Social impact assessments: Developing a consolidated conceptual framework. *Environmental Impact Assessment Review*, 50, 85-94.
- Aston, H. (2013, May 29). Missing link: PM axes \$2b Parramatta Plan. *The Sydney Morning Herald*. Retrieved from <http://www.smh.com.au/federal-politics/political-news/missing-link-pm-axes-2b-parramatta-plan-20130528-2n9nr.html>
- Auditor-General. (2005). *Auditor-General's Report to Parliament 2005 Volume Four - Transport Infrastructure Development Corporation*. 180-191. Retrieved from http://www.audit.nsw.gov.au/ArticleDocuments/147/43_Vol_4_2005_Transport_Infrastructure.pdf.aspx?Embed=Y.
- Australian Bureau of Statistics (ABS). (2011). 2011 Census QuickStats. Retrieved from <http://www.abs.gov.au/websitedbs/censushome.nsf/home/quickstats?opendocument&navpos=220>
- ABS. (2013a, 3 July 2014). National Regional Profile: Macquarie Park - Marsfield (Statistical Area Level 2), 2007-2011. Retrieved from <http://www.abs.gov.au/ausstats/abs@nrp.nsf/781eb7868cee03e9ca2571800082bece/16e1bc3f214df8b0ca257b740009bb69!OpenDocument>
- ABS. (2013b, 3 July 2014). National Regional Profile: Epping - North Epping (Statistical Area Level 2), 2007-2011. Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@nrp.nsf/Lookup/126011495Main%20Feature%202007-2011?OpenDocument&tabname=Summary&prodno=126011495&issue=2007-2011&num=&view=&>
- ABS. (2013c, 3 July 2014). National Regional Profile: Carlingford (Statistical Area Level 2), 2007-2011. Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@nrp.nsf/Lookup/125021476Main%20Feature%202007-2011?OpenDocument&tabname=Summary&prodno=125021476&issue=2007-2011&num=&view=&>
- ABS) (2016a). Counts of Australian Businesses, including Entries and Exits, Jun 2011 to Jun 2015 [datacube: Excel spreadsheet, cat. no 816650]. Retrieved from <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/8165.0Main+Features1Jun%202011%20to%20Jun%202015?OpenDocument>
- ABS. (2016b, 30 June 2016). National Regional Profile of Australia 2010 - 2014. Carlingford (SA2). Retrieved from <http://stat.abs.gov.au/itt/r.jsp?databyregion#/>
- Baines, J. T., Taylor, C. N., & Vanclay, F. (2013). Social impact assessment and ethical research principles: ethical professional practice in impact assessment Part II. *Impact Assessment and Project Appraisal*, 31(4), 254-260.
- Baker, D. C., & McLelland, J. N. (2003). Evaluating the effectiveness of British Columbia's environmental assessment process for first nations' participation in mining development. *Environmental Impact Assessment Review*, 23(5), 581-603.
- Ballantyne, A., & Bizinger, D. (2016). Assessing the long-term potential of Macquarie Park. *Jones Lang Lasalle (JLL)*, March 2016.

- Baxter, J., & Eyles, J. (1997). Evaluating Qualitative Research in Social Geography: Establishing 'Rigour' in Interview Analysis. *Transactions of the Institute of British Geographers*, 22(4), 505-525.
- Baxter, J. (2016). Case studies in Qualitative Research. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed) (pp.130-146), Canada: Oxford University Press.
- Becker, D. R., Harris, C. C., Nielsen, E. A., & McLaughlin, W. J. (2004). A comparison of a technical and a participatory application of social impact assessment. *Impact assessment and project appraisal*, 22(3), 177-189.
- Bond, A., & Morrison-Saunders, A. (2013). Challenges in determining the effectiveness of sustainability assessment. In R. Howitt & A. Morrison-Saunders (Eds.), *Sustainability assessment: pluralism, practice and progress (natural and built environment series)* (pp. 37 -50). London: Routledge.
- Bond, A., Morrison-Saunders, A., & Howitt, R. (2013). Framework for comparing and evaluating sustainability assessment practice. In R. Howitt & A. Morrison-Saunders (Eds.), *Sustainability assessment: pluralism, practice and progress (natural and built environment series)* (pp. 117-131). London: Routledge.
- Bradfield, J. J. C. (1924). *The City and Suburban Electric Railways and the Sydney Harbour Bridge*. (Doctor of Science in Engineering), University of Sydney. Retrieved from <http://hdl.handle.net/2123/11968>
- Burdge, R. J. (2002). Why is social impact assessment the orphan of the assessment process?. *Impact Assessment and Project Appraisal*, 20(1), 3-9.
- Burdge, R. J., & Vanclay, F. (1996). Social Impact Assessment: a contribution to the state-of-the-art series. *Impact Assessment*, 14(1), 59-86.
- Bureau of Transport Statistics (BTS). (2014a). *2011 Journey to Work Data Explorer* [Statistical and Visual Data]. 2011 Journey to Work Data. Retrieved from <http://www.bts.nsw.gov.au/Statistics/Journey-to-Work/default.aspx>
- BTS. (2014b). *Station Ins & Outs* [Statistical and Visual data]. Rail Station Barrier Counts. Retrieved from <http://visual.bts.nsw.gov.au/barrier/>
- BTS. (2014c). *Employment and Commuting to Centres* [Excel Spreadsheet]. 2011 Journey to Work Table 4, 5 and 12 derived from the 2011 Census of Population and Housing. Retrieved from <http://www.bts.nsw.gov.au/Statistics/Journey-to-Work/default.aspx?>
- BTS. (2016). Train Usage - Visualisation. Retrieved September 2, 2016, from <http://www.bts.nsw.gov.au/Graphs/Rail/Patronage>
- Cashmore, M., Bond, A., and Sadler, B., (2009). Introduction: The effectiveness of impact assessment instruments. *Impact Assessment & Project Appraisal*, 27, 91-93.
- Cashmore, M., Gwilliam, R., Morgan, R., Cobb, D., & Bond, A. (2004). The interminable issue of effectiveness: substantive purposes, outcomes and research challenges in the advancement of environmental impact assessment theory. *Impact Assessment and Project Appraisal*, 22(4), 295-310.
- Cashmore, M., Richardson, T., Hilding-Ryedvik, T., & Emmelin, L. (2010). Evaluating the effectiveness of impact assessment instruments: theorising the nature and implications of their political constitution. *Environmental Impact Assessment Review*, 30(6), 371-379.
- Centre for Social Impact (CSI) (2016). *The Case for Change*. Retrieved from <http://www.csi.edu.au/about-social/case-for-change/>
- Chanchitpricha, C., & Bond, A. (2013). Conceptualising the effectiveness of impact assessment processes. *Environmental Impact Assessment Review*, 43, 65-72.
- Chatman, D. G., Tulach, N. K., & Kim, K. (2012). Evaluating the Economic Impacts of Light Rail by Measuring Home Appreciation: A First Look at New Jersey's River Line. *Urban Studies*, 49(3), 467-487.

- City of Ryde. (2016). About Macquarie Park. Retrieved from <http://macquariepark.com.au/general-info/about/>
- CityRail. (2009, 25 February 2009). Epping to Chatswood Rail Link. Retrieved from <https://web.archive.org/web/20090225113106/http://www.cityrail.info/ecrl/index.jsp>
- Commonwealth of Australia (COA) & State of New South Wales (NSW). (2011). Intergovernmental Agreement in relation to the Proposed Parramatta to Epping Rail link. Retrieved from http://pandora.nla.gov.au/pan/57663/20120404-0808/www.nationbuildingprogram.gov.au/publications/administration/pdf/Parramatta_Epping_Rail_Link.pdf.
- Community Insights. (2016). SIA Hub for Social Impact Assessment Practitioners. Retrieved from <http://www.socialimpactassessment.com/index.asp>
- Connect Macquarie Park + North Ryde. (2016). Get Connected. Retrieved from <http://www.connectmacpark.com/connect/#contact>
- Cope, M. (2016). Organizing and Analyzing Qualitative data. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed) (pp.373-393), Canada: Oxford University Press.
- Cox, G., & New South Wales. Office on Social Policy. (1995). Techniques for Effective Social Impact Assessment: A Practical Guide: NSW Government Office on Social Policy, Social Policy Directorate.
- Craig, D. (1990). Social Impact Assessment: politically oriented approaches and applications. *Environmental Impact Assessment Review*, 10, 37-54.
- Daniels, R., & Mulley, C. (2013). Explaining walking distance to public transport: The dominance of public transport supply. *Journal of Transport and Land Use*, 6(2), 5-20.
- Dempster, Q. (2004). Media rules in the court of Carr:[Paper in: Webs of Power, Schultz, Julianne (ed.)]. *Griffith Review*(3), 35.
- Department of Infrastructure and Regional Development (DIRD) and Transport for NSW (TfNSW). (2016). *Western Sydney Rail Needs Study - The Discussion Paper*. Retrieved from <http://www.westernsydneyrail.transport.nsw.gov.au/the-discussion-paper>.
- Department of Planning (DOP) (NSW). (2002a). *Proposed Parramatta Rail Link - Volume 1 Director General's Report*. Retrieved from https://majorprojects.affinitylive.com/public/0981a95203711c89ec031c88981abe0b/pr1_prl.pdf.
- DOP (NSW). (2002b). *Parramatta Rail Link - Conditions of Approval*. Retrieved from https://majorprojects.affinitylive.com/public/2c185e3bdb30af4d786f15f601417f8b/con_prl.pdf
- DOP (NSW). (2004). *Parramatta Rail Link Conditions of Approval*. Retrieved from <https://majorprojects.affinitylive.com/public/cf7e21650ea2539d5d92657e45f0f58d/Er ic.%20Conditions.pdf>.
- Department of Planning and Environment (DPE) (NSW). (2015, 19 August 2015). Epping Town Centre. Retrieved from <http://www.planning.nsw.gov.au/Plans-for-Your-Area/Priority-Growth-Areas-and-Precincts/Epping-and-Macquarie-Park-Urban-Renewal-Area/Epping-Town-Centre>
- DPE (NSW). (2016a). *Standard Instrument Local Environmental Plan (LEP) - Land Use Zoning (LZN)* [Geographic Information System (GIS)].
- DPE (NSW). (2016b, 30 June 2016). Macquarie University Station (Herring Road). Retrieved from <http://www.planning.nsw.gov.au/Plans-for-Your-Area/Priority-Growth-Areas-and-Precincts/Epping-and-Macquarie-Park-Urban-Renewal-Area/Macquarie-University-Station>
- Department of Transport (DoT) (1998a). *Action for Transport 2010, an integrated transport plan for Sydney*. NSW Government Initiative. Retrieved from http://pandora.nla.gov.au/pan/38334/20040302-0000/www.transport.nsw.gov.au/pubs_legal/act2010syd.pdf

- DoT. (1998b). *Action for Transport 2010, an integrated transport plan for NSW*. NSW Government Initiative. Retrieved from http://pandora.nla.gov.au/pan/38334/20040302-0000/www.transport.nsw.gov.au/pubs_legal/act2010nsw.pdf.
- Department of Urban Affairs and Planning (DUAP) and Parramatta City Council. (1998). *Parramatta Strategic Plan*.
- DUAP. (1997). *Draft EIS Guidelines Railway and related facilities*.
- Dunn, K. (2016). Interviewing. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed) (pp.149-188), Canada: Oxford University Press.
- England, K. V. (1994). Getting personal: Reflexivity, positionality, and feminist research*. *The Professional Geographer*, 46(1), 80-89.
- Environment Protection Authority (EPA). (1998). *Action for Air*. Retrieved from <http://www.epa.nsw.gov.au/resources/air/actionforair/actionair.pdf>
- ERM Mitchell McCotter Pty. Ltd, Kinhill Pty. Ltd and Rail Access Corporation (ERMK) (1999). *Parramatta rail link: environmental impact statement*. Sydney: N.S.W. Dept. of Transport.
- Esteves, A. M., Franks, D. & Vanclay, F. (2012). Social impact assessment: the state of the art. *Impact Assessment and Project Appraisal*, 30(1), 34-42.
- Finsterbusch, K. (1995). In praise of SIA—a personal review of the field of social impact assessment: feasibility, justification, history, methods, issues. *Impact Assessment*, 13(3), 229-252.
- Fischer, T. B., & Gazzola, P. (2006). SEA effectiveness criteria—equally valid in all countries? The case of Italy. *Environmental Impact Assessment Review*, 26(4), 396-409.
- Flowerdew, R., & Martin, D. (2005). *Methods in human geography: a guide for students doing a research project*. (2nd Ed). England: Pearson Education.
- Flyvbjerg, B., Bruzelius, N., & Rothengatter, W. (2003). *Megaprojects and Risk - An Anatomy of Ambition* (First ed.). Cambridge, United Kingdom: Cambridge University Press.
- Flyvbjerg, B. (2014). What you should know about megaprojects and why: an overview. *Project Management Journal*, 45(2), 6-19.
- Franks, D. (2011). Management of the social impacts of mining. In: P. Darling, (Ed) *SME mining engineering handbook*. 3rd ed. (pp.1817-1825) Littleton, CO, USA: Society for Mining, Metallurgy, and Exploration.
- Franks, D., Fidler, C., Brereton, D., Vanclay, F., & Clark, P. (2009). *Leading practice strategies for addressing the social impacts of resource developments* (pp. 1-61). Centre for Social Responsibility in Mining, Sustainable Minerals Institute, The University of Queensland & Department of Employment, Economic Development and Innovation, Queensland Government.
- Franks, D. M., & Vanclay, F. (2013). Social Impact Management Plans: Innovation in corporate and public policy. *Environmental Impact Assessment Review*. 43, 40-48.
- Friesema, H. P., & Culhane, P. J. (1976). Social impacts, politics, and the environmental impact statement process. *Nat. Resources J.*, 16, 339.
- Ge, J. X., Macdonald, H., & Ghosh, S. (2012). *Assessing the Impact of Rail Investment on Housing Prices in North-West Sydney*. Paper presented at the 18th Annual Pacific-Rim Real Estate Society Conference, Adelaide, Australia. http://www.prres.net/papers/Ge_Assessing_the_Impact.pdf
- Geurs, K. T., & Van Wee, B. (2004). Accessibility evaluation of land-use and transport strategies: review and research directions. *Journal of Transport geography*, 12(2), 127-140.

