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Social Return on Investment (SROI) in Public Transport Projects

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Stef Salamanca (z5169263)

Noam Raz (z5023505)

Rui Yan (z5210553)

Yueqi Wang (z5184176)

Asmaa Rabiee (z5134139)

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Social Return on Investment (SROI) in Public Transport Projects

Contents

1. Introduction

Social Return on Investment or SROI is a tool for placing a monetary value on the social impact of investments. As in Cost Benefit Analysis (CBA), this is achieved by comparing the benefit of an investment with the cost incurred over a given period. While transport investment decision making in Australia is current dominated by CBA, SROI's focus on social benefits presents opportunities to articulate and measure social impacts to provide insights which may be overlooked in CBA (Social Ventures Australia Consulting, 2012, p. 8)

Although originally developed for the not for profit sector (Emerson, Wachowicz, & Chun, 1999), SROI is of increasing interest to government agencies engaged in commissioning, planning and evaluating infrastructure investment and representing the resulting benefits to the community. While State and Federal Government routinely mandate the use of CBA at Business Case stages, SROI has been endorsed by the Productivity Commission (Productivity Commission, 2010, p. B.18), aligns well with NSW Treasury's current emphasis on Social Impact Investment (NSW Government, 2019), and provides a robust methodology for projects at Environmental Impact Assessment stage.

Transport for NSW is investing in Sydney's transport network on an unprecedented scale. Over the next four years the agency will spend $52.2 billion across NSW and the agency's flagship project, Sydney Metro, is Australia's largest public transport project (Transport for NSW, 2019). Alongside economic productivity, Transport for NSW's Future Transport Strategy places a strong emphasis on 'liveable communities' and 'a sustainable society' however CBA presents a blunt tool for planning and project evaluation in relation to these strategic goals. Quantifying 'intangible' social benefits through tools such as SROI is therefore critical to demonstrating "a holistic view on value creation" and the agency's "social license to operate" (Transport for NSW, 2018 p. 2). This report therefore considers the potential for using SROI in relation to future public transport projects at Sydney Metro such as Sydney Metro Greater West.

2. Methodology

The research team has followed a four-part methodology:

1 Academic and Industry Literature Review

Academic and industry literature was reviewed in relation to the applicability of SROI for transport projects. This research considered case studies that included examples of the use of both SROI and SIA to plan, evaluate and measure social impacts. Case studies were found in academic databases, reports by private sector consultancies and the not-for-profit sector. Due to a lack of precedents for metro rail SROI, the research focused not only on rail projects but also transportation systems and programs in general.

2 Case Study Research / Write Up

A total of eighteen case studies were shortlisted for review based on their relevance to transport and community profiles. Information was then ordered in a systematic way using a proforma. The proforma can be found in the appendix to this report. Criteria considered in each case study were categorising using the proforma and a range of indicators derived to provide an evidence base for Sydney Metro.

3 Western Sydney Social Needs

Even though the context of the case studies varies significantly, they nevertheless document a range of indicators which align well with social needs in Western Sydney. Data from the evidence base was organised in a form of a matrix containing a summary of the most relevant social indicators. The most relevant indicators were highlighted and examples of monetisation methods proposed.

4 Project and Policy Recommendations for Sydney

Opportunities and challenges for developing and implementing SROI at Sydney Metro were considered and a series of project and policy recommendations were identified and summarised in the report conclusion.

3. Literature Review

Social Return on investment (SROI) as a framework is used for quantifying and accounting for social value created It documents and evaluates outcomes not necessarily well captured in cost analysis benefit (Wright et. al, 2009). SROI uses financial proxies to describe how change is created by quantifying social, environmental and economic outcomes. As a result, a ratio of benefits to costs can be calculated. for example, a ratio of 4:1 means that an investment of $1 generates $1 of social value

SROI can be both evaluative and forecastive. The former refers to outcomes that have taken place, the latter is used to predict what the social value will be if the proposed activities achieve target outcomes (NFF, 2019). A typical SROI compromises six stages

1. Establish scope/Identification of stakeholders: this is where boundaries are set about what the organization is planning to cover with SROI. Stakeholders can be identified by writing a list of the people who might affect or be affected by the activities set in the boundaries.
2. Map outcomes: an impact map that shows the link between inputs, outputs, and outcomes can be developed through community and stakeholder engagement.
3. Evidence of outcomes/assignation of values: this stage requires data collection to demonstrate whether outcomes have occurred, if so, a value is given to them.
4. Establish impact: after outcomes have been collected and monetized, aspects of change that would have happened anyway are eliminated and therefore not taken in consideration.
5. Calculation the SROI: all the benefits are added, and the negatives are subtracted, the result is then comparted to the initial investment. Sensitivity analysis can be applied for testing the results
6. Report use and implementation: this is one of the most important stages because it involves meetings with stakeholders where findings are shared. (Nicholls. et al 2012)

SROI is mostly used in not-for-profit organizations and social enterprises (NFP) as it serves as a management tool that can show the efficiency and effectiveness of their programs (Cooney at al. 2014). Implementing SROI has helped many NPF organisations understand how and why they are generating an impact, so there is a better understating of processes that can improve strategic planning. Such impacts can then be used as a benchmark in planning and future improvements (Social Ventures Australia consulting, 2012).

4. International Case Studies

A range of case studies were identified to create an evidence base for the report. Case studies were selected either because they provide an example of the use of SROI in transport, or because they illustrate social impact assessment on major transport projects relevant to Sydney Metro. The team were not unable to identify any examples of the use of SROI in metro rail corridor planning.

The case studies using SROI include examples of both predictive and evaluative use of the tool however most were evaluative and there do not appear to be any examples in the public domain of predictive followed by evaluative SROI to confirm initial findings.

A summary of each case study is set out in the table below. Refer to the report appendix for further details.

South Staffordshire Connect Service, UK

- South Staffordshire is a largely rural area and effective transport is vital for residents who cannot drive or access bus routes.
- South Staffordshire also has a rapidly ageing population and the project focusses on personal mobility for this population.
- Being able to get out and about is also a key enabler to good health and well-being and helps people remain active and independent for as long as possible.
- The SROI ratio created by the Connect service lies within the range of 7 and 14, generated by a total investment of £245,000. (South Staffordshire Council, n.d)

Project emphasis: Health and mobility of ageing population
Benefit as reported: $3 m AUD p.a.
SROI Ratio: 7 : 1

Access Alliance Program, UK

- Access Alliance Program (AAP) is a $1.8 million fund program to support and develop sustainable transportation systems to improve employment and training opportunities for residents of former coal mining areas in Nottinghamshire and Derbyshire.
- The program has used evaluative SROI based on monitoring and assessment of employment and transportation accessibility.
- Data was used to inform government investment in transportation, employment and education services.
- The total annual social benefit reported was $5.1 million, and the added value of each customer was equivalent to $10,120 resulting in an SROI ratio is 2.56. In other words, for every $1 AAP investment, an approximately $2.56 social value is generated (James & Waldron, 2011).

Project emphasis: Employment and Skills
Benefit as reported: $ 5.1 m AUD p.a.
Cost as reported: n/a
SROI Ratio: 2.56 : 1

Table 1 – Case Study Summaries

Rural Community Transport Partnerships, UK

- The rural community transport partnerships are a group of non-profit organizations that provides affordable transportation services to individuals and groups affected by the lack of transportation, rural segregation and isolation across Northern Ireland.
- The SROI analysis considered indicators such as individual transport users, volunteer drivers and community organizations which have gained various benefits.
- The project used surveys to evaluate community needs and received much positive feedback.
- Total investment across the partnerships was £4,800,356, and present social value was calculated as £58,856,247 resulting in an SROI ratio of 12 : 1.

Project emphasis: Health and Skills
Benefit as reported: $ 5.6 million AUD p.a.
Cost as reported: n/a
SROI Ratio: 12 : 1

Calgary Low Income Monthly Transit Pass (LIMTP), Canada

- The LIMTP is a discounted monthly transit pass for low-income residents of Calgary.
- The potential to create social value through investment in LIMTP was investigated by employing a quantitative research methodology.
- The indicators considered in the SROI calculation are residents' income, wealth, education and skills. The social value created as a result of the affordable transportation are improved financial situations, better quality of life, and improved overall health.
- The SROI ratio resulting from investing in the LIMTP program for Calgarians who are single is 1:9.65, for single parents is 1:24.57, and for disabled or chronically ill residents is 1:18.27 (Roberts, 2017).

Project emphasis: Employment, Education and Skills, Health
Benefit as reported: $ 2.65 m AUD
Cost as reported: n/a
SROI Ratio: varies

Table 1 (cont.) – Case Study Summaries

Transport to Employment (T2E), UK

- T2E (Transport to Employment) is a centrally coordinated shared transportation program. It improves the range of transportation options available in remote communities through the uses of community-based drivers and taxi companies.
- The program is particularly beneficial for young people and women in sparsely populated areas, improving access to employment, training and childcare services.
- T2E negotiated with taxi operators to reduce 45% of public tariffs to minimize operating costs.
- User data was used to analyse employment and education indicators, demonstrating about $1.1 m social benefit and an SROI ratio of 3.07:1 (Wright, 2009).

Project emphasis: Employment, Training &. Childcare
Benefit as reported: $ 1.1million AUD p.a.
Cost as reported: $ 328,000 AUD p.a.
SROI Ratio: 3.07: 1

Heathrow Airport Runway 3, UK

- This case study was chosen because its analysis of social costs and benefits at Heathrow provides a useful precedent for reviewing similar costs and benefits at Western Sydney Airport and Aerotropolis in the context of Sydney Metro Greater West.
- The paper provides a realistic and comprehensive analysis of the cost and benefits of Runway 3 in Heathrow Airport in UK using SROI. While the construction of Runway 3 is projected to provide $16.5 bn in social and economic benefits and create 12,000 job opportunities, however it will result in significant environmental problems impacting on local communities.
- Using the UK's Department of Transport measurement methods to monetize pollution problem, air pollution resulting from Runway 3 is projected to increase the mortality rate by 8%-11%, blight will cause $0.55 bn in economic losses, surface congestion will cause $1.8 bn economic losses, and noise will cause $3.7 bn economic losses (Kersley & Lawlor2010).

Project emphasis: Comparison of CBA and SROI evaluation methods
Benefit as reported: n/a
Cost as reported: n/a

Table 1 (cont.) – Case Study Summaries

Delhi Metro, Phase One and Two, India

- Rapid population growth means that Delhi's existing road network is inadequate resulting in severe congestion with vehicles accounting for more than two-thirds of air pollution.
- Delhi Metro was the first stage of a multi-modal regional transport masterplan including rail corridors, metro corridors and dedicated bus lanes.
- The indicators considered in the Delhi Metro Phase One and Two CBA include carbon emissions, environmental hazards, urban renewal, safety, connectivity and employment.
- The total project budget is 2.9 bn AUD for phase one and two and the CBA ratio is 2.27 : 1 (Murty et al., 2006).

Project emphasis: Carbon emissions, comgestion relief and and employment
Benefit as reported: n/a
Cost as reported: $ 2931 million AUD
CBA Ratio: 2.27 : 1

Common Social Impact Framework (CSIF) for Rail, UK

- Framework designed to provide a common, consistent basis for measuring social impacts across the UK rail industry.
- 10 key social impacts with sub-impacts are considered
- Includes library of goals, indicators, metrics & monetised values
- Describes alternative approaches for qualitative reporting where monetised values cannot be used
- The framework is deliberately developed to be broadly applicable and project teams are required to select relevant indicators.
- Uses existing tools from HM Treasury, UK Department for Transport, SROI and recent major projects. (Simetrica & Arup, 2018).

Project emphasis: Versatility to suit range of rail projects across the UK rail industry, considering all project stages
Benefit as reported: n/a
Cost as reported: n/a
SROI Ratio: n/a

Table 1 (cont.) – Case Study Summaries

Melbourne Metro, VIC

- Melbourne metro consists of two nine-kilometers long rail from Kensington to South Yarra. The metro is expected to improve access to employment and social infrastructure.
- The report highlights potential impacts in the construction and operation phase. Broader local government areas and surrounding suburbs are studied in the assessment.
- The methodology for the impact assessment involved a social survey with approximately 3000 people across Victoria.
- Nine information sessions were held for community engagement involving key stakeholders and interviewing residential landholders.
- Feedback was received both in person and online.
- The main positive impacts reported were community accessibility, amenity and perceptions of safety.