- Geurs, K. T., Boon, W., & Van Wee, B. (2009). Social impacts of transport: literature review and the state of the practice of transport appraisal in the Netherlands and the United Kingdom. *Transport reviews*, 29(1), 69-90.
- Gooding, A. (2009). *How the west was lost – the causes and consequences of underinvestment in Western Sydney's infrastructure*. Retrieved from <http://soac.fbe.unsw.edu.au/2009/PDF/Gooding%20Alex.pdf>
- Greater Sydney Commission (GSC). (2016). What we do. Retrieved from <http://www.greatersydneycommission.nsw.gov.au/What-We-Do>
- Hanna, K., & Noble, B. F. (2015). Using a Delphi study to identify effectiveness criteria for environmental assessment. *Impact Assessment and Project Appraisal*, 33(2), 116-125.
- Harvey, B. (2011). Foreword. In: F. Vanclay and A.M. Esteves (Eds.) (2011). *New Directions in Social Impact Assessment New directions in social impact assessment: conceptual and methodological advances* (pp. xxvii-xxxiii). Cheltenham, UK: Edward Elgar Publishing.
- Howitt, R. (1989). Social impact assessment and resource development: issues from the Australian experience. *The Australian Geographer*, 20(2), 153-166.
- Howitt, R. (1993). Social impact assessment as 'applied peoples' geography'. *Australian Geographical Studies*, 31(2), 127-140.
- Howitt, R. (2001). *Rethinking Resource Management: justice, sustainability and indigenous peoples*. London: Routledge.
- Howitt, R. (2011). Theoretical Foundations. In: F. Vanclay and A.M. Esteves (Eds.) (2011). *New Directions in Social Impact Assessment New directions in social impact assessment: conceptual and methodological advances* (pp. 78-95). Cheltenham, UK: Edward Elgar Publishing.
- Howitt, R., & Jackson, S. (2000). Social Impact Assessment and Linear Projects. In L. R. Goldman (Ed.), *Social Impact Analysis: an Applied Anthropology manual* (pp. 257-294). Oxford: Berg.
- Howitt, R., & Stevens S. (2016). Cross-Cultural Research: Ethics, Methods and Relationships. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed) (pp.45-73), Canada: Oxford University Press.
- Independent Public Inquiry, & Long-Term Public Transport Plan for Sydney. (2010). *Independent Public Inquiry into a Long-Term Public Transport Plan for Sydney: Final Report, 26 May 2010*. Retrieved from http://www.catalyst.com.au/Public_files/F2_Public_Transport_Inquiry_Final_Report_26May2010_full_report.pdf
- Infrastructure Australia. (2015). *Population Estimates and Projections Australian Infrastructure Audit Background Paper*. Retrieved from <http://infrastructureaustralia.gov.au/policy-publications/publications/files/Background-paper-on-demographic-projections.pdf>.
- Infrastructure Sustainability Council of Australia (ISCA). (2014). IS Overview. Retrieved from <http://isca.org.au/is-rating-scheme/is-overview/is-rating-tool/item/68-is-rating-tool>
- ISCA. (2015). Westconnex M4 East. Retrieved from <http://www.isca.org.au/is-rating-scheme/ratings/rating-directory/item/581-westconnex-m4-widening>
- Interorganizational Committee on Guidelines and Principles for Social Impact Assessment (ICGP). (1995). Guidelines and principles for social impact assessment. *Impact Assessment*, 15(1), 11-43.
- International Association for Impact Assessment (IAIA). (2003) Social Impact Assessment International Principles. *Special Publication Series No. 2*. Fargo, USA. Retrieved from <http://www.iaia.org/uploads/pdf/IAIA-SIA-International-Principles.pdf>
- IAIA. (2016). Best Practice. *The International Best Practice Principles Series*. Retrieved from <http://www.iaia.org/best-practice.php>

- Jimerson, L. (2005). Placism in NCLB—How rural children are left behind. *Equity & Excellence in Education*, 38(3), 211-219.
- Jones, P., & Lucas, K. (2012). The social consequences of transport decision-making: clarifying concepts, synthesising knowledge and assessing implications. *Journal of transport geography*, 21, 4-16.
- Joseph, C., Gunton, T., & Rutherford, M. (2015). Good practices for environmental assessment. *Impact Assessment and Project Appraisal*, 33(4), 238-254.
- Kearns, R.A. (2016). Placing Observation in the Research Toolkit. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed) (pp.313-333), Canada: Oxford University Press.
- Kemp, (2011) Understanding the organizational context. In: F. Vanclay and A.M. Esteves (Eds.) (2011). *New Directions in Social Impact Assessment New directions in social impact assessment: conceptual and methodological advances* (pp. 20-37). Cheltenham, UK: Edward Elgar Publishing.
- Keneally, K. (2011). Green light for Parramatta to Epping Rail Link. Retrieved from <http://pandora.nla.gov.au/pan/125897/20110319-0040/www.nswalp.com/media/news/green-light-for-parramatta-to-epping-rail-link/index.html>
- Kerr, J. (2003, August 22). Big-ticket items go as Costa redrafts transport blueprint. *Sydney Morning Herald*. Retrieved from <http://www.smh.com.au/articles/2003/08/21/1061434990699.html>
- Ku-ring-gai Council. (2016). DA Tracking - DA0223/16. Retrieved from http://www.kmc.nsw.gov.au/Plans_regulations/Building_and_development/DA_Tracking
- Land and Property Information (LPI) (NSW). (2014). *NSW Imagery Data Web Service* [Web Map Service (WMS)].
- LPI (NSW). (2015). *NSW Base Map Web Service* [Web Map Service (WMS)].
- Lindfield Studios. (2016). A quick history of the site. Retrieved from <http://www.lindfieldstudios.com.au/about>
- Lockie, S. (2001). SIA in review: setting the agenda for impact assessment in the 21st century. *Impact Assessment and Project Appraisal*, 19(4), 277-287.
- Macquarie University. (2011). Macquarie University Travel Plan 2012-2017. Preliminary Draft.
- McCauley, K., & Howitt, R. (2014). Integrating social impact assessment into the planning regime of Parramatta City Council. *Local Government Law Journal*, 19, 79-86.
- McClymont, K., & O'Hare, P. "We're not NIMBYs!" Contrasting local protest groups with idealised conceptions of sustainable communities. *Local Environment*, 13(4), 321-335. doi:10.1080/13549830701803273
- Ministry of Transport. (1998). Action for Transport 2010 [Press release]. Retrieved from <http://pandora.nla.gov.au/pan/49629/20050503-0000/www.transport.nsw.gov.au/news/media/1998/transport-2010.html>
- National Parks and Wildlife Service (NSW NPWS). (2016). *Lane Cove National Park Plan of Management*. (2016/0150). Sydney: Office of Environment and Heritage Retrieved from <http://www.environment.nsw.gov.au/resources/planmanagement/final/lane-cove-national-park-final-pom-160150.pdf>.
- New South Wales (NSW) Government. (2014). A Plan for Growing Sydney. Retrieved from <http://www.planning.nsw.gov.au/~media/Files/DPE/Plans-and-policies/a-plan-for-growing-sydney-2014-12.ashx>.

- NSW Government. (2016, 18 April 2016). Contract Award Notice Detail View - DoEAMD-15-106. Retrieved from <https://tenders.nsw.gov.au/doi/?event=public.cn.view&CNUUID=7BF1E756-F470-DC5E-CE389E6DF3FF5EBC>
- NSW Treasury. (2016). Overview of the Gateway Review System. Retrieved from <https://www.procurepoint.nsw.gov.au/policy-and-reform/gateway-review-system/overview-gateway-review-system>
- Nogrady, B. (2013). *Do Environmental Assessments protect the environment?*, Retrieved 6 March 2013, <http://www.abc.net.au/environment/articles/2013/03/06/3703819.htm>
- Now it's too loud: Rail budget blows out again. (2008, October 23). *ABS News Online*. Retrieved from <http://www.abc.net.au/news/2008-10-23/now-its-too-loud-rail-budget-blows-out-again/550856>
- O'Faircheallaigh, C. (1991). Resource exploitation and indigenous people: towards a general analytical framework. In P. Jull & S. Roberts (Eds.), *The Challenge of Northern Regions* (pp. 228-271). Darwin: North Australia Research Unit.
- O'Faircheallaigh, C. (1999). Making social impact assessment count: a negotiation-based approach for indigenous peoples. *Society & Natural Resources*, 12(1), 63-80.
- O'Faircheallaigh, C. (2009). Effectiveness in social impact assessment: Aboriginal peoples and resource development in Australia. *Impact Assessment and Project Appraisal*, 27(2), 95-110.
- Office of Environment and Heritage (OEH). (2013). Carlingford Produce Store. Available from State Government Database No. 4807643 Retrieved 1 September 2016 <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4807643>
- Parliament NSW. (2016). Former Members. Available from Parliament NSW. Retrieved 08 September 2016 <https://www.parliament.nsw.gov.au/members/formermembers/pages/former-members-index.aspx>
- Parramatta City Council. (2013). *Parramatta City Council Social Impact Assessment Guidelines*. Retrieved from https://www.parracity.nsw.gov.au/data/assets/pdf_file/0007/129571/Social_Impact_Assessment_Guidelines.pdf.
- Parramatta Rail Link Company (PRL Co.) (2001). *Parramatta rail link: representations report [and] technical reports*. Parramatta Rail Link Company, Parramatta, NSW
- PRL Co. (2002). UTS Station. Retrieved from <https://web.archive.org/web/20031206064157/http://www.raillink.nsw.gov.au/default.htm>
- Parramatta Rail Link (PRL) Project Director. (2003). *PRL West Options Review - Project Director's Report*. Retrieved from <http://pandora.nla.gov.au/pan/38256/20031021-0000/www.transport.nsw.gov.au/prl/PRL-West-Report.pdf>.
- Parramatta Rail Link Company. (2009). In Trove. Retrieved September 8, 2016, from <http://nla.gov.au/nla.party-1309024>
- Queensland Government. (2013). *Social impact assessment guideline* Brisbane, Australia Retrieved from <http://www.statedevelopment.qld.gov.au/resources/guideline/social-impact-assessment-guideline.pdf>.
- Rail Corporation (RailCorp). (2010). *RailCorp Engineering Manual — Structures Maintenance Plan – Epping to Chatswood Rail Line Structures*. (TMC132). Retrieved from <http://www.asa.transport.nsw.gov.au/sites/default/files/asa/railcorp-legacy/disciplines/civil/tmc-132.pdf>.
- Roads and Maritime Services. (2013). *Environmental Impact Assessment (EIA) Practice Note: Socio-economic assessment* (EIA-N05). Version 1. North Sydney.

- Robins, B. (2011, January 22). Coalition to axe rail links to cut \$3.8b in Spending. *The Sydney Morning Herald*. Retrieved from <http://www.smh.com.au/nsw/coalition-to-axe-rail-links-to-cut-38b-in-spending-20110121-1a08m>
- Roche, M. (2016). Historical Research and Archival Sources. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed.) (pp. 225-245), Canada: Oxford University Press.
- Ross, H., & McGee, T. K. (2006). Conceptual frameworks for SIA revisited: a cumulative effects study on lead contamination and economic change. *Impact Assessment and Project Appraisal*, 24(2), 139-149.
- Sack, F. (2015). Stakeholders and Social Life Cycle Assessment: Is it Better to Ask for Forgiveness than it is to get Permission? In M. Joy, M. Darian, & W. Thomas (Eds.), *The Sustainability Practitioner's Guide to Social Analysis and Assessment* (pp. 8-17). Illinois: On Sustainability, a book imprint by Common Ground Publishing.
- Sadler, B. (1994). *International Study of the Effectiveness of Environmental Assessment: Proposed Framework*. Ottawa, Canada. Retrieved from http://www.ceaa.gc.ca/Content/2/B/7/2B7834CA-7D9A-410B-A4ED-FF78AB625BDB/iaia1_e.pdf
- Sadler B. (1996) *International study of the effectiveness of environmental assessment, Final report*. Ottawa: Canadian Environmental Assessment Agency; June 1996. Retrieved from <https://www.ceaa-acee.gc.ca/default.asp?lang=En&n=2B7834CA-1>
- Schur, M. (2010). *Gateway Review System*. NSW Treasury. (NSW TC 10/13). Retrieved from http://www.treasury.nsw.gov.au/data/assets/pdf_file/0011/18758/TC10-13_dnd.pdf.
- Scully, C. (2001). PLANNING APPROVAL SOUGHT FOR PARRAMATTA-CHATSWOOD RAIL LINK [Press release]. Retrieved from <http://pandora.nla.gov.au/pan/49629/20050503-0000/www.transport.nsw.gov.au/news/media/2001/23-08planapprovalsought.html>
- Social Impact Analysts Association (SIAA) (2016). *Resources Centre*. Retrieved from <http://socialvalueint.org/resources/>
- Stake, R.E. (1995). *The Art of Case Study Research*. USA: Sage Publications Incorporated.
- Stevens, S. (2001). Fieldwork as commitment, *Geographical Review*, 91(1-2), 66-73.
- Stokes, R. (2016). *Infrastructure Approval - WestConnex Stage 1 - M4 East - SSI 6307*. Retrieved from <https://majorprojects.affinitylive.com/public/6c82107749ddd5805d1eb63b50d0a8dc/Instrument%20of%20Approval.pdf>.
- Sydney Motorway Corporation (SMC). (2016). About Sydney Motorway Corporation. Retrieved from http://www.westconnex.com.au/about/about_sydney_motorway_corporation.html
- Taylor, C. N., Bryan, C. H., & Goodrich, C. G. (1995) *Social assessment: theory, process and techniques*. Centre for Resource Management. 2nd edn. Christchurch, NZ: Taylor Baines and Associates.
- Terrill, M., Emslie, O., & Coates, B. (2016). *Roads to riches: better transport investment* (Grattan Institute Report No. 2016-5). Retrieved from <http://grattan.edu.au/wp-content/uploads/2016/04/869-Roads-to-Riches.pdf>
- Thiess. (2016). Epping to Chatswood Rail Line. Retrieved from <https://www.thiess.com/projects/epping-to-chatswood-rail-line/detail>
- Transport Infrastructure Development Corporation (TIDC). (2008, June 2008). Epping to Chatswood Rail Line. Retrieved from <https://web.archive.org/web/20090227062711/http://www.tidc.nsw.gov.au/ViewSite.aspx?PageID=19>

- Transport for NSW (TfNSW). (2012a). *NSW Long Term Transport Master Plan*. Chippendale, NSW: State of New South Wales through the Director General of Transport for NSW. Retrieved from <http://www.transport.nsw.gov.au/sites/default/files/b2b/publications/nsw-transport-masterplan-final.pdf>.
- TfNSW. (2012b). *Sydney's Rail Future, Modernising Sydney's Trains*. Chippendale, NSW: State of New South Wales through the Director General of Transport for NSW. Retrieved from <http://mysydney.nsw.gov.au/sites/default/files/user-files/uploads/rail-future-web.pdf>.
- TfNSW (2013). *Integrated Public Transport Service Planning Guidelines*. Retrieved from <http://www.transport.nsw.gov.au/sites/default/files/b2b/integrated-public-transport-service-planning-guidelines-syd-metro.pdf>
- TfNSW. (2015). *Sydney CBD to Parramatta Strategic Transport Plan*. September 2015. Retrieved from <http://www.transport.nsw.gov.au/sites/default/files/b2b/publications/tfnsw-western-regional-transport-plan.pdf>.
- TfNSW. (2016a, 25 August). Parramatta Light Rail - Project Overview. Retrieved from <http://parramattalightrail.nsw.gov.au/library#159>
- TfNSW. (2016b). Connecting places. Retrieved from <http://parramattalightrail.nsw.gov.au/connecting-places>
- TfNSW. (2016c). Epping to Chatswood - About the upgrade. Retrieved from <http://www.sydneymetro.info/station/epping-chatswood>
- Transport Sydney Trains. (2016a). Sydney Trains Network. Retrieved from http://www.sydneytrains.info/stations/pdf/suburban_map.pdf
- Transport Sydney Trains. (2016b). Intercity Trains Network. Retrieved from http://www.sydneytrains.info/stations/pdf/intercity_map.pdf
- Transport Sydney Trains. (2016c). Search Train Timetables. Retrieved from http://www.sydneytrains.info/timetables/timetables_by_line.htm#landingPoint
- University of Queensland (UQ) Boomtown Toolkit. (2015). Boomtown Toolkit. Retrieved from <http://boomtown-toolkit.uq.edu.au>.
- University of Technology (UTS). (2016a, January, 14). Kuring-gai closure and relocation: UTS Unites. Retrieved from <https://www.uts.edu.au/partners-and-community/initiatives/uts-unites-kuring-gai-campus/kuring-gai-closure-and-relocation>
- Vanclay, F. (2003). International Principles For Social Impact Assessment, Impact Assessment and Project Appraisal, 21(1), 5-12, DOI: 10.3152/147154603781766491
- Vanclay, F. (2006). Principles for social impact assessment: a critical comparison between the international and US documents. *Environmental Impact Assessment Review*, 26(1), 3-14.
- Vanclay, F., Baines, J. T., & Taylor, C. N. (2013). Principles for ethical research involving humans: ethical professional practice in impact assessment Part I. *Impact Assessment and Project Appraisal*, 31(4), 243-253.
- Vanclay, F., & Esteves, A.M. (Eds) (2011). *New Directions in Social Impact Assessment* *New directions in social impact assessment: conceptual and methodological advances*. Cheltenham, UK: Edward Elgar Publishing.
- Vanclay, F., & Esteves, A.M. (2015), Current trends in social impact assessment: Implications for infrastructure developments in, Ruth, M., Woltjer, J., Alexander, E., & Hull, A. (Eds.). (2015). *Place-Based Evaluation for Integrated Land-Use Management*. Ashgate Publishing, Ltd. (pp.99-109)
- Vanclay, F., Esteves, A.M., Aucamp, I., & Franks, D. (2015). *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*. Fargo ND: International Association for Impact Assessment. Retrieved from <http://espace.library.uq.edu.au/view/UQ:355365/UQ355365.pdf>

- Van Doren, D., Driessen, P., Schijf, B., & Runhaar, H. (2013). Evaluating the substantive effectiveness of SEA: Towards a better understanding. *Environmental Impact Assessment Review*, 38, 120-130.
- Western Sydney Regional Organisation of Councils (WSROC). (2001). WSROC Seeks Federal Funding for Parra Rail Link (02/05/01) [Press release]
- Western Sydney Regional Organisation of Councils (WSROC). (2003). Broken Promises on Parramatta Rail Link 21/08/2003 [Press release]
- Winchester, H.P.M., & Rofo, M.W. (2016). Qualitative Research and its place in Human Geography. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed.) (pp.3-27), Canada: Oxford University Press.
- Winders, J. (2016). New Media. In: I. Hay (Ed.) (2016), *Qualitative Research Methods in Human Geography* (4th ed.) (pp.334-359), Canada: Oxford University Press.
- Wong, C. H., & Ho, W. C. (2015). Roles of social impact assessment practitioners. *Environmental Impact Assessment Review*, 50, 124-133
- Zhang, J., Kørnøv, L., & Christensen, P. (2013). Critical factors for EIA implementation: Literature review and research options. *Journal of Environmental Management*, 114, 148-157.
- Ziller, A. (2012). *The new social impact assessment handbook*. Mosman, Australia: Australia Street Company.

Appendix A Case Study Location Descriptions

Macquarie University

Epping

Carlingford

Lane Cove National Park

UTS Ku-ring-gai, Lindfield

Macquarie University Station

Predicted impacts and opportunities for the Macquarie University area were separated from Macquarie Park area in the EIS. Macquarie University is located within Macquarie Park and thus changes reflected in the suburb more broadly are reflected in both station localities. The field investigations as part of this research, however, were focussed on Macquarie University station and the benefits that the constructed project has brought to this location.

Land use and Development

Visiting the Macquarie University station, it is immediately apparent that there has been a benefit to the Macquarie Centre and the local area. The Macquarie Centre has been recently redeveloped (refer to Figure A.1), and now consumes a significant area within the vicinity of the station compared to its original size as shown in Figure A.5.

Also visible in area is the predicted increase residential density and large professional, technology manufacturing businesses (refer to Figure A.2, Figure A.3 and Figure A.4). New high-density university accommodation and residential developments were observed along Herring Road during the inspection as shown in Figure A.3 and Figure A.4, which are not visible in Figure A.5 prior to the railway station, however, are reflected of the land use zoning of the area as shown in Figure A.6. Relatively recent light industrial and commercial buildings were also identified on the nearby Waterloo and Talavera Roads.

A Priority Precinct (formerly Urban Activation Precincts) program was established by the NSW Government in 2012. The Macquarie University Station (Herring Road) area was a nominated precinct. The Priority Precinct was identified due to it being well serviced by public transport, including the ECRL and the future Sydney Metro Northwest project, which will see the upgrade of the line to rapid transit. Changes in local land use zoning as a result of the precinct designation were approved in 2015, for the prioritisation of intensification of development and renewal of the area in an 800-metre radius around the station, including integrating research facilities, industry and commercial and high-density residential (AMP Capital Shopping Centres, 2016; DPE, 2016b).

A concept development application has also been submitted for the substantial redevelopment of Macquarie Centre including commercial and residential uses, as a result of the rezoning of the area (AMP Capital Shopping Centres, 2016). The redevelopment will see an increase in retail floor area of 148,000 square metres and a new plaza connection to the Macquarie University railway station (AMP Capital Shopping Centres, 2016).

Macquarie Park is also considered Sydney's second CBD and is headquarters to a range of Global ASX companies in the areas of telecommunications, pharmaceuticals, electronics and technology. The area is expected to create more than 40,000 jobs by 2031 (City of Ryde, 2016).



Figure A.1 Macquarie Shopping Centre (background) and Macquarie University Station



Figure A.2 Businesses in the Macquarie Park Area



Figure A.3 High Density Residential on Herring Road

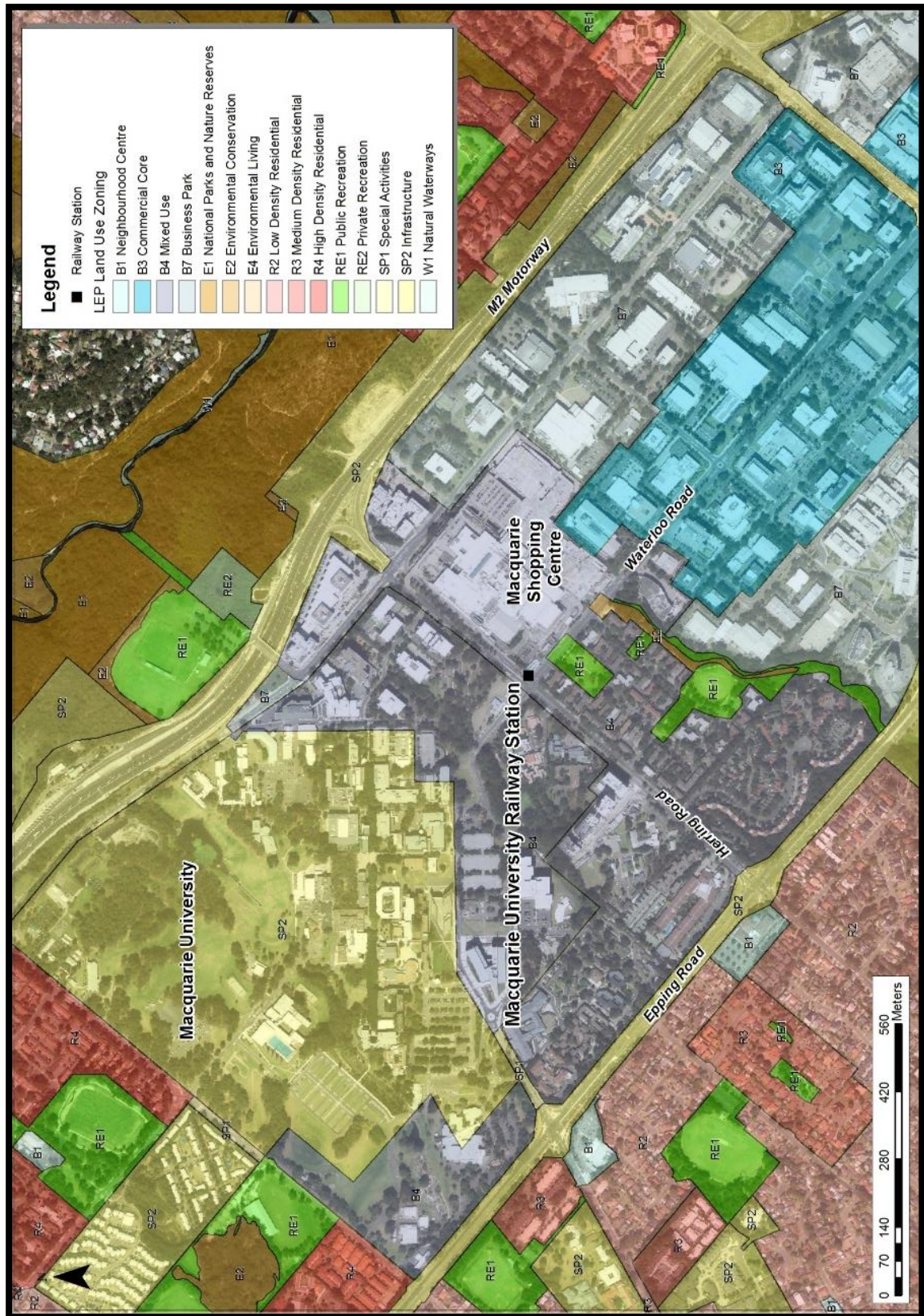


Figure A.4 High Density Residential on Herring Road / Epping Road



Source: ERMK (1999, Figure 18.7, p. 18-11)

Figure A.5 Macquarie Park Station Area (circa 1999)



Source: NSW LPI (2014)

Figure A.6 Macquarie Park Rail Station Surrounding Land use

Population, Housing and Business Growth

These changes in housing growth over-time are also reflected in the Australian Bureau of Statistics (ABS) Census data for the suburb of Macquarie Park, which shows that while there was a decline in the number of occupied dwellings between 2001 and 2006 (-16%), there was an increase in occupied dwellings post-opening of the line in 2011 (6%), particularly in apartments increasing by 12% (refer to Table 7.1) (ABS, 2001, 2006, 2011). This correlates with a decline in population in 2006 prior to the completion of the rail line (refer to Table A.1) (ABS, 2001, 2006, 2011).

Table A.1 Population and Housing Growth in the State Suburb of Macquarie Park (ABS, 2001, 2006, 2011)

	Population	% Change	No. of Occupied Private Dwellings	% Change	No. of Flat, unit or apartment	% Change
2001	6,012	-	2,667	-	1,960	
2006	5,599	-7	2,246	-16	1,661	-15
2011	6,143	10	2,389	6	1,860	12

The number of businesses also increased post-opening of the line by 8%, during 2010 and 2011 in the Macquarie Park – Marsfield Statistical Local Area Level 2 (SLA2) (refer to Table A.2) (ABS, 2013a). Business numbers dropped in growth in 2013 (-6%), potentially due to the announcement of the temporary closure of the line for 12 months for its conversion of rapid transit as part of the Sydney Metro North West project (refer to Chapter 5).

This growth has been predominately in Education, Healthcare (pharmaceuticals), Information Technology, Communications sectors with several multinational corporations located in the area, including the headquarters of 12 of the top 100 companies by market capitalisation (Ballantyne & Bizinger, 2016).

Table A.2 Business Growth 2007-2011 in the Macquarie Park – Marsfield SLA2¹ (ABS, 2013a)

	2007	% Change	2008	% Change	2009	% Change	2010	% Change	Year 2011	% Change
Entries	-	-	254	-	254	0	312	23	264	-15
Exits	-	-	243	-	288	19	221	-23	223	1
Total	1599	-	1610	1	1576	-2	1667	6	1708	2

The EIS predicted negligible to positive effects on property values as a result of the PRL. Ge, Macdonald and Ghosh (2012) assessed the impact of increased property values as a result of ECRL around Macquarie University station and found that a significant increase occurred prior to construction, in anticipation of the new service and after the opening of rail service, once the line was fully operational.

Rail Transport and Accessibility

In contrast to the increase in local development predicted in the EIS, a significant shift towards public transport and rail usage as forecast in the EIS, has not been observed since the opening of the line in 2009. The Bureau of Transport Statistics (BTS) 2011 Journey to Work (JTW) data shows that 70% of trips to the area are still undertaken by private vehicle as driver (refer to Figure A.7 and Figure A.7). Trips by workers' residing in the area utilise a wider variety of modes for their trips, however, private vehicle is still the largest mode share at 46% of the share (refer to Figure A.8) (BTS, 2014a).

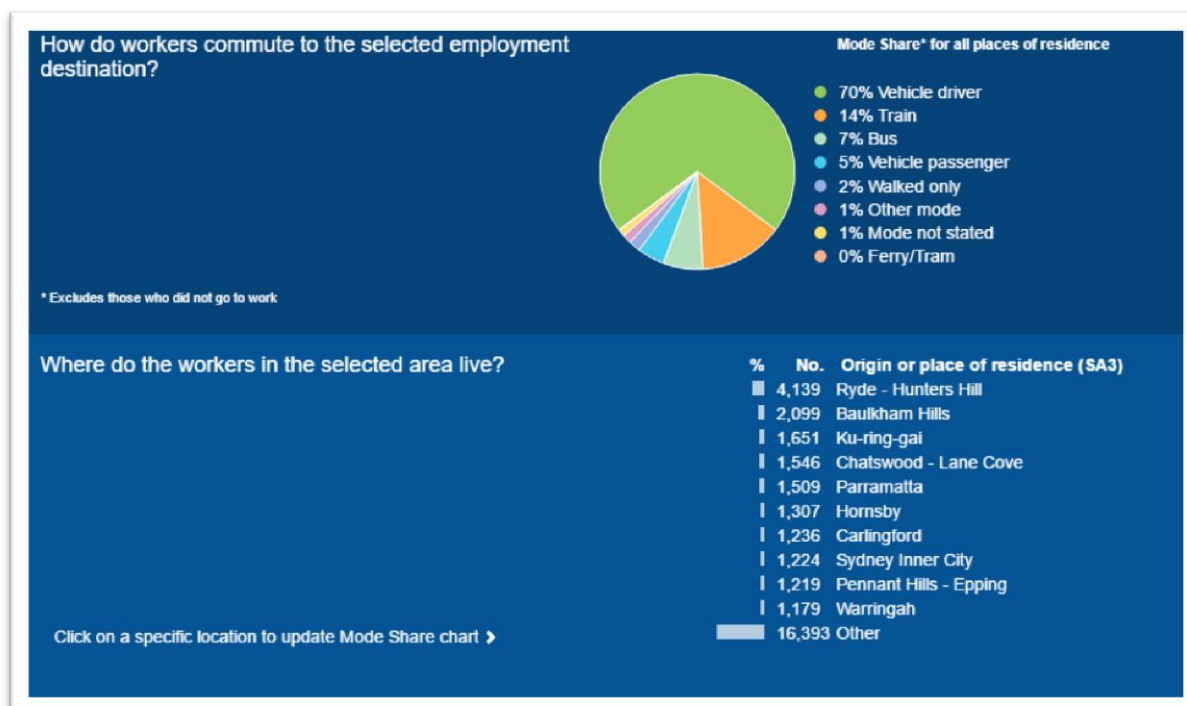
¹ The larger SLA2 boundary includes the suburbs of Macquarie Park and neighbouring Marsfield

It is relevant to note, that this trend applies particularly to those travelling to areas which are not directly serviced by the ECRL, such as Ku-ring-gai and parts of the Chatswood-Lane Cove and Parramatta areas (BTS, 2014a). The Macquarie University Travel Plan (2011-2017) reported that in 2010 the primary mode of travel for students also remained the private car (42.5%) followed by train (31%) and bus (19%) (Macquarie University, 2010). Mode share of public transport amongst students has increased by 8.5% since the Macquarie University station opened, however, much of the shift was from buses to rail. A positive benefit of the ECRL was noted, that due to the improved accessibility, students travelling between 10 kilometres and 20 kilometres now comprise 36% of students on campus, compared to 47% who live within 10 kilometres of campus and that a greater number of students are attending the university from a wider catchment (Macquarie University, 2010). A modal shift was also observed amongst staff from 17% in 2008 to 26.5% in 2010 share in total public transport usage. However, the dominant mode of travel to work for staff remains the private car (65.5%) (Macquarie University, 2010).

The ECRL is identified on the Sydney Trains Network as the 'Northern via Macquarie University' rail line, which follows the same route as the North Shore line from the city to Chatswood (refer to Appendix E). Overall the number of trips taken by train along the Northern via Macquarie University line has increased since the opening of the line, but its usage has plateaued in recent years (refer to Figure A.9). Other Northern-direction rail lines on the Sydney Trains Network, (Central Coast, Newcastle and the Northern via Strathfield lines), have experienced a decline in patronage, except for the North Shore line (refer to Figure A.9). This line, which diverts towards Gordon station past Chatswood station, has experienced an increase in rail patronage since 2007. This may be attributed to its faster connection to the CBD during off-peak times and the higher frequency of services on the line when compared to the other Northern lines (Transport Sydney Trains, 2016c).

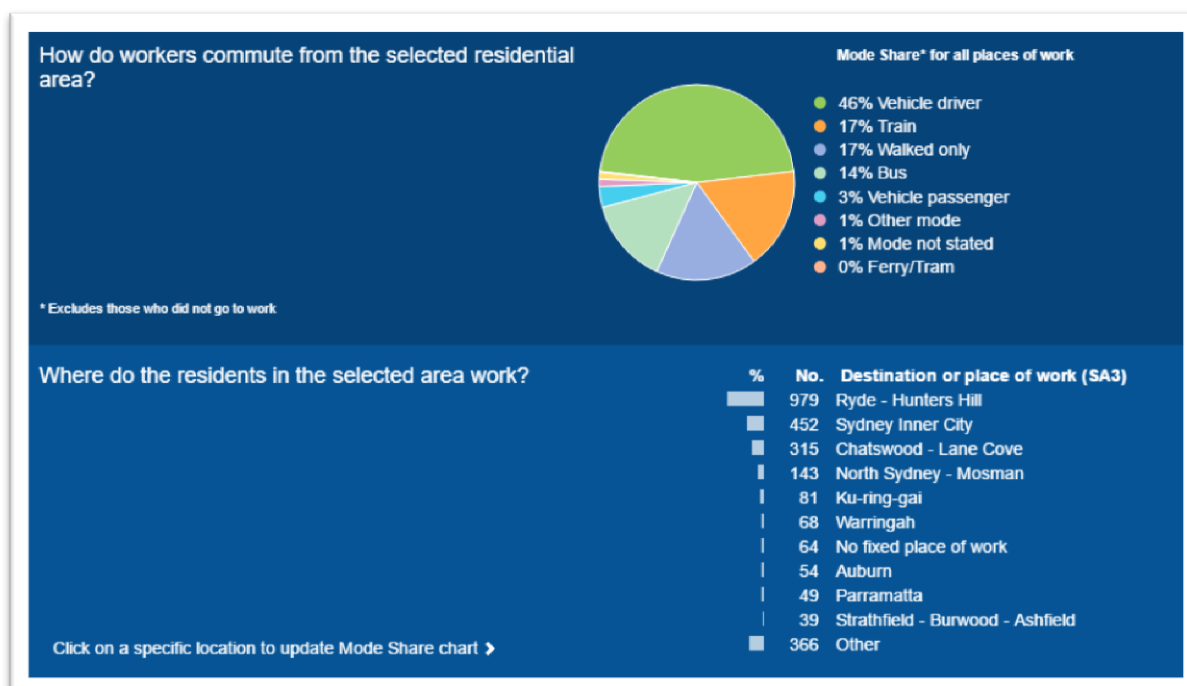
This finding suggests that the availability of rail transport in Sydney may not immediately lead to the decision by the local population to use it. It is likely that, in the case of the majority of Northern line trains, rail transport is struggling to provide adequate timely access to the desired destination for potential users, resulting in them opting for other transport modes. This is the same problem with public transport uptake that was reported in the PRL EIS for metropolitan Sydney in 1999, over 15 years ago (ERMK, 1999). However, further investigation into the reasoning behind this particular passenger decision is beyond the scope of this research. Nevertheless, improvements to the travel times and frequency of trains on the ECRL when it is converted to rapid transit as part of the Sydney Metro Northwest project, may also help increase usage on the Northern via Macquarie University line.