Project Emphasis:	Increasing transport capacity and urban connectivity
Benefit as reported:	Community accessibility, amenity and perceptions of safety
SROI Ratio:	n/a

Brisbane Cross River Rail, QLD

- Cross river rail runs from Dutton park to Bowen Hills and iincludes a 5.9km tunnel under the CBD and Brisbane river.
- Cross river rail is intended to address problems in Brisbane's existing transportation network, provide a fast and convenient transportation system for southeast Queensland and create opportunities for economic development and the prosperity of CBD.
- It is also expected to reduce the possibility of traffic accidents and traffic jams.
- The project SIA considered environment, connectivity, employment and accessibility indicators. (SKM, 2011).

Project emphasis:	Economic development and accessibility
Budget as reported:	$ 5.4 billion AUD
Cost as reported:	n/a
SROI Ratio:	n/a

Table 1 (cont.) – Case Study Summaries

Parramatta Light Rail, NSW

- The Parramatta Light Rail currently being developed by Transport for NSW seeks to connect areas such as Westmead, Parramatta north, Camelia, Telopea, Rydalmere and Sydney Olympic park.
- The light rail network will be approximately 12km in length with a total of 16 stops.
- Our casestudy considered social impacts during the construction and operation phase of phase 1 (Westmead to Carlingford) using a social impact assessment methodology.
- A range of potential social and economic impacts were identified as well as the communities affected during the construction and operation from the project.
- Positive impacts include improved access to the major hospital precinct at Westmead and resulting synergies with health service provision.

Project Emphasis: Connecting urban areas
Benefit as reported: Access and connectivity, safety, local amenity and education
SROI Ratio: n/a

Newcastle Light Rail, NSW

- Newcastle Light Rail runs from Newcastle Interchange in Wickham to Newcastle Beach in the east end of Newcastle.
- It includes about 2.7 km of light rail track, consisting of about 2.5 km of dual track and 180m of single track.
- The SIA undertaken for Transport for NSW involved an assessment of socio-economic benefits and impacts during construction and operation has been.
- Key impacts were access and connectivity, amenity and aesthetics, business performance, social infrastructure, land values, employment and economy and community safety (Transport for NSW, 2012)

Project Emphasis: Utilisation of former rail corridor to support urban renewal
Benefit as reported: Access and connectivity
Cost as reported: $600 m AUD

Table 1 (cont.) – Case Study Summaries

Aberdeen Social Transport Project, UK

- The ACVO TSI Supported Social Transport Project (STP) provides nil or low-cost door to door services to Aberdeen city residents over 55 years for whom general public transport is not convenient.
- Free carer support is provided during the trips.
- The main indicators in the SIA consisted of economy, safety and security, health and accessibility.
- It has improved access to health care services and facilities and reduced social and economic exclusion (ACVO, 2016).

Project emphasis: Health and Aged care
Benefit as reported: n/a
Cost as reported: n/a

Auckland City Rail Link, New Zealand

- The City Rail Link Project (CRL) comprises a 3.4km long railway which include two tracks and three railway stations, operating between Britomart Station and the North Auckland Line in the vicinity of the existing Mount Eden station, as well as an 850m additional track within North Auckland Line.
- The project SIA used feedback from local residents to further evaluate possible social impacts propose some solutions.
- The benefits of the project highlighted in the study were to improve commuting opportunities, reduce traffic congestion and improve travel safety.
- Negative were pollution, safety hazards during construction and property rights (Beca, 2011).

Project emphasis: Social & Environmental impact
Benefit as reported: n/a
Cost as reported: n/a

Table 1 (cont.) – Case Study Summaries

Bogota Metro, Colombia

- Bogota Metro, currently under construction, is a city shaping project targeting urban renewal and is based on a railway viaduct network with an extension of 23.86 km and 16 stations of which 10 have a direct connection to the existing TransMilenio System.
- The project was evaluating using an Environmental and Social Impact Assessment (ESIA), which concluded that the Bogota public will benefit substantially from the introduction of metro service.
- Indicators included commuting time, reduced carbon emission, improved accessibility and employment opportunities for 8 million labour force.
- ESIA helped identify impacts and risks associated with different stages of the project (preconstruction, construction and operation).
- Control and mitigation measures for impacts recognized in this feasibility phase were also formulated (Cardona & Alberto, 2018).

Project emphasis: Employment and Accessibility
Environmental budget: $ 60 m AUD
Social budget: $ 61 m AUD

Tehran Metro, Eastern District, Iran

- The Tehran study assesses the social impacts of metro development in eastern parts of Tehran after the completion of three new metro stations in line four, which was partially inaugurated in 2007, and completed in 2010.
- Various impacts of metro development were examined using a conceptual model.
- For this SIA study, indicators were clustered in three categories: accessibility, mobility and social wellbeing.
- To evaluate these categories a questionnaire was designed and used to evaluate the social indicators.
- A factor analysis was carried out to confirm the proposed model. (Nikfalazar et al., 2014)

Project emphasis: Accessibility, mobility and social well-being
Benefits as reported: Access and connectivity, improving local business conditions and creating social interaction
SROI Ratio: n/a

Table 1 (cont.) – Case Study Summaries

California High Speed Rail, USA

- California's intercity high-speed rail project is intended to accommodate increasing rail passenger demand and to meet the rising expectations of riders for a high quality rail travel experience.
- The study involves cost-benefit analysis, economic impact analysis, and social impact analysis.
- Benefits assessed were travel benefits (such as travel time, travel cost, reliability and traveler productivity), social benefits (such as traveler safety improvement, reduction in greenhouse gas, and energy resources), regional benefits (such as agglomeration and emission reduction for pollutant), and local benefits (such as noise reduction and station area development) (Sriraj, 2017).

Project emphasis: Improve intercity rail services
Benefits as reported: %20.7 bn AUD by 2040
SROI Ratio: n/a

Mumbai Metro, India

- Mumbai Metropolitan Region (MMR) has an over-crowded public transport systems and a congested road network.
- The EIA analysis considered in this case study was conducted prior to finalization of business case but after station locations had been announced for Mumbai Metro.
- The analysis was based on on-line questionnaires considering impacts at six proposed station locations.
- It used 'Leopold Matrix' multi-criteria analysis of environmental and social indicators, weighted to local context but not monetized.
- The main benefits considered were construction impacts, employment benefits, urban renewal, population mobility and safety. The study also highlighted negative impacts on environment and population displacement (Khaire & Jeswani, 2018).