Connect Macquarie Park and North Ryde (Connect), is a non-profit and business-led association established in 2013, that is the public face of the Macquarie Park Transport Management Association (Connect Macquarie Park + North Ryde, 2016). It was established to encourage a travel behaviour change towards public transport in the growing Macquarie Park area and help members of the association to establish programs to modify journey to work behaviours (Connect Macquarie Park + North Ryde, 2016). The association consists of businesses, local and state governments, institutions and developers in the Macquarie Park area wishing to improve the transport movements locally. As the organisation is relatively new, its influence is yet to be reflected in the travel survey data presented, however, it is thought that in future years, its success will be able to be judged.



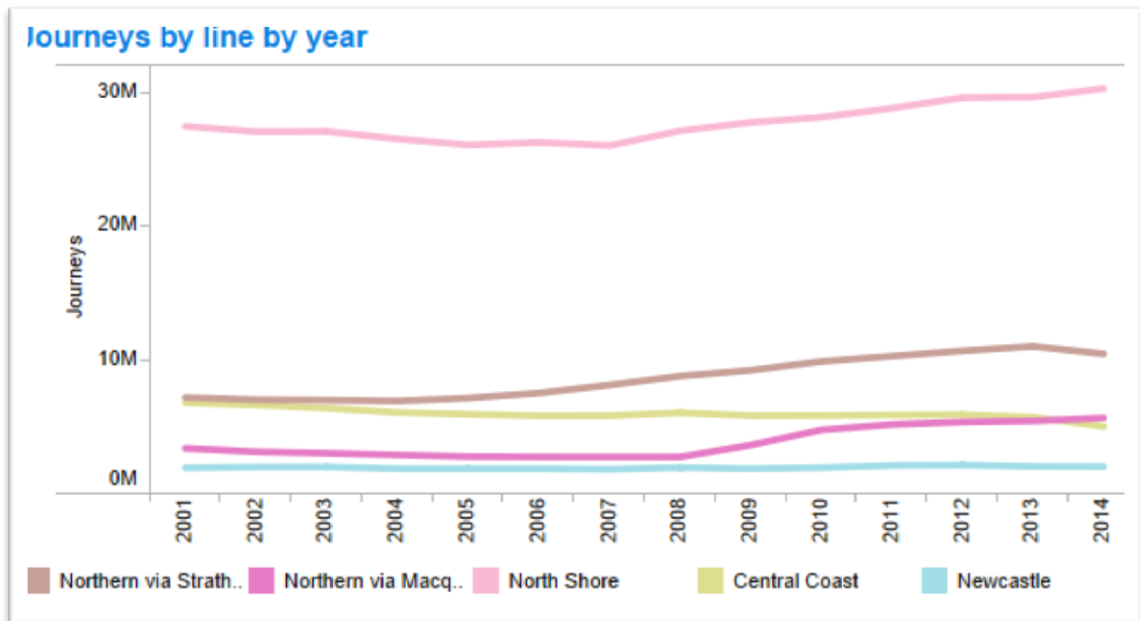
Source: BTS (2014a)

Figure A.7 2011 JTW Worker travel modes to Macquarie Park



Source: BTS (2014a)

Figure A.8 2011 JTW Macquarie Park Residents' JTW Modes



Source: BTS (2016)

Figure A.9 Northern-Direction rail line patronage – Sydney Trains Network

Epping Station

Epping Station is an existing station on the Northern via Strathfield, North Shore, Newcastle and Central Coast lines. It is the northern underground termination point for the ECRL.

Land use and Development

Improvements to the Epping Transport interchange as a result of the ECRL were observed, however, the majority of larger commercial buildings are well established, constructed prior to 2000 (Figure A.10 and Figure A.11).

High-density residential construction, however, was observed on feeder streets into the Town Centre, including Carlingford Road. This change can be seen from the aerial photography shown in the EIS (Figure A.12) compared with the more recent 2013 photography (Figure A.13). The field investigations indicated further development along Epping Road which is visible on the Nearmap photography flown in July 2016 shown in Figure A.14.

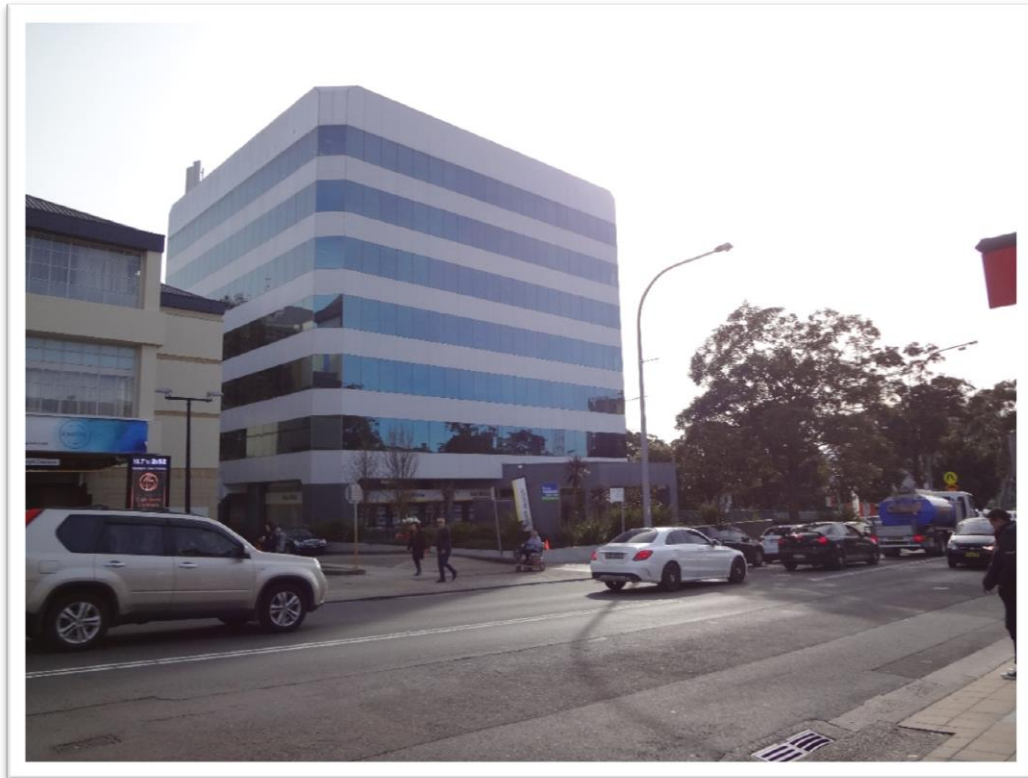


Figure A.10 Commercial Buildings near Epping Station

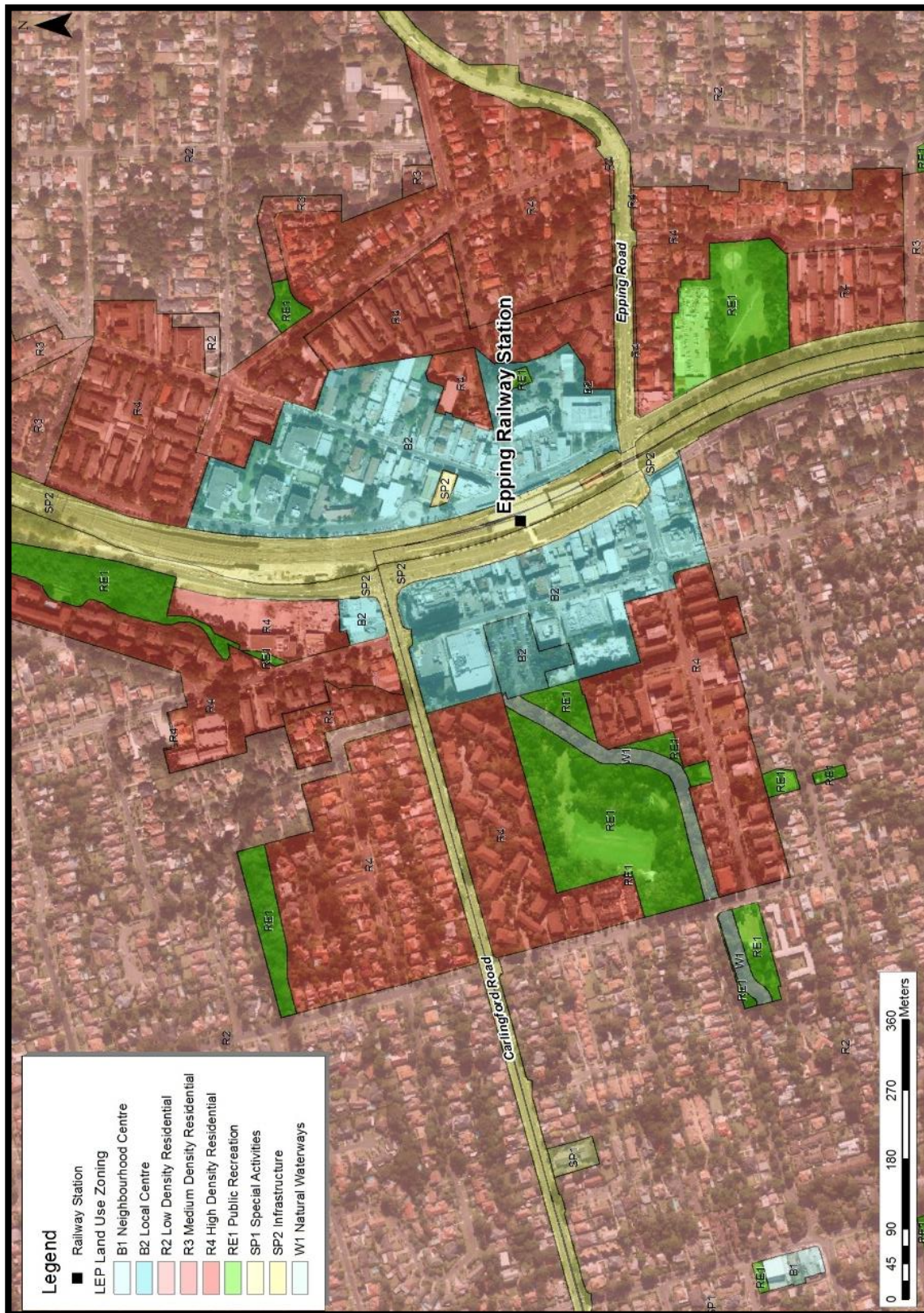


Figure A.11 Commercial Buildings near Epping Station



Source: ERMK, (1999, Figure 7.3J, p.7-24)

Figure A.12 Epping Station Area (circa 1999)



Source: NSW LPI (2014)

Figure A.13 Epping Rail Station Surrounding land use



Source: Nearmap (2016)

*Figure A.14 Epping Station Area July 2016**

*New residential development areas are shown in red

Population, Housing and Business Growth

An increase in housing growth in the suburb of Epping follows a similar pattern to the Macquarie Park prior to the construction of the ECRL and post opening of the line, with a decline in occupied dwellings between 2001 and 2006 and a 9% and 15% increase in occupied dwellings and flats/units/apartments in 2011 (refer Table A.3). However, the population has been steadily increasing in the area since 2001 (refer to Table A.3).

Table A.3 Population and Housing Growth in the State Suburb of Epping (ABS, 2001, 2006, 2011)

	Population	% Change	No. of Occupied Private Dwellings	% Change	No. of Flat, unit or apartment	% Change
2001	18,065	-	6,696	-	1,868	-
2006	18,969	5	6,521	-3	1,711	-8
2011	20,227	7	7,107	9	1,960	15

The number of businesses in the wider Epping – North Epping SLA2 area increased following the opening of the line, by 9% between 2009-2010 (refer to Table A.4), however, more recent ABS total business count data suggests that growth has slowed since 2013 and the count has remained stable (ABS, 2016a).

Table A.4 Business Growth 2007-2011 in the Epping – North Epping SLA2² (ABS, 2013b)

	2007	% Change	2008	% Change	2009	% Change	2010	% Change	Year 2011	% Change
Entries		-	305		318	4	416	31	318	-24
Exits		-	359		335	-7	230	-31	308	34
Total	2,205	-	2,151	-2	2,134	-1	2,320	9	2,330	0.4

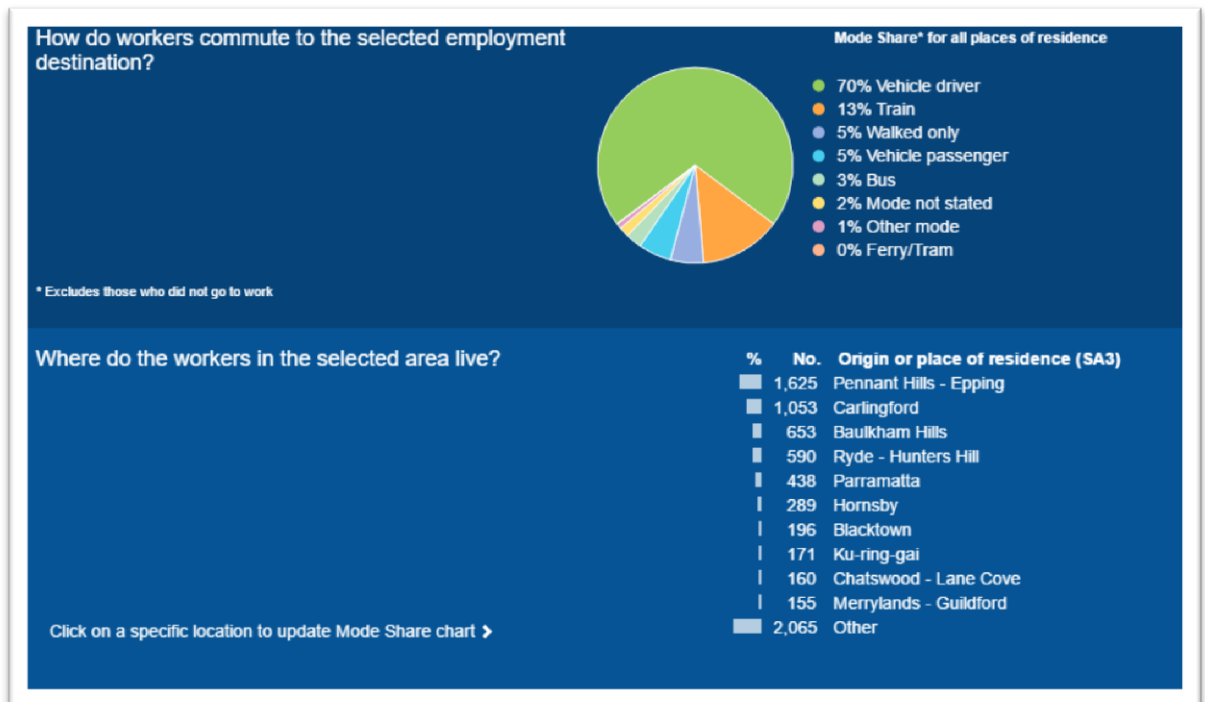
A Priority Precinct Plan has also been developed for the Epping Town Centre, which is consistent with the opportunities presented in the EIS for the redevelopment of the area surrounding Epping Station (DPE, 2015). The NSW Government endorsement of the Epping Town Centre Precinct, followed the announcement of the Sydney Metro Northwest project in 2012 and a subsequent rezoning proposal for the area was approved in March 2014 (DPE, 2015). The Precinct Plan has resulted in rezoning of the area to facilitate building of mixed commercial and high-density residential within a 400-metre radius of the station and improvements to public space.

Rail Transport and Accessibility

Following a similar trend to the Macquarie Park area, the BTS JTW 2011 data shows that workers travelling to the area predominately rely on private vehicle as a driver (70%) and are predominately travelling from within Epping or in neighbouring suburbs of Carlingford and Pennant Hills as shown in Figure A.15 (BTS, 2011). Workers who reside in the area commute to work also predominately by private vehicle (62%), followed by train (30%) and 20% of these workers are commuting to the Sydney Inner city as shown in Figure A.16 (BTS, 2011). There was an increase in station usage following the opening of the ECRL as shown in Figure A.17, however, this growth is generally consistent with the annual increase in population growth, as shown in Table A.3.

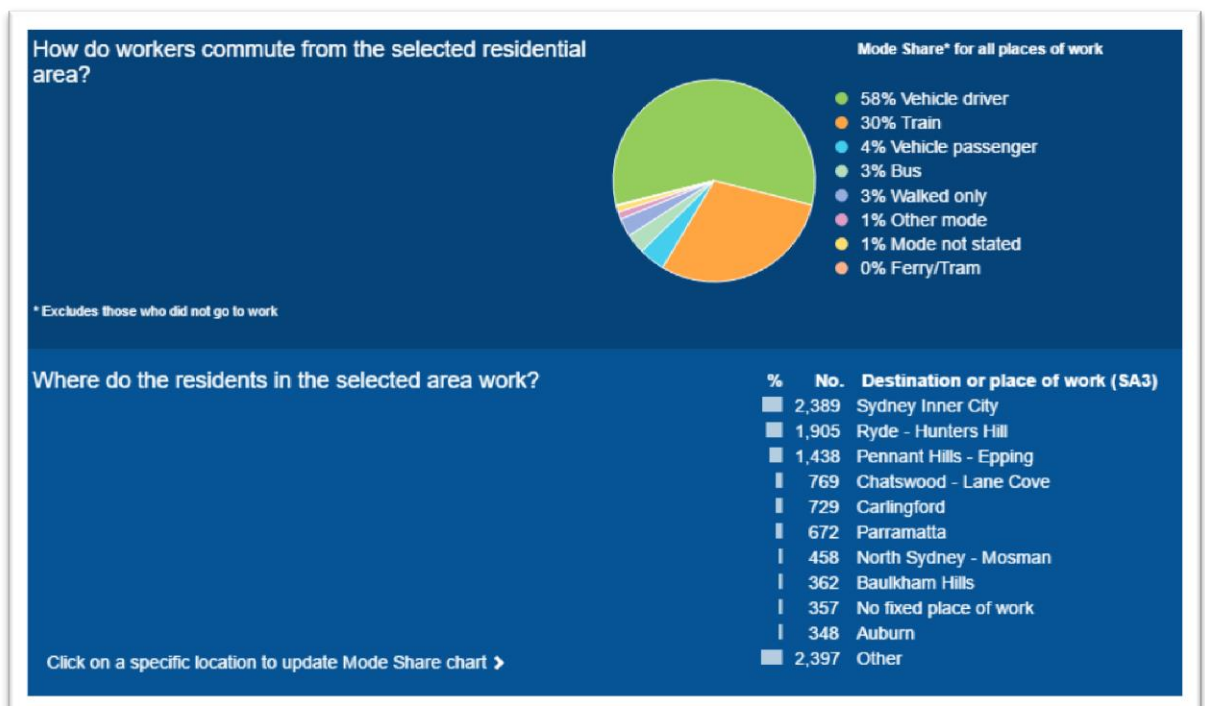
Overall, the addition of the ECRL to Epping Station does not appear to have had a noticeable influence on the commuter decision to utilise public transport.

² The SLA2 boundary includes the suburbs of Epping and North Epping



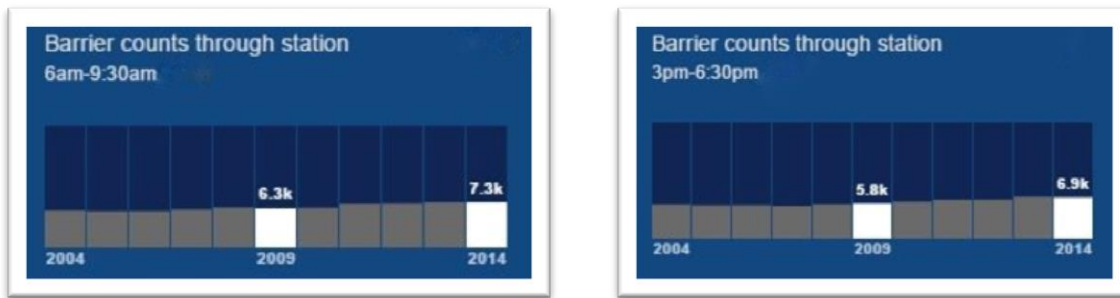
Source: BTS (2014a)

Figure A.15 2011 JTW Worker travel modes to Epping



Source: BTS (2014a)

Figure A.16 2011 JTW Epping Residents' JTW Modes



Source: BTS (2014b)

Figure A.17 2011 JTW Epping Station Barrier counts during AM and PM peak times (2004- 2014)

Carlingford Station

Carlingford station, at the termination point of the Carlingford railway line, is located on the cancelled Parramatta to Epping section of the PRL project. Ultimately, this has meant that the suburb has neither benefitted from the positive opportunities nor suffered from the negative impacts predicted in the EIS.

Land use and Development

Originally built as a private line for carrying rural produce, the Carlingford line historically was a major trade and transport route for local industries (Office of Environment and Heritage (OEH), 2013). Adjacent to Carlingford station, there still remains the state-heritage listed old grain and feed mill building, which houses the Carlingford Produce Store (refer to Figure A.18 and Figure A.19) (OEH, 2013). The site has existed as a food co-op and produce store since the 1920s (OEH, 2013).

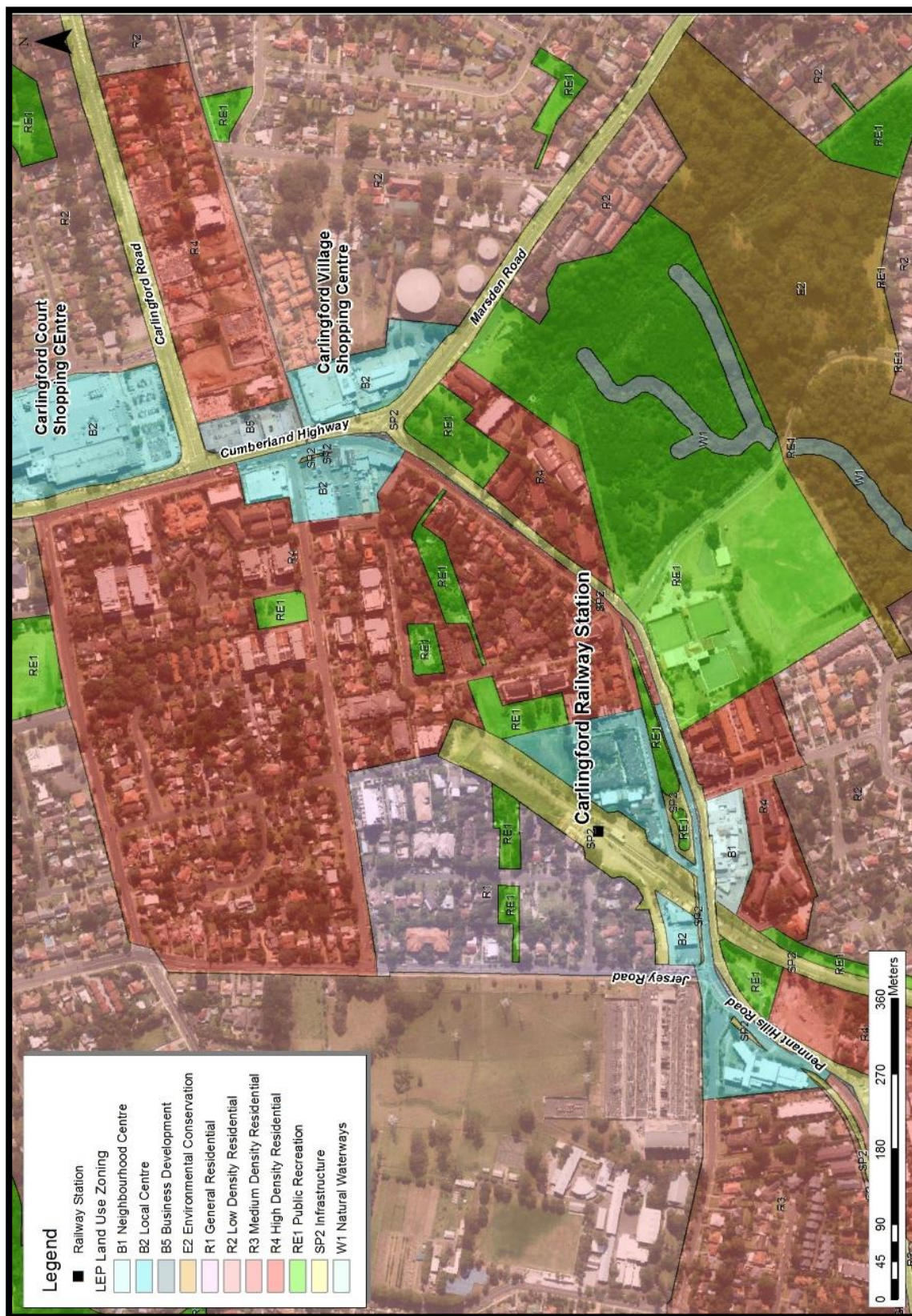


Figure A.18 Carlingford Produce Store



Figure A.19 Carlingford Station 'End of the line'

Although development is occurring in the area, with high-density residential areas zoned in the vicinity of the station (Figure A.20) and several apartment blocks under construction (Figure A.21 and Figure A.22), the area has not become a lively focal point that was anticipated nor is considered a regional transport hub. The shops adjacent to the station on Pennant Hills Road have not changed significantly since the 1990's, comprising businesses such as local café/restaurants, fast food, beauty salons, a newsagent and several real estate agents. Figure A.23 shows the surrounding area as depicted in the EIS.



Source: NSW LPI (2014)

Figure A.20 Carlingford Rail Station Surrounding Land use



Figure A.21 Apartment building under construction on Jersey Road



Figure A.22 Apartment building under construction on Pennant Hills Road



Source: ERMK (1999, Figure 18.6, p.18-9)

Figure A.23 Carlingford Rail Station circa 1999

Empty and run down shops were visible along the main commercial strip on the Cumberland Highway, including the Carlingford Village Shopping Centre, which during the field investigations appeared to be in need of regeneration (refer to Figure A.24 and Figure A.25). However, the Carlingford Court Shopping Centre was a central focus of the more modern and redeveloped area of town along Carlingford Road, located almost one kilometre from the station by foot.



Figure A.24 Shops on the Cumberland Highway



Figure A.25 Carlingford Village Shopping Centre

Population, Housing and Business Growth

Housing and population growth continued to increase in Carlingford between 2001-2006, most likely as a result of the announcement of the proposed project (refer to Table A.5). Population growth remained stable between 2006-2011, however, housing growth has continued, particularly in the number of flats/units/apartments, which increased by 32% between 2006 and 2011 (refer to Table A.5). This significant influx may be partially attributed to the February 2011 announcement of federal government support and Intergovernmental Agreement for a new Parramatta to Epping Link via Carlingford (COA & State of NSW, 2011, refer to Chapter 5). The trend in housing growth is likely to continue particularly given the observed residential construction and large number of real estate agents in the area, and the increasing number of building approvals in Carlingford SLA2 area, significantly expanding from 45 dwelling units approved in 2010, to 823 in 2012, and slowing slightly to 605 in 2014 (ABS, 2016b)

Table A.5 Population and Housing Growth in the State Suburb of Carlingford (ABS, 2001, 2006, 2011)

	Population	% Change	No. of Occupied Private Dwellings	% Change	No. of Flats, units or apartments	% Change
2001	19,459		6,527		470	
2006	21,363	10	6,865	5	692	47
2011	21,570	1	7,097	3	916	32

Business growth in the larger SLA2 area has fluctuated over the 2007-2011 period, but the number of businesses remained stable in recent years (2013-2015), reflected in the stagnant state of shops along the main commercial areas visible during field investigations (refer to Table A.6) (ABS, 2016a).

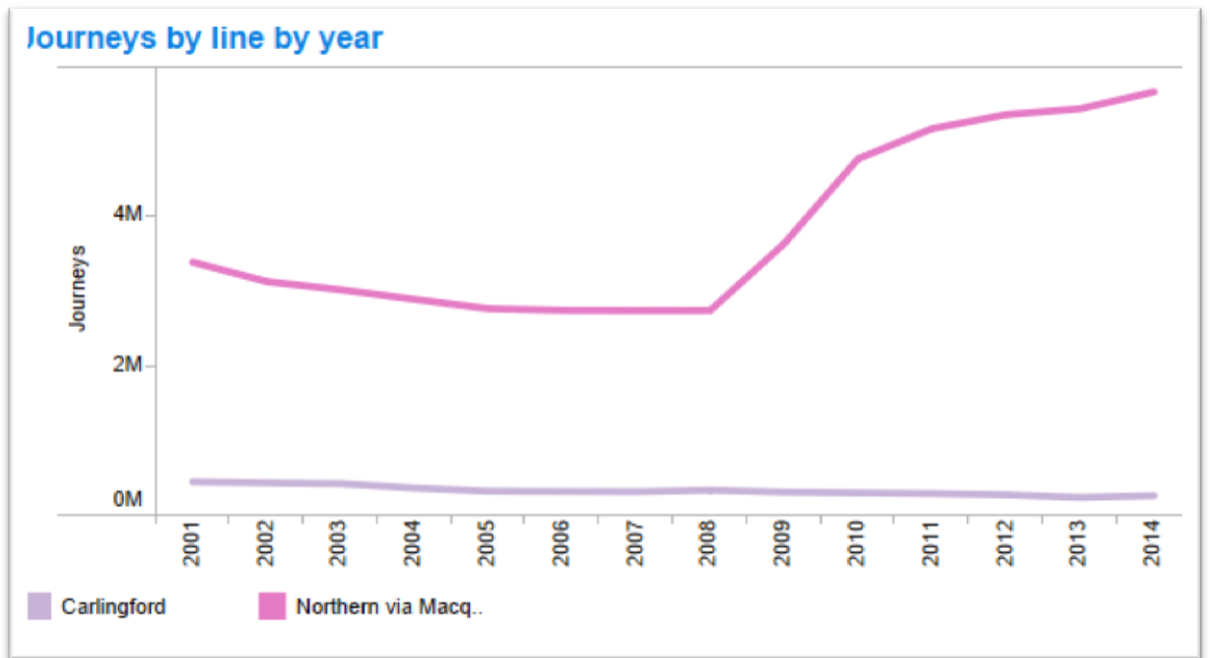
Table A.6 Business Growth 2007, 2009 & 2011 in the Carlingford SLA2³ (ABS, 2013c)

	2007	% Change	2008	% Change	2009	% Change	2010	% Change	2011	% Change
Entries		-	325		360	11	463	29	331	-29
Exits		-	367		351	-4	281	-20	333	19
Total	2, 211	-	2,169	-2	2,178	0	2,360	8	2,358	-0.1

Rail Transport and Accessibility

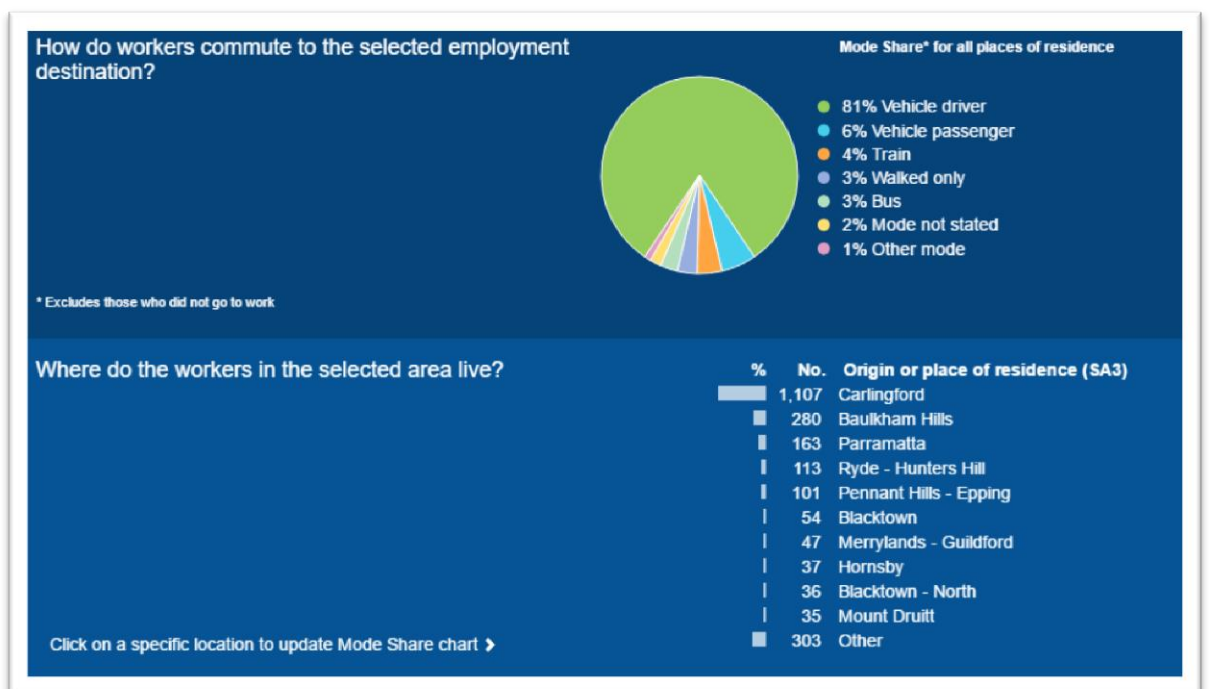
The rail service on the Carlingford Line has not improved since 1999, with the frequency of train services remaining as it was reported in the EIS; two trains every hour during peak times. By comparison, trains on the ECRL run every 15 minutes during peak times. Transport data on rail patronage for the Carlingford Line shows that its usage is steadily declining, compared to Northern via Macquarie Park Line Figure A.26. In 2011 the data showed that workers who commute to the area in majority live locally (49%) and drive to work as driver and/or passenger (87%) as shown in Figure A.27 (BTS, 2014a). The most common JTW mode for residents was the private vehicle as a driver (70%) followed by train (14%) and bus (6%) as shown in Figure A.28 (BTS, 2014a).