Project emphasis: Employment and urban renewal
Benefit as reported: n/a
Cost as reported: $ 300 million AUD

Table 1 (cont.) – Case Study Summaries

5. Case Study Analysis

Our case studies are located in urban and rural areas across four continents, and in both developed and developing economies. They consider a diverse range of transport modes from high speed rail, to metro rail, light rail, buses and private vehicles. Some have no dedicated hard infrastructure requirements and have been operates within budgets below $1m AUD while budgets for the metro and heavy rail case studies run into many billions and a long-term projected budget of $30.7bn AUD for US High Speed Rail.

While the context, scale and character of our case studies vary greatly, the social indicators considered in each example generally align with the twelve indicator fields and twenty-four indicators listed in the table below:

		Social Return on Investment						Other Methods (SIA, Social CBA)											
		Staffordshire Connect	Access Alliance Program	Rural Community Transport	Calgary Low Income Pass	Transport to Employment	Heathrow Terminal 3	Delhi Metro	SCIF for Rail	Melbourne Metro	Brisbane Cross River Rail	Parramatta Light Rail	Newcastle Light Rail	Aberdeen	Auckland Light Rail	Bogota Metro	Tehran Metro	US High Speed Rail	Mumbai Metro
Local Economy	Local procurement								◆										
	Local economic growth / productivity						◆		◆	◆		◆	◆	◆	◆			◆	◆
Housing	Housing choice								◆	◆		◆							
	Housing addordability								◆										
Carbon Emissions	Car reliance / walkability	◆						◆	◆	◆			◆		◆				◆
	Fuel consumption							◆			◆					◆		◆	◆
Environmental Hazards	Pollution						◆	◆	◆		◆	◆	◆			◆		◆	◆
	Noise						◆		◆			◆	◆					◆	◆
Urban Renewal & Environment	Urban Renewal and Regeneration			◆					◆			◆	◆		◆			◆	◆
	Social / Visual Amenity						◆	◆	◆			◆			◆		◆		◆
Safety and Security	Accidents	◆						◆	◆		◆			◆	◆	◆	◆	◆	
	Crime and personal safety								◆				◆		◆				
Connectivity	Congestion						◆	◆	◆	◆	◆	◆			◆	◆			◆
	Travel time	◆		◆				◆	◆	◆	◆	◆	◆			◆		◆	
Income and Wealth	Social equity		◆			◆	◆	◆	◆						◆				
	Household Income				◆			◆	◆										
Employment and skills	Employment / access to employment	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆
	Education / access to training	◆	◆		◆		◆		◆	◆		◆	◆				◆	◆	
Participation and Inclusion	Social cohension / avoid severence	◆							◆	◆		◆							◆
	Diversity & inclusion	◆	◆	◆		◆			◆						◆				
Health	Physical health / healthcare access	◆	◆	◆	◆		◆		◆	◆				◆			◆	◆	◆
	Mental health / access to care	◆		◆			◆		◆					◆					
Accessibility	Personal mobility	◆		◆		◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Travel affordability	◆	◆	◆		◆			◆					◆				◆	

Table 2 – Case Study Indicator Matrix

Notably, while the case studies on the right-hand side of the table, assessed following 'other methods' such as Social Impact Assessment or Social CBA, all considered a broad range of indicators, case studies where SROI was used generally focussed on the personal outcomes targeted by each initiative.

Examples of personal outcome considered in the SROI studies include physical and mental health, personal mobility, transport affordability, access to employment, household income and travel time. Broader urban or regional impacts such as housing choice and affordability, urban renewal, social and visual amenity, crime and safety and local economic development tend not to have been directly considered, even though these indicators represent significant social factors with direct impact on community wellbeing.

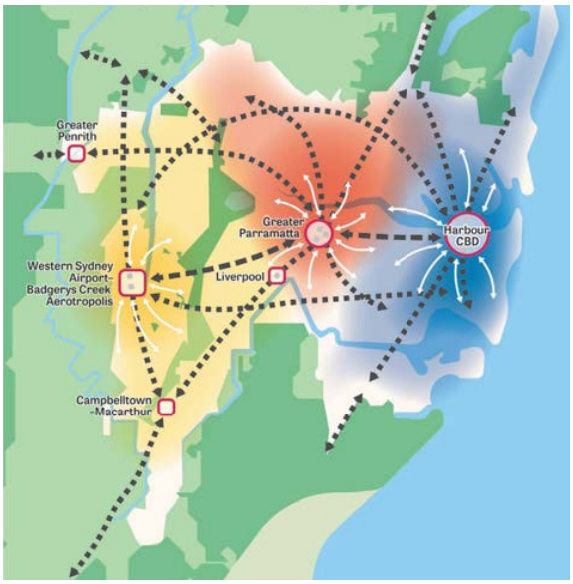
It seems remarkable that while SROI is used extensively to evaluate projects targeting homelessness and housing affordability, we have been unable to identify any transport SROI studies which consider housing choice and affordability. This is surprising given the clear relationship between house prices and accessibility.

The tendency for SROI reports to focus on immediate but not broader community impacts reflect the framework's underlying methodology where stakeholders are identified early, and an impact map developed to allow outcomes to be analysed through community engagement. SROI was originally developed for use in the not for profit sector where organisations typically target specific clients and geographic areas, whereas use of SROI on transport projects requires a more holistic approach capable of broad community impacts across urban corridors and city regions.

The broader range of indicators considered in our non-SROI case studies suggests how SROI use may need to be 'scaled up' to address social impacts resulting from city-shaping projects such as Sydney Metro Greater West. These studies generally followed an SIA methodology and are disproportionately focussed on negative social impacts resulting from transport development – for example, noise and vibration, loss of greenspace and severance within communities. The only example in this category which attempts to monetise social benefits and refocus its analysis on positive social impacts is the Social CBA of Delhi Metro (Murty, Dhavala, Ghosh, & Singh, 2006).

6. Social Indicators for Sydney Metro

After Sydney Metro North West, South West and West, the next major metro development at Sydney Metro will be Sydney Metro Greater West. While the first three projects serve existing urban areas, Sydney Metro Greater West extends the metropolitan area to service the new Western Sydney International (Nancy-Bird Walton) Airport and will become a central transport spine for the Greater Sydney Commission's vision for a Western Parkland City centred on the Badgery's Creek Aerotropolis ((Greater Sydney Commission, 2018, p.16).