³ The SLA2 boundary includes the suburb of Carlingford and part of Beecroft



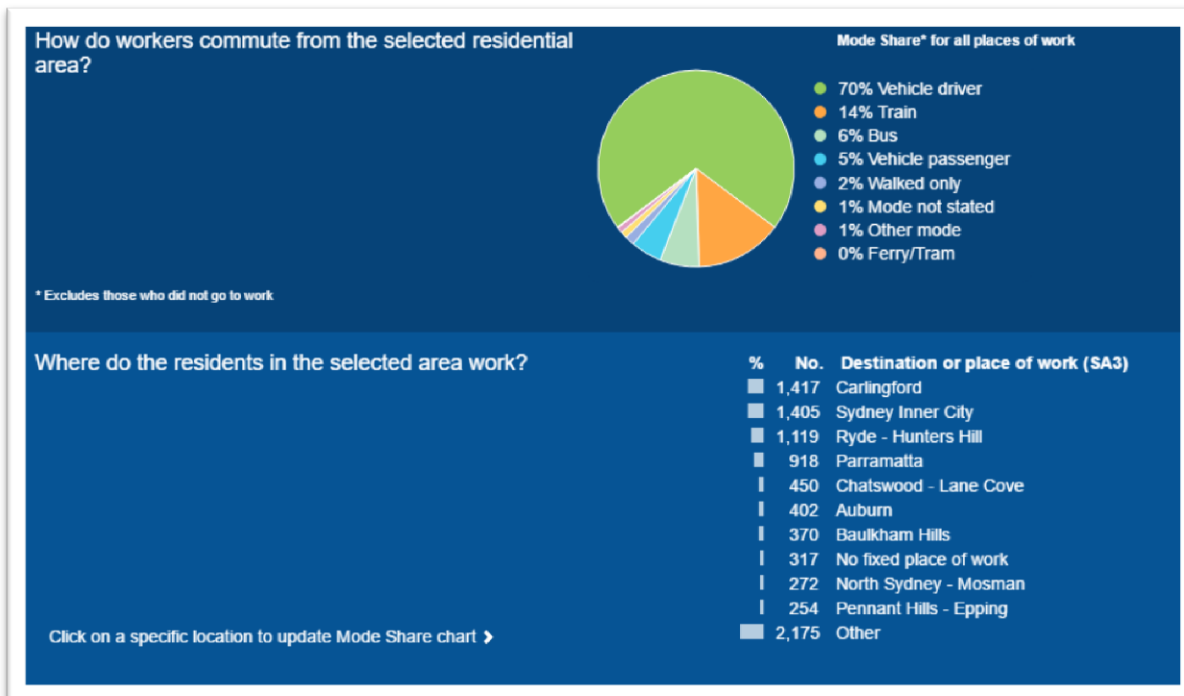
Source: BTS (2016)

Figure A.26 Patronage Carlingford Line compared to the Northern via Macquarie University Line



Source: BTS (2014a)

Figure A.27 Worker travel modes to Carlingford



Source: BTS (2014a)

Figure A.28 Carlingford Residents' Journey to Work Modes

Not even the small commuter carpark was full on the day of the field investigations (refer Figure A.29) and demands associated with the project would have seen the construction of 800 new parking spaces at the station (ERMK, 1999).



Figure A.29 Commuter Carpark and Carlingford Station

A frequent 'Sydney Buses' Metrobus service (M54) was observed during the field investigations for research, which travels between Parramatta and Macquarie Park via Carlingford and Epping. The bus service follows a similar route to the proposed PRL with a journey time of approximately one hour during peak periods. The service has been in place since 2010, operating every 15 minutes during the day and every 10 minutes in peak hour. Its hours of operation were recently extended to midnight seven days' a week (refer to Figure A.30). By comparison, the PRL travel time would have been 25 minutes and six trains per hour (that is, every 10 minutes) between Parramatta and Epping during peak times (DPE, 2002). Therefore, although the Parramatta to Epping section of the PRL was not constructed, there remains a transport need for connecting commuters along this route for employment and recreational reasons, outside of peak times.

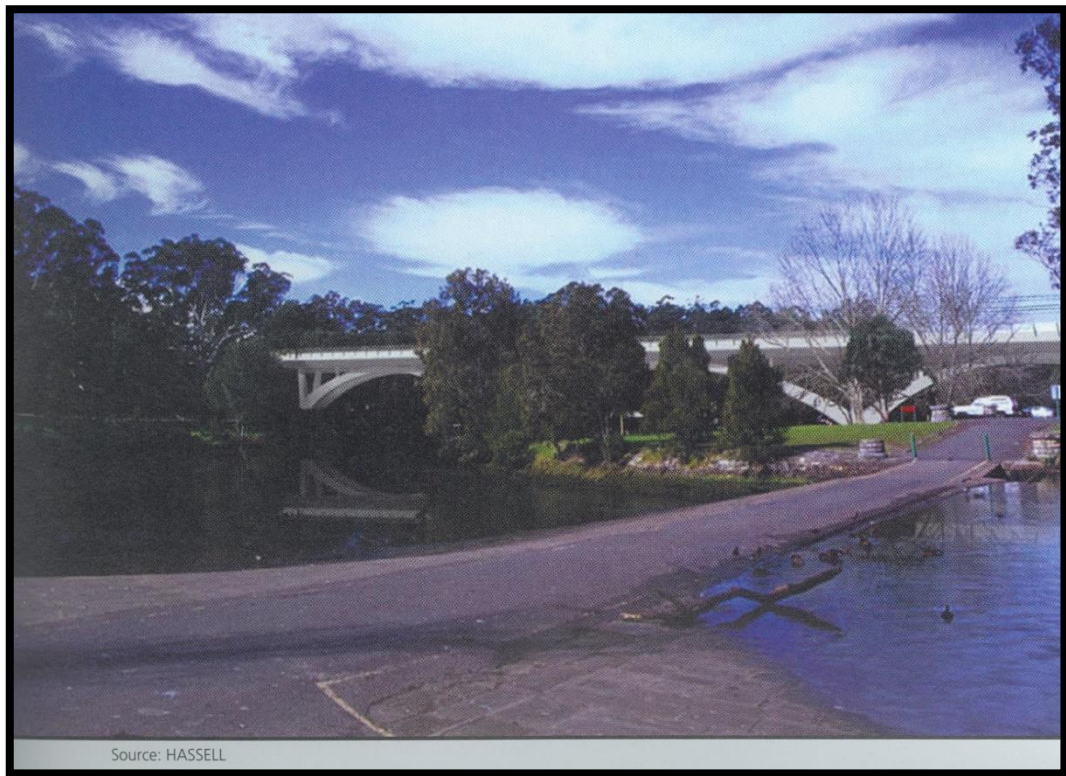


Figure A.30 Bus Stop on Pennant Hills Road

Lane Cove National Park – Bridge Crossing

The decision to modify the proposal and proceed with a tunnel under the Lane Cove River instead of bridge following the consideration of community inputs, has avoided any potential negative public amenity impacts as predicted in the EIS. Figure A.31 shows what the proposed bridge would have looked like in the National Park. When compared to the same location in the National Park (refer to Figure A.32) there is a completely different visual landscape. Figure A.33 shows the main features at this location in 2013, compared to Figure A.34, they appear virtually unchanged.

Although it was late in the afternoon during the field investigations, two to three groups were observed occupying the nearby picnic areas and benches and all parking spaces at the location of the bridge site were occupied (refer to Figure A.32). Sundays are the busiest time of day in the park and most park visitors use the recreation areas for family picnics and barbecues, with the Koonjera picnic area near the weir popular with young families (refer to Figure A.33) (NSW NPWS, 2016). The area is moderately influenced by surrounding land use, with audible noise from Lady Game Drive, Millwood Avenue and Delhi Road and planes overhead. During the field investigations, this did not appear to affect amenity or popularity of the area.



Source: ERMK, 1999, Figure 18-11, p.18-29

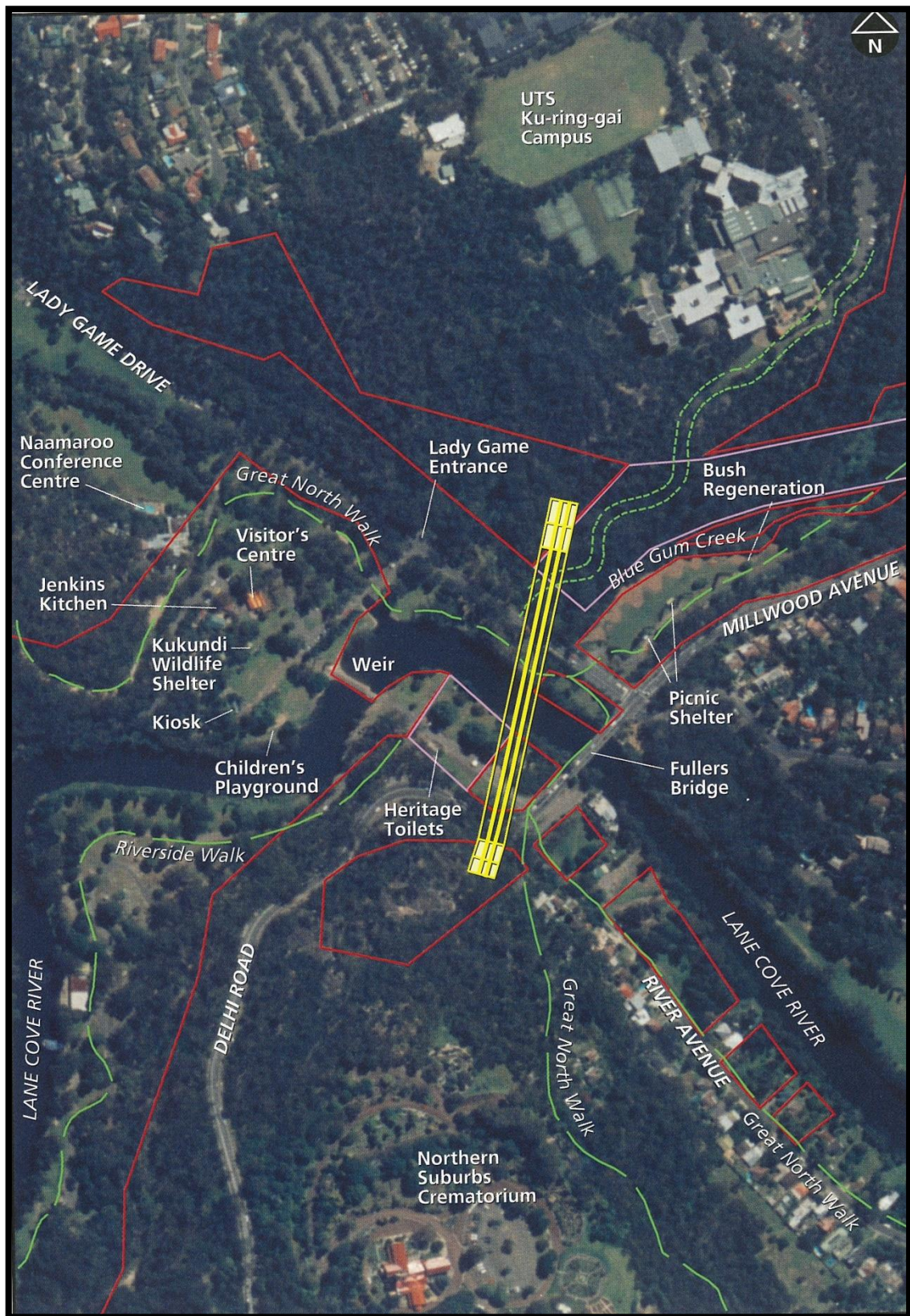
Figure A.31 Photomontage of the Bridge Crossing



Figure A.32 Koonjera Picnic Area looking from the Weir



Source: NSW LPI (2014)
 Figure A.33 Lane Cove National Park



Source: ERMK (1999, Figure 13.7, p. 13-24)

Figure A.34 Lane Cove National Park circa 1999

A commemorative plaque marking the location of the ECRL tunnel crossing was also observed along the bank of the Lane Cove River, with no visible disturbance to park users of where the construction had once been (refer to Figure A.35).



Figure A.35 Commemorative Sign

The NSW NPWS *Lane Cove National Park Plan of Management* noted one legacy issue from the ECRL project (NSW NPWS, 2016). The redevelopment of the park as part of the site restoration following the tunnel construction⁴ has resulted in damage to the park entrance and poor sight lines raising safety concerns due to the narrow width of the vehicle entry station (NSW NPWS, 2016). The Visual Assessment Chapter of the EIS assessed the impact of the bridge along with the other aspects of the proposal and no further assessment was undertaken following the change to the tunnel option. Although it could be argued that no permanent visual impacts would be likely from the tunnel option, the 'Revegetation and Rehabilitation' management strategy proposed in the EIS would remain applicable: "Vegetation will be used to achieve screening and to restore the sites to pre-construction condition" (ERMK, 1999, p.18-33). This suggests that the problems that have arisen in the National Park, should have been mitigable. In the absence of a monitoring program, however, it is difficult for the proponent to identify and be made accountable for these types of issues.

⁴ See Chapter 5

Former UTS Ku-ring-gai site, Lindfield

The sequence of events that modified the proposal from the bridge crossing to a tunnel under the Lane Cove River resulted in difficulties with engineering design and construction of the UTS Ku-ring-gai station due to increased depth (from 35 metres to 52 metres). This contributed to an increased cost for the PRL. It is understood that the relevant Minister(s) decided to cancel the UTS Ku-ring-gai station, based on these considerations and the decision by the Minister for Planning not to approve the redevelopment of the Ku-ring-gai campus.

In 2010 the UTS Ku-ring-gai site was sold to Defence Housing Australia, following the approval of a re-zoning plan in 2008 allowing residential zoning on the land (UTS, 2016). The retention of the campus buildings was a condition of sale and in December 2012, UTS entered into an agreement with the NSW Government to swap the Ku-ring-gai campus buildings with government buildings in Ultimo. By December 2015, the UTS Ku-ring-gai campus was closed. This allowed UTS to proceed with their Master-plan for the City campus and has provided the opportunity for Department of Education to establish a much-needed Kindergarten to Year 12 school ('Lindfield Learning Village') at the site (NSW Government, 2016.). At present the UTS campus signage and buildings remain in place (refer to Figure A.36 and Figure A.37).



Figure A.36 Signage at the former UTS Ku-ring-gai campus



Figure A.37 Campus Buildings

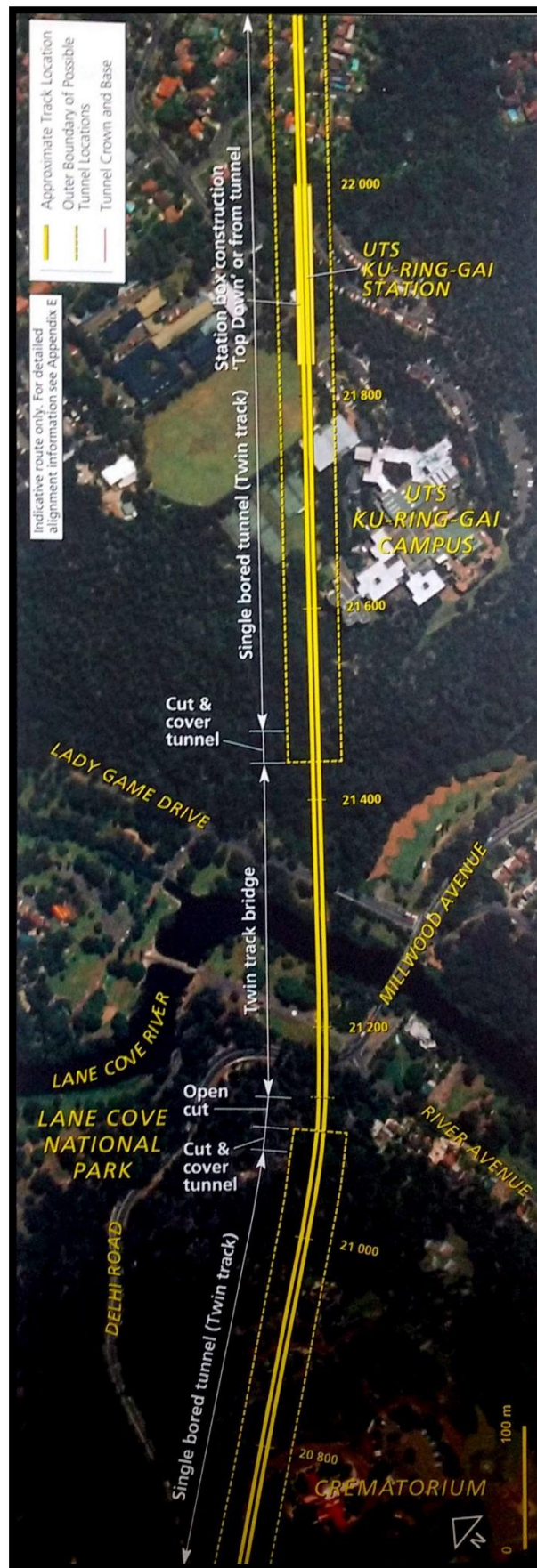
The 'Crimson Hill Estate' defence high-density urban housing estate has been established at the former UTS campus site, incorporating new apartment buildings, the Blair Wark VC Community centre adjacent to Charles Bean Oval and townhouses (under construction) (refer to Figure A.38 and Figure A.39). Figure A.40 and Figure A.41 show a comparison of how development has changed at the site between 1999 and 2013.



Figure A.38 Charles Bean Oval

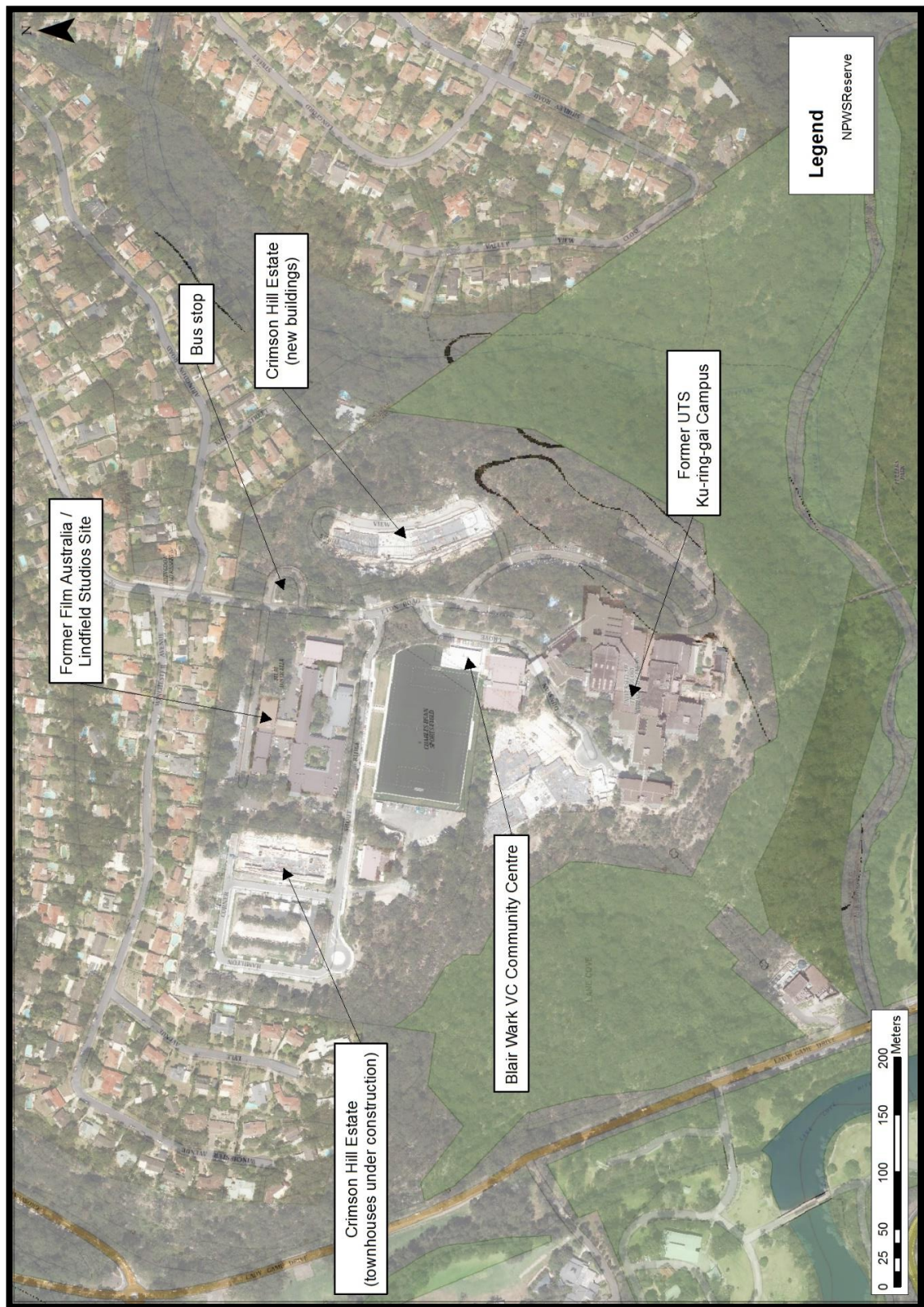


Figure A.39 Newly constructed buildings at 'Crimson Hill Estate'



Source: ERMK (1999, Figure 7.3q, p. 7-34)

Figure A.40 UTS Ku-ring-gai Campus circa 1999



Source: NSW LPI (2014)

Figure A.41 Former UTS Ku-ring-gai Campus, Crimson Hill Estate and Lane Cove National Park

Although there is no train station access, a Transdev bus service (565) still services the former campus bus stop, with two to three services an hour during the week day peak times and one to two services off-peak between 6:40 am until 8:40 pm. The service was sighted with passengers on board during the field investigations. It operates between Chatswood to Macquarie University, connecting the area with Lindfield Station, Roseville Station and Macquarie Shopping Centre.

The Film Australia/Screen Australia Lindfield studios mentioned in the EIS, were sold to Eon Developments Pty Ltd in 2015 as they were no longer required, and remained a film studio and creative space until their closure in May 2016 (Lindfield Studios, 2016). A Ku-ring-gai Council development proposal sign, fencing and screening was observed at the location of this site (refer to Figure A.42 and Figure A.43). The development application (DA0223/16) on behalf of Eon Developments Pty Ltd, is to demolish existing structures and construct a residential apartment building comprising 96 apartments, parking and landscaping. At the time of writing the application was still under assessment by Council (Ku-ring-gai Council, 2016). Thus, despite the cancellation of the station, development has occurred in the area, although confined in majority to the existing disturbed areas. However, there have been no improvements in accessibility and residents are reliant upon the 565 bus service or their vehicle for transport, as the nearest railway station at Lindfield is a 2 kilometre walk by foot on steep terrain without Council footpaths in some sections (refer to Figure A.44).



Figure A.42 Development Proposal at the former Lindfield Studios site



Figure A.43 Screening at the former Lindfield Studios site



Figure A.44 Bent Street, Lindfield, steep slopes and unpaved footpaths

Appendix B Interview Register & Participant Codes

Category	Description	Document Reference	Date of Interview
Government Stakeholders	Regulator	GREG_1	30 June 2016
	Regulator	GREG_2*	8 June 2016
Government Proponent	Proponent	GPROP_1	15 June 2016
	Proponent	GPROP_2	July 2016 28 July 2016
	Proponent	GPROP_3*	8 August 2016
Government Stakeholders	Politician/Bureaucrat	GPOL_1	22 June 2016
	Politician/Bureaucrat	GPOL_2	16 June 2016
	Politician/Bureaucrat	GPOL_3	27 July 2016
	Politician/Bureaucrat	GPOL_4	9 August 2016
	Politician/Bureaucrat	GPOL_5*	29 June 2016
Consultants	EIA Practice Consultant	PPCON_1	8 June 2016
	EIA Practice Consultant	PPCON_2	16 June 2016
	Engineering / Practice Consultant	PPCON_3	30 June 2016
	Construction Consultant	PCCON_4	6 July 2016
	Construction Consultant	PCCON_5	15 June 2016
Third Parties	Third Party Affected Stakeholder	3RDPARTY_1	30 June 2016
	Third Party Affected Stakeholder	3RDPARTY_2	18 August 2016
	Third Party Affected Stakeholder	3RDPARTY_3	14 July 2016
	Third Party Affected Stakeholder	3RDPARTY_4	14 July 2016
	Third Party Affected Stakeholder	3RDPARTY_5	27 July 2016
	Third Party Affected Stakeholder	3RDPARTY_6*	5 June 2016

**Denotes informal interview only*

Appendix C Ethics Approval

11/10/2016

Macquarie University Student Email and Calendar Mail - Conditions Met Final Approval - 5201600247(R)



MACQUARIE
University

LARA MOTTEE <lara.mottee@students.mq.edu.au>

Conditions Met Final Approval - 5201600247(R)

1 message

Faculty of Arts Research Office <artsro@mq.edu.au>

Wed, May 18, 2016 at 12:22 PM

To: Professor Richie Howitt <richie.howitt@mq.edu.au>

Cc: Faculty of Arts Research Office <artsro@mq.edu.au>, Miss Lara Katharine Mottee <lara.mottee@students.mq.edu.au>

Ethics Application Ref: (5201600247) - Final Approval

Dear Professor Howitt,

Re: (Mitigation, Management and Monitoring of Post-Development Social Impacts in Major Transport Infrastructure Projects: Framing Post-Facto Assessment')

Thank you for your recent correspondence. Your response has addressed the issues raised by the Faculty of Arts Human Research Ethics Committee. Approval of the above application has been granted, effective (18/05/2016). This email constitutes ethical approval only.

If you intend to conduct research out of Australia you may require extra insurance and/or local ethics approval. Please contact Maggie Feng, Tax and Insurance Officer from OFS Business Services, on x1683 to advise further.

This research meets the requirements of the National Statement on Ethical Conduct in Human Research (2007). The National Statement is available at the following web site:

http://www.nhmrc.gov.au/_files_nhmrc/publications/attachments/e72.pdf.

The following personnel are authorised to conduct this research:

Miss Lara Katharine Mottee
Professor Richie Howitt

NB. STUDENTS: IT IS YOUR RESPONSIBILITY TO KEEP A COPY OF THIS APPROVAL EMAIL TO SUBMIT WITH YOUR THESIS.

Please note the following standard requirements of approval:

1. The approval of this project is conditional upon your continuing compliance with the National Statement on Ethical Conduct in Human Research (2007).
2. Approval will be for a period of five (5) years subject to the provision of annual reports.

Progress Report 1 Due: 18th May 2017
Progress Report 2 Due: 18th May 2018
Progress Report 3 Due: 18th May 2019
Progress Report 4 Due: 18th May 2020
Final Report Due: 18th May 2021

NB: If you complete the work earlier than you had planned you must submit a Final Report as soon as the work is completed. If the project has been discontinued or not commenced for any reason, you are also required to submit a Final Report for the project.

Progress reports and Final Reports are available at the following website:
http://www.research.mq.edu.au/current_research_staff/human_research_ethics/resources

<https://mail.google.com/mail/u/1/?ui=2&ik=74bf66e97a&view=pt&q=conditions%20met&qst=true&search=query&th=154c1abc3e131f5c&siml=154c1abc3e...> 1/2

3. If the project has run for more than five (5) years you cannot renew approval for the project. You will need to complete and submit a Final Report and submit a new application for the project. (The five year limit on renewal of approvals allows the Committee to fully re-review research in an environment where legislation, guidelines and requirements are continually changing, for example, new child protection and privacy laws).

4. All amendments to the project must be reviewed and approved by the Committee before implementation. Please complete and submit a Request for Amendment Form available at the following website:

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/forms

5. Please notify the Committee immediately in the event of any adverse effects on participants or of any unforeseen events that affect the continued ethical acceptability of the project.

6. At all times you are responsible for the ethical conduct of your research in accordance with the guidelines established by the University. This information is available at the following websites:

<http://www.mq.edu.au/policy/>

http://www.research.mq.edu.au/for/researchers/how_to_obtain_ethics_approval/human_research_ethics/policy

If you will be applying for or have applied for internal or external funding for the above project it is your responsibility to provide the Macquarie University's Research Grants Management Assistant with a copy of this email as soon as possible. Internal and External funding agencies will not be informed that you have approval for your project and funds will not be released until the Research Grants Management Assistant has received a copy of this email.

If you need to provide a hard copy letter of approval to an external organisation as evidence that you have approval, please do not hesitate to contact the Faculty of Arts Research Office at ArtsRO@mq.edu.au

Please retain a copy of this email as this is your official notification of ethics approval.

Yours sincerely

Dr Mianna Lotz
Chair, Faculty of Arts Human Research Ethics Committee
Level 7, W6A Building
Macquarie University
Balaclava Rd
NSW 2109 Australia
Mianna.Lotz@mq.edu.au

Appendix D Example interview guide - Practitioner

Chief Investigator: Professor Richie Howitt (Faculty of Arts, Geography and Planning)

Co-investigator: Ms Lara Mottee (Master of Research candidate)

Title: Rethinking Social Impacts in Transport Infrastructure Projects:
Towards A Post-Facto Development Assessment Framework

Interview Guide - Practitioners

1. Ask the participant to sign the consent form

- a. Confirm the participant understands that they will be recorded and the recording can be stopped at any time
- b. Confirm they understand they will not be named in the research.
- c. Note down start time for interview

2. Introduce myself & the research

Parramatta Rail Link planning approval & EIS

- What was your role in the Planning approval process for the Parramatta Rail Link EIS?
- Describe the planning approval process as you recall it for the Parramatta Rail Link project
- Were there any social scientists or social impact assessment practitioners involved in the EIS team?
- Did you feel pressured by government to achieve a defined outcome during the EIS process that you did not necessarily agree with? That is, were they forcing you towards a particular outcome or did you feel as though you let the EIA guide the process?
- Are you proud of your involvement in the project? Do you feel the EIA process was effective for the project?
- On reflection, do you think there could have been any improvements? What are they?

Stakeholder Engagement & Decision-making

- Were you involved in any of the community consultation activities associated with the planning process?
- Do you agree with the amount of community engagement in the approval & decision-making process for the project? Was it sufficient? Or do you believe there should have been more done to keep the community/stakeholders informed/engaged?

Cancellation of the Parramatta to Epping Rail Link (PERL) for the Epping to Chatswood link (ECL) only

- Were you aware of any EIA that was completed following the cancellation of the PERL section of the project?
- What is your opinion on the government's decision to cancel the Parramatta to Epping Rail Link? Should the project have gone ahead?
- Do you believe the cancellation of this project resulted in impacts upon stakeholders and the community? What were these impacts?
- Do you believe that the government/governance process could/should have done more to address these impacts?
- If you don't believe there would have been impacts, are you surprised to hear that there are? Do you believe that the planning process could have addressed these impacts?