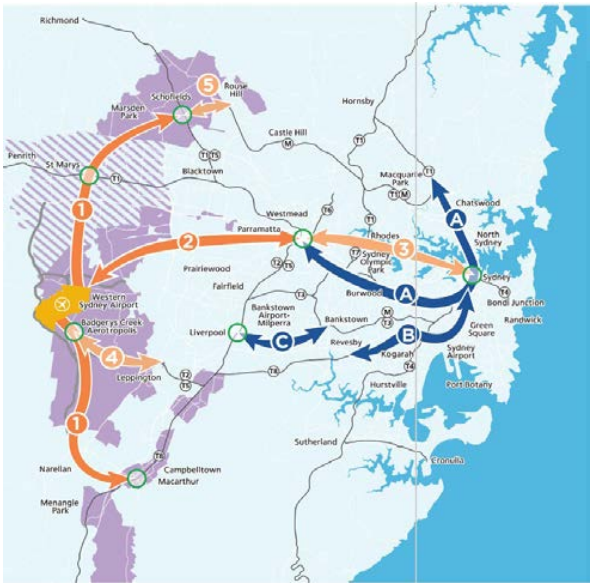


Fig 1 (left) – The Greater Sydney Region Plan, A Metropolis of Three Cities (Greater Sydney Commission, 2018, p. 7);
Fig 2 (right) – The Long Term Preferred Network for Western Sydney (Commonwealth of Australia & NSW Government, 2018, p. 54)

The Commonwealth & State Government Rail Needs Scoping Study comments that railway investment will help shape the Western Parkland City by:

- *"fostering housing, commercial and community services development to cater for forecast population growth*
- *offering opportunities for development of affordable housing supply*
- *enabling liveable, well connected and productive development oriented around new stations or future transport interchanges*
- *facilitating agglomeration, with businesses encouraged to locate in areas with good access to the rail network*
- *enhancing connections between homes and jobs within Western Sydney and Greater Sydney more broadly*
- *supporting access to growing centres including Liverpool, Penrith, Campbelltown-Macarthur, Western Sydney Airport and the Badgerys Creek Aerotropolis."*

The diagram below highlights how these factors are closely aligned with the SROI indicator fields identified in the case studies:

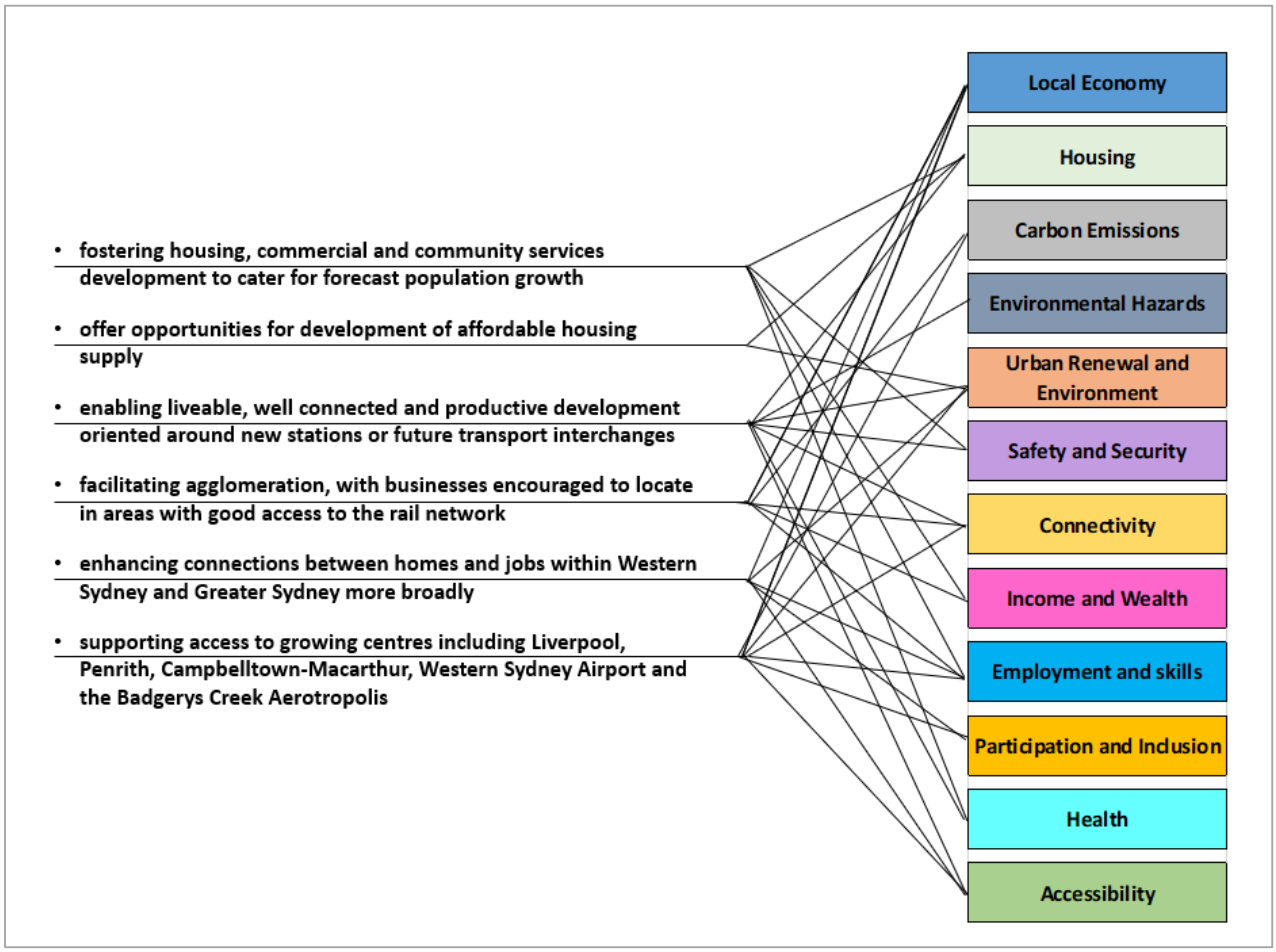


Fig 3 – Western Parkland City Indicator Field Map

The case studies provide a useful resource for methods to evaluate and monetise indicators. Examples from the case study review are listed below:

Local Economy

- **Contribution to GDP** – Additional wages that can be generated by people being able to get a second job due to the metro
- **Contribution to Local Businesses** – Estimate of the increase spend in the economy by comparing the number of residents before and after the metro is in operation, this can include small to medium business around the area.

Housing

- **Housing Affordability** – Cost housing subsidies (spending on benefits, social and community housing)

- **Housing Access** – Cost of public services to support rough sleepers. Cost of health impacts based on rough sleeper numbers and proxy value per human life.

Carbon Emissions

- **Fuel Consumption** - Savings in fuel consumption due to the diversion of road traffic to Metro and reduced congestion to vehicles still operating on the roads.

Environmental Hazards

- **Pollution Reduction** - Estimate of the pollution reduction multiplying the distance saved by the relevant emission coefficient for different pollutants for each category of vehicle.
- **Air Quality** - Reduction in reports of respiratory diseases and monetised through reduced healthcare costs, or increased life expectancy based on proxy value per human life.

Urban Renewal and Environment

- **Urban Renewal** – Improved amenity measures through leisure time proxy values, economic growth based on predicted domestic rental and commercial property value increases.

Safety and Security

- **Road Safety** - Reduction in fatalities and accidents based on number of vehicles expected to go off the road (diverted traffic) due to the Metro.

Connectivity

- **Travel Time Reduction** – Calculated as the product of the number of passengers / motorists travelling daily and the time saved by the average passenger
- **Congestion reduction** - Annual vehicle operating cost reduction from fewer hours on road. Product of residual traffic, time saved per vehicle annually and the vehicle operating cost per hour.

Income and Wealth

- **Household Income** - Change to total value of annual salaries of jobs publicly advertised based on projections for similar transport-oriented developments.

Employment and skills

- **Access to employment** – Survey data on business confidence, ABS employment data at transport-oriented development.
- **Skills and access to education** - Change in confidence levels of young people involved in interventions.
- **Access to education system** - Program targets based on investment in education and skills training based on value capture from development.

Participation and Inclusion

- **Leisure:** Percentage of income normally spent on leisure
- **Access to local clubs:** Cost of memberships of social clubs or networks by local residents
- **Access to religious centres:** Church contributions made by local residents

Health

- **Population health** – Increased life expectancy based on projected increase access to active transport options, pollution reduction etc, using proxy value per human life.
- **Access to health system** – Increased life expectancy due to health system investment funded through TOD value capture, using proxy value per human life.
- **Mental health:** Decrease of value of counselling sessions

Accessibility

- **Personal mobility** – Change in confidence level based on mobility of residents in aged care accommodation; Reported increase in young people accessing youth and sports clubs and sports facilities
- **Travel affordability** – Change in percentage of household income spent on transport.

7. Implementation

Over recent years a broad range of tools have been created for use in social impact appraisal and accounting. These range from multi-criteria frameworks based on qualitative assessments which do not generate financial metrics, to tools which generate financial values without impact measurement such as the Pacific Community Ventures Social Return Assessment (SAA). Tools such as Social Enterprise London's Social Impact Measurement for Local Economies (SIMPLE) require time-consuming in-depth investigation, while others like Social Enterprise London's Balanced Scorecard (BSC) are high level tools suited to strategy development only. Some are freely available at no cost and can be customized while others like the D.O.B Foundation's Social e-calculator are tightly structured and must be purchased under license (Watson & Whitley, 2017, pp. 877-8).

Opportunities

- **Versatile Internationally recognized framework**

SROI sits at the centre of the spectrum of tools outlined above and presents significant opportunities for Sydney Metro. Popularised by the New Economics Foundation in the UK (New Economics Foundation, 2019), and promoted in Australia by the Centre for Social Impact, PWC and Social Venture Australia (SVA Consulting, 2011), SROI it is now a readily available internationally recognized tool backed up by a growing network of certified practitioners. While its use by government agencies in Australia is limited, guidance from international sources is available, for example the UK Cabinet Office has developed a guide for applying SROI in government commissioning (UK Government Cabinet Office, n.d.).

- **Robust monetized data**

By combining quantified and qualitative methods, SROI it can enhance community engagement and support Sydney Metro's social license to operate. Unlike CBA, the tool provides a targetted focus on immediate short term community impacts over a 5 year discount period. It is however used in conjunction with similar monetizing formulae to those in traditional CBA providing robust and transferable financial metrics expressed in terms with which investors and commissioners are familiar.

- **Predictive and evaluative**

Unlike most social impact tools available, SROI is designed for use both as a predictive tool – of value in supporting commissioning decisions, and as an evaluative tool which can be used to to confirm policy and support ongoing maintenance and upgrades to existing infrastructure. This presents opportunities for the tool to be used as part of virtuous cycle where evaluation of benefits from past projects is used to inform future projects, service operation, and upgrades to existing lines.

Challenges

Implementing SROI within Sydney Metro nevertheless presents a range of challenges

- **Upscaling SROI**

The literature review has highlighted SROI's origins in the Not for Profit sector (Cooney at al. 2014) where impact mapping generally focusses on small scale projects targeting specific client groups, local regions, or discrete sectors. The Case Study Indicator Matrix highlighted how SROI's general focus on easily identifiable clients risks neglecting broader community impacts which can result from city shaping infrastructure. We suggest that SROI requires:

1. ‘upscaling’ to address the broad social impacts and opportunities presented by major rail corridor development; and
2. Application with location or materiality weightings to suit local conditions, for example at specific station locations or the differing needs of greenfield, residential or industrial areas.

- **Skills and resources**

Another potential impediment to effective implementation is unusual skill set required to effectively conduct SROI’s combination of community focused stakeholder engagement and sophisticated data analysis and economic modelling. Moody et al. (2015) note that this mix of skills is not always readily available in the public service while the cost of procuring these services through external consultants can challenge departmental budgets, especially at strategic pre-business case stage when specific project funding streams may not be available.

- **Public use of data**

SROI differentiates itself from CBA in its use of extensive stakeholder engagement (Banke et al. 2015). This requires government to commit to genuine transparent public engagement and the sharing of social value findings, notwithstanding the political and reputational damage that can result if SROI targets are not later realized.

While not a substitute for community engagement, there is potential to supplement engagement with the growing body of digital data resources available to Sydney Metro from Opal Card passenger data, ABS data sets and the Commonwealth data.gov.au open data initiative. This may mitigate difficulties implementing stakeholder engagement at times when project details are commercially sensitive and cannot be disclosed.

The black and white numerical reporting that SROI requires can risk raising expectations whereas many social outcomes will only be realised in the long term. These are political / reputational risks which need to be managed. Sydney Metro will need to resist the temptation to foreground positive social metrics over possibly adverse impacts as this risks distorting evidence-based decision making and can worsen long term outcomes (Yate et al. 2017).

- **Greenfield development**

Sydney Metro Greater West is distinct from previous Sydney Metro projects in that while it interfaces with existing communities, the rail corridor runs through greenfield areas with low population densities where existing communities may not provide a sufficiently robust for stakeholder engagement prior to development of the transport corridor and subsequent changes in density and land use.

Just as Sydney Metro will need to up-scale SROI to suit more holistic use on large scale urban infrastructure, there is also a need to adapt existing stakeholder identification methods and potentially introduce engagement with proxy communities from areas affected by previous projects.

- **Implementation program**

While SROI aligns naturally with business case and development approval EIA stages, these stages are too late to maximise value. Key social impacts are determined at early strategic planning stages, before transport corridors and station location are finalized, and planning processes may require realignment to create opportunities for SROI to be used prior to project definition, and then continue to be used through the Infrastructure NSW gateway process (Lievesley, 2012).

8. Conclusions and Recommendations

The NSW Government Future Transport Strategy 2056 presents a long term vision for how investment in transport can support sustainable communities as Sydney grows in size to a city of more than 12 million people (NSW Government, 2018, p2). Growth on this scale brings with it significant social challenges and Transport NSW is committed to developing city shaping transport infrastructure which promotes liveable communities and the social inclusion, health and well-being of the people who live in them (NSW Government, 2018, p8).

Effective decision making on city shaping transport projects requires a holistic approach to social value creation based on robust methods for Identifying and quantifying social benefits. Infrastructure NSW's gateway process relies heavily on the evaluation of alternatives through CBA and while the NSW Government has recently updated its guide to CBA (NSW Treasury, 2017) this update does not address the many limitations of CBA for the assessment of social value. While CBA attempts a holistic approach, its breadth and use to report a single summary ratio across economic, social and environmental indicators limits its ability to focus decision making on social benefits. Its 'relentless monetisation' of social benefits, often in cases where these are hard to measure or evidence, and general lack of focus on social outcomes means it provides only a blunt tool for the consideration of social value (Watson & Whitley, 2017, p. 5).

We have considered the suitability of SROI as a supplementary tool, for use alongside CBA, to re-focus transport commissioning on social value. Our case studies illustrate the use of SROI as both a predictive and evaluative tool, generally on smaller scale projects targeting benefits for specific population groups such as job-seekers, low income groups, older people, or those with mobility challenges. The case studies however highlight how following an SROI methodology can improve data quality through:

- Rigorous identification of stakeholders affected
- Impact mapping in relation to specific regions, precincts and stakeholder groups
- Close community engagement to ascertain data not available through desk-top study
- Innovation in monetising methods to suit specific social context
- One to five years impact periods to maintain a focus on outcomes which may be lost with long discount periods
- Sharing data with stakeholders and service providers to validate and act on findings

Our research has informed the following four recommendations for the use of SROI by Sydney Metro.

Recommendation 1 Upscale the Tool

Our primary recommendation is that SROI should be developed as a holistic tool suitable for assessing social value across large scale city-shaping infrastructure.

Recommendation Background

SROI's origins in the not-for-profit sector, where impact mapping generally focusses on small scale projects targeting specific client groups and regions means that most examples of its use target a limited range of indicators. The Case Study Indicator Matrix described in Section 5 highlights how the indicators considered by our SROI case studies were generally limited to the following ten areas:

1. Social equity
2. Household Income
3. Employment / access to employment
4. Education and skills / access to training
5. Social cohesion / avoid severance
6. Diversity & inclusion
7. Physical health / healthcare access
8. Mental health / access to care
9. Personal mobility
10. Travel affordability

Case studies following Social Impact Assessment or CBA with a social focus tended to consider the following additional fourteen indicators bringing the total of relevant indicators to 24:

11. Local procurement
12. Local economic growth / productivity
13. Housing choice
14. Housing affordability
15. Car reliance / walkability
16. Fuel consumption
17. Pollution
18. Noise
19. Urban Renewal and Regeneration
20. Social / Visual Amenity
21. Accidents
22. Crime and personal safety
23. Congestion
24. Travel time

1.1 Scope of Indicators

- *We recommend that the tool is developed to prompt appraisal of the twenty-four indicators listed above as these are all applicable to the development of new or upgraded rail infrastructure along major transport corridors.*
- *We recommend that the tool is developed to take into variations in local context along long transport corridors, potentially through a materiality weighting process.*

1.2 Monetising approaches

- *We recommend that monetising methods are identified for each indicator.*
- *Different methods should be identified for different project stages. For example, figures at project definition and option appraisal stages may be based on projections based on stakeholder interviews and data for benefits realised at comparable benchmark projects, while completed projects can be evaluated using actual data from the region affected.*
- *Where proxy values are used these should be consistent across all project stages.*

Recommendation 2 Evidence-Based Policy and Commissioning

Use SROI to support robust evidence-based decision-making to effectively prioritise investment

Recommendation Background

Unlike CBA, which struggles to quantify social externalities, rigorous use of SROI can be used to generates robust data derived from close engagement with communities affected by transport development. Government agencies should draw on these data sources and combine them with ABS and other statistical data to improve evidence-based policy and commissioning to maximise social benefits.

2.1 Commit to genuine engagement with communities to identify and prioritise relevant indicators

- *Obtaining robust data through SROI requires bodies such as Sydney Metro to commit to genuine engagement with communities.*
- *In doing so Sydney Metro will be able to evidence and gain deeper insight the social impact of transport development and reinforce its social licence to operate.*
- *When conducting evaluative SROI, evaluations should act transparently and acknowledge both successes and failures to ensure adverse social impacts are avoided in future projects, and mitigating measures introduced.*

2.2 Support community engagement with Smart City data

- *While deriving data through stakeholder engagement is a primary strength of SROI, and distinguishes SROI from CBA, this presents challenges where qualitative findings must be quantified using proxy data to generate monetised values.*
- *The case studies highlight the benefits for combining data obtained through direct engagement with passenger data and statistical data such as unemployment rates, levels of education achieved, household income and social benefit claims.*
- *We recommend that stakeholder data is combined with Smart City data from Opal Card usage, ABS Census data, the Commonwealth data.gov.au open data initiative, and resources such as the Australian Urban Research Network (AURIN).*

Recommendation 3 Timing

Use SROI early and continue its use through procurement into operational stages to maximise social value

Recommendation Background

The literature review highlighted how SROI can have greatest impact when it is introduced early to set project objectives and boundaries. SROI requires the development of a project impact map showing the links between inputs, outputs, and outcomes, taking into consideration other bodies working with affected communities. Using forecastive SROI early, ahead of existing Infrastructure NSW gateway process, can help leverage investment across sectors to maximise resulting benefits.

The case studies provide examples of how continued use of SROI to evaluate successes and challenges throughout the project lifecycle can generate a virtuous cycle of continuous improvement and help make the case of continued or expanded funding.

3.1 Implement forecastive SROI early in the development cycle

- *Implement SROI in the early strategic planning of city-shaping infrastructure, prior to project definition and infrastructure gateway process*
- *Work with treasury to ensure general funding is made available to support SROI use prior to project funding announcements*

3.2 Embed SROI in gateway reviews and health checks

- *Embed SROI use at project initiation, business case, procurement, delivery and benefits realisation stage reviews*

3.3 Continue SROI evaluation during long term operations to inform capital and operational expenditure

- *Mandate on-going operational reviews to confirm success and interrogate failures to inform future investment decisions*
- *Consider coordinating on-going reviews with similar reviews by related agencies such as Health, Education and Family & Community Services*

Recommendation 4 Joined-Up Government

Use SROI early and continue its use through procurement into operational stages to maximise social value

Recommendation Background

SROI is an inherently holistic tool. It considers social benefit 'in the round' and so an SROI report for a transport project provides data which can support investment and leverage social value creation by other government agencies (in particular Health, Education and Family & Community Services) and social service providers such as vocational and tertiary education institutions, community housing groups, aged care and child care providers, and not for profit organisations.

Where transport projects SROI highlight adverse social impacts, for example due to severance within a government school catchment, there is potential to mitigate such impacts through coordinated planning with the relevant service provider (in this case the Department of Education). Some mitigating measures may require new revenue streams to fund investment. In such cases there is potential to leverage value capture through developed contributions or other mechanisms to fund social infrastructure in areas where development following transport-oriented development (TOD) principles can justify rezoning to permit changes in land use or increases in building height and density.

Considering transport investment 'in the round' alongside investment in social infrastructure can help maximise SROI, for example by planning new station locations to leverage existing social infrastructure facilities.

4.1 Deploy SROI to leverage joined-up whole of government and multi-agency investment strategies

- *Consider conducting SROI reports in conjunction with government social infrastructure agencies and the not for profit sector to leverage investment across services and sectors*
- *Share SROI values and techniques to achieve consistent monetary values and comparable ratios across projects and sectors*

4.2 Combine with Land-Use Zoning for Value Capture

- *Use SROI monetary values in conjunction with fiscal value capture mechanisms at Transport Oriented Developments to fund complementary social services and facilities*

References

Action Sustainability, Simetrica, & Arup (2018), *Common Social Impact Framework (CSIF) for Rail*, online, Available at [https://www.iema.net/assets/uploads/Webinar%20presentations/20181128%20Team.pdf].

ACVO (2016), *Exploring the Social Impact of the ACVO TSI Supported Social Transport Project*, ACVO Aberdeen's 3rd sector interface, Scotland.

Aliento, W. (2017), *Open Opal data offers valuable insights for planners and developers*. The Fifth Estate. Online, Available at [https://www.thefifthestate.com.au/urbanism/infrastructure/open-opal-data-offers-valuable-insights-for-planners-and-developers/]

Banke-Thomas, Aduragbemi & Madaj, Barbara & Ameh, Charles & Broek, Nynke. (2015), Social Return on Investment (SROI) methodology to account for value for money of public health interventions: A systematic review, BMC public health, 15, 582.

Beca Center Hollings & Ferner Ltd (Beca) (2011), *City Rail Link Notice of Requirement: Social Impact Assessment*, Technical Report to support Assessment of Effects on the Environment, online, Available at [https://issuu .com/cityraillinkltd/docs/crl_social_impact_assessment].

Cardona R. Alberto C. (2018). *Colombia - Support to the First Bogota Metro Line Section One Project: environmental assessment (Vol. 64): Bogota Metro Line One* - Anexo 4 Marco Legal e Institucional (Spanish). Colombia: s.n., http://documents.worldbank.org/curated/en/726731520898260678/Bogota-Metro-Line-One-Anexo-4-Marco-Legal-e-Institucional SKM Aurecon, 2011, 'Cross River Rail, CHAPTETR 20 social impact assessment', CRR JOINT VENTURE, Brisbane.

Commonwealth of Australia, & NSW Government. (2018). Western Sydney Rail Needs Scoping Study - Outcomes Report.

Cooney, K. & Lynch-Cerullo, K. (2014), *Measuring the Social Returns of Nonprofits and Social Enterprises: The Promise and Perils of the SROI*. Nonprofit Policy Forum, 5(2), 367-393.

Emerson, J., Wachowicz, J., & Chun, S. (1999). *Social Return on Investment: Exploring Aspects of Value Creation in the Nonprofit Sector*. Social Purpose Enterprises and Venture Philanthropy in the New Millennium, 132–173.

Greater Sydney Commission. (2018). Greater Sydney Region Plan 2018: A Metropolis of Three Cities. online, Available at [https://gsc-public-1.s3.amazonaws.com/s3fs-public/greater-sydney-region-plan-0618.pdf]

James, N., & Waldron, C. (2011), *Improving access to employment and training in former coalfields areas in the UK: the Access Alliance Programme*, Research in Transportation Business & Management, 2, 20-28.

Kersley, H., & Lawlor, E. (2010), *Grounded: A new approach to evaluating runway 3*, New Economics Foundation.' Lievesley, M., & Yee, J. (2012), Valuing service design: Lessons from SROI. Online, Available at [https://www.researchgate.net/publication/265570970_Valuing_service_design_Lessons_from_SROI]

Lievesley, M., & Yee, J. (2012). Valuing service design: Lessons from SROI.

Moody, M., Littlepage, L., & Paydar, N. (2015), *Measuring social return on investment: Lessons from organizational implementation of SROI in the Netherlands and the United States*. Nonprofit Management and Leadership, 26(1), 19-37.

Murty, M. N., Dhavala, K. K., Ghosh, M., & Singh, R. (2006). *Social Cost-Benefit Analysis of Delhi Metro. Economic Evaluation of Investment Projects in India.* Delhi.

New Economics Foundation (NFF) (2019), *Towards the New Economy - Social Return on Investment*, online, Available at [https://nefconsulting.com/our-services/evaluation-impact-assessment/prove-and-improve-toolkits/sroi/].

Ni, G. (2016), *The benefits of rural community transport – Social return on investment report*, Community Transport Network NI, online, Available at [https://www.gaugeni.co.uk