Modifications to the Original Application

- Were you involved in the preparation of modifications approvals for the project?

Chief Investigator: Professor Richie Howitt (Faculty of Arts, Geography and Planning)

Co-investigator: Ms Lara Mottee (Master of Research candidate)

- Do you believe sufficient EIA was conducted around the modifications, even though an EIS pathway was not required?
- In your opinion, was there sufficient community consultation around the modifications?

Cancellation of the UTS Lindfield station

- What is your recollection of why the UTS Lindfield station was cancelled?
- Did you think at the time that this may have repercussions for the longevity of the university?
- Do you believe that the government should have found another way for the station to go ahead?

Long-term socio-economic Impacts of the project

- What do you perceive are the long-term socio-economic impacts of the project in its constructed form?
 - Describe both positive and negative impacts of the project.

Adequacy of the post-development management strategies and monitoring of the social impacts of the project

- To the best of your knowledge, how adequate do you feel that strategies for management proposed in the EIS and monitoring of social impacts have been since the commencement of operation of the project?
- Do you believe that the governmental policy objectives have been achieved for this project? (show handout - copy of EIS section & Action for 2010 objectives)

3. Ask: Do you have any further comments? Or any questions for me?

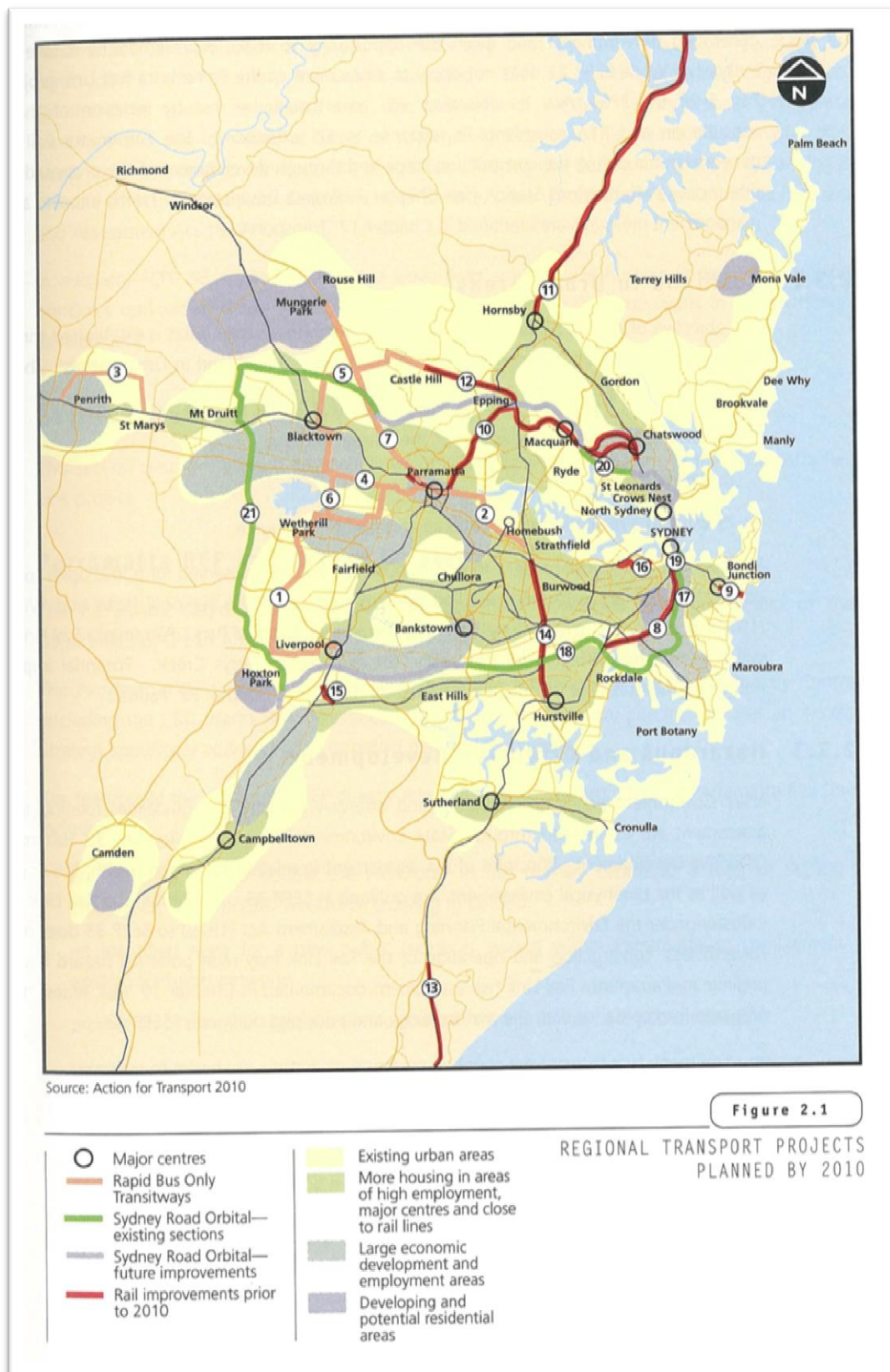
4. Explain 'where to from here'

5. Thank the participant for their time

- a. Note down finish time for interview

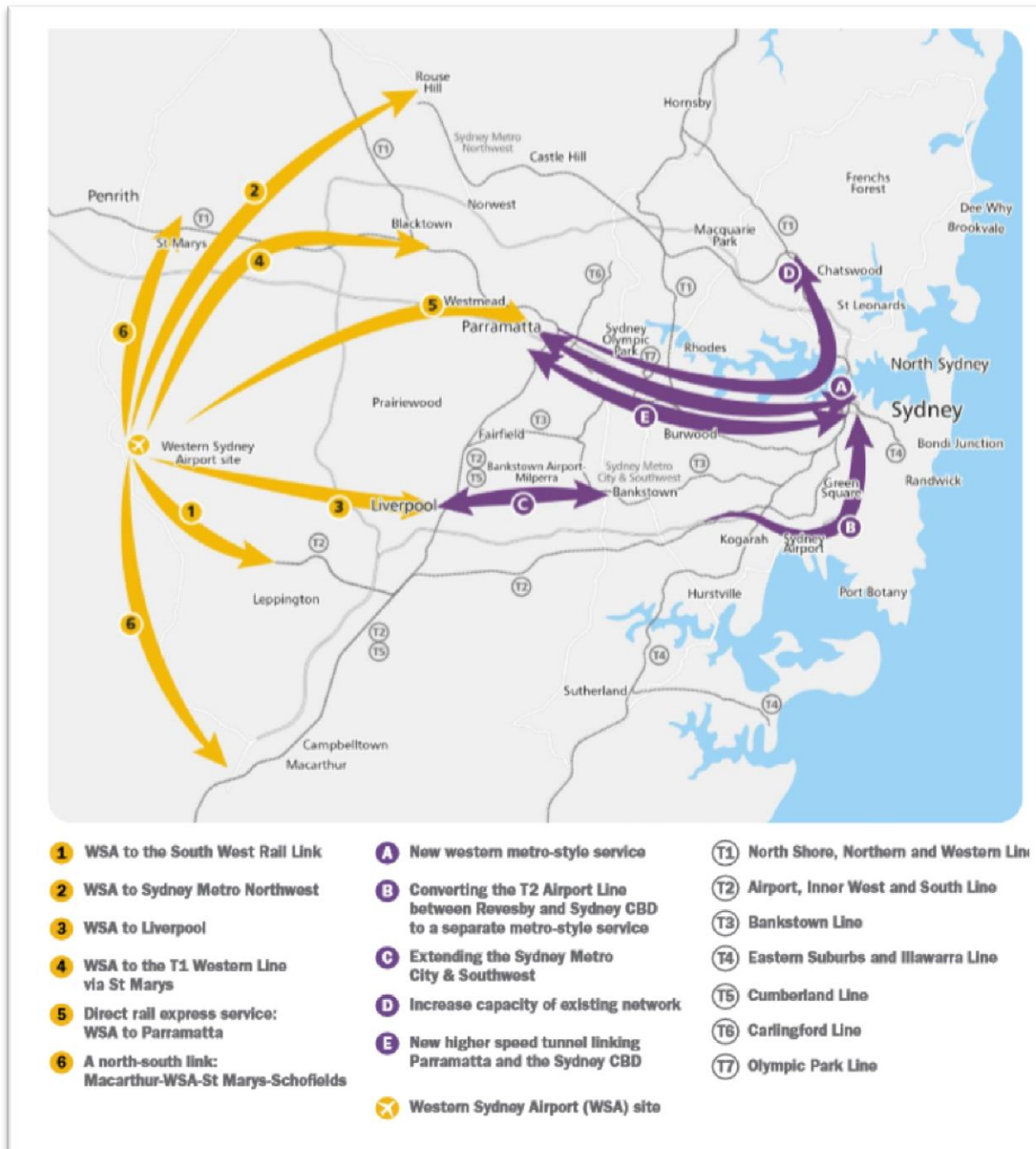
Additional Notes:

Appendix E Additional Maps



Source: ERMK (1999, Figure 2.1, p.2-7)

Figure E.1 Action for Transport 2010 Planned Projects



Source: DIRD & TfNSW (2016, p. 36)

Figure E.4 Western Sydney Rail Options

Appendix F IAIA Principles for SIA

Source: IAIA (2003, pp.5-8)

Guidelines, Principles and Core Values

I. Core Values: *Fundamental, ideal-typical, enduring, statements of belief that are strongly held and accepted as premises (is-statements).*

II. Principles: *General statements of either a common understanding or an indication as to a course of action about what ought to be done (ought statements).*

III. Guidelines: *Statements by which to plan a specific course of action and which clarify how it should be done (action statements).*

Guidelines can be described as statements which provide advice or direction by which to plan a specific course of action. They are written as specific statements of instruction about what to do and/or how to do it. Typically they are "action-statements". A principle is a macro statement that provides a general guide to a course of action about what ought to be done. They are written as "ought-statements". Core values are statements about fundamental beliefs that are deeply held. They are typically "is-statements". Values determine principles, from which guidelines can be written.

I. The core values of SIA

The SIA community of practice believes that:

1. There are fundamental human rights that are shared equally across cultures, and by males and females alike.
2. There is a right to have those fundamental human rights protected by the rule of law, with justice applied equally and fairly to all, and available to all.
3. People have a right to live and work in an environment which is conducive to good health and to a good quality of life and which enables the development of human and social potential.
4. Social dimensions of the environment – specifically but not exclusively peace, the quality of social relationships, freedom from fear, and belongingness – are important aspects of people's health and quality of life.
5. People have a right to be involved in the decision making about the planned interventions that will affect their lives.
6. Local knowledge and experience are valuable and can be used to enhance planned interventions.

II(a). Fundamental principles for development

The SIA community of practice considers that:

1. Respect for human rights should underpin all actions.
2. Promoting equity and democratisation should be the major driver of development planning, and impacts on the worst-off members of society should be a major consideration in all assessment.
3. The existence of diversity between cultures, within cultures, and the diversity of stakeholder interests need to be recognised and valued.
4. Decision making should be just, fair and transparent, and decision makers should be accountable for their decisions.
5. Development projects should be broadly acceptable to the members of those communities likely to benefit from, or be affected by, the planned intervention.
6. The opinions and views of experts should not be the sole consideration in decisions about planned interventions.
7. The primary focus of all development should be positive outcomes, such as capacity building, empowerment, and the realization of human and social potential.
8. The term, 'the environment', should be defined broadly to include social and human dimensions, and in such inclusion, care must be taken to ensure that adequate attention is given to the realm of the social.

II(b). Principles specific to SIA practice

1. Equity considerations should be a fundamental element of impact assessment and of development planning.
2. Many of the social impacts of planned interventions can be predicted.
3. Planned interventions can be modified to reduce their negative social impacts and enhance their positive impacts.
4. SIA should be an integral part of the development process, involved in all stages from inception to follow-up audit.
5. There should be a focus on socially sustainable development, with SIA contributing to the determination of best development alternative(s) – SIA (and EIA) have more to offer than just being an arbiter between economic benefit and social cost.
6. In all planned interventions and their assessments, avenues should be developed to build the social and human capital of local communities and to strengthen democratic processes.
7. In all planned interventions, but especially where there are unavoidable impacts, ways to turn impacted peoples into beneficiaries should be investigated.
8. The SIA must give due consideration to the alternatives of any planned intervention, but especially in cases when there are likely to be unavoidable impacts.
9. Full consideration should be given to the potential mitigation measures of social and environmental impacts, even where impacted communities may approve the planned intervention and where they may be regarded as beneficiaries.
10. Local knowledge and experience and acknowledgment of different local cultural values should be incorporated in any assessment.
11. There should be no use of violence, harassment, intimidation or undue force in connection with the assessment or implementation of a planned intervention.
12. Developmental processes that infringe the human rights of any section of society should not be accepted.

II(c). Other guiding principles

There are many International Agreements and Declarations that contain notable statements. Principle 1 of the 1992 Rio Declaration on Environment and Development, for example, states that “*Human beings are at the centre of concerns for sustainable development. They are entitled to a healthy and productive life in harmony with nature.*” Principle 17 calls for impact assessment to be undertaken. Article 1 of the 1986 Declaration on the Right to Development states that:

“The right to development is an inalienable human right by virtue of which every human person and all peoples are entitled to participate in, contribute to, and enjoy economic, social, cultural and political development, in which all human rights and fundamental freedoms can be fully realized. The human right to development also implies the full realization of the right of peoples to self-determination, which includes, subject to the relevant provisions of both International Covenants on Human Rights, the exercise of their inalienable right to full sovereignty over all their natural wealth and resources.”

In International Agreements and Declarations social issues are often implied but rarely given adequate emphasis. Nevertheless, the statements that are given in those Declarations can be rewritten to refer to social issues more specifically. The following is a list of international principles in common usage rewritten to apply more directly to social issues.

Precautionary Principle: In order to protect the environment, a concept which includes peoples' ways of life and the integrity of their communities, the precautionary approach shall be applied. Where there are threats or potential threats of serious social impact, lack of full certainty about those threats should not be used as a reason for approving the planned intervention or not requiring the implementation of mitigation measures and stringent monitoring.

Uncertainty Principle: It must be recognised that our knowledge of the social world and of social processes is incomplete and that social knowledge can never be fully complete because the social environment and the processes affecting it are changing constantly, and vary from place to place and over time.

Intragenerational Equity: The benefits from the range of planned interventions should address the needs of all, and the social impacts should not fall disproportionately on certain groups of the population, in particular children and women, the disabled and the socially excluded, certain generations or certain regions.

Intergenerational Equity: Development activities or planned interventions should be managed so that the needs of the present generation are met without compromising the ability of future generations to meet their own needs.

Recognition and Preservation of Diversity: Communities and societies are not homogenous. They are demographically structured (age and gender), and they comprise different groups with various value systems and different skills. Special attention is needed to appreciate the existence of the social diversity that exists within communities and to understand what the unique requirements of special groups may be. Care must be taken to ensure that planned interventions do not lead to a loss of social diversity in a community or a diminishing of social cohesion.

Internalization of Costs. The full social and ecological costs of a planned intervention should be internalised through the use of economic and other instruments, that is, these costs should be considered as part of the costs of the intervention, and no intervention should be approved or regarded as cost-effective if it achieves this by the creation of hidden costs to current or future generations or the environment.

The Polluter Pays Principle. The full costs of avoiding or compensating for social impacts should be borne by the proponent of the planned intervention.

The Prevention Principle. It is generally preferable and cheaper in the long run to prevent negative social impacts and ecological damage from happening than having to restore or rectify damage after the event.

The Protection and Promotion of Health and Safety. Health and safety are paramount. All planned interventions should be assessed for their health impacts and their accident risks, especially in terms of assessing and managing the risks from hazardous substances, technologies or processes, so that their harmful effects are minimized, including not bringing them into use or phasing them out as soon as possible. Health impacts cover the physical, mental and social wellbeing and safety of all people, paying particular attention to those groups of the population who are more vulnerable and more likely to be harmed, such as the economically deprived, indigenous groups, children and women, the elderly, the disabled, as well as to the population most exposed to risks arising from the planned intervention.

The Principle of Multisectoral Integration. Social development requirements and the need to consider social issues should be properly integrated into all projects, policies, infrastructure programs and other planning activities.

The Principle of Subsidiarity. Decision making power should be decentralised, with accountable decisions being made as close to an individual citizen as possible. In the context of SIA, this means decisions about the approval of planned interventions, or conditions under which they might operate, should be taken as close to the affected people as possible, with local people having an input into the approval and management processes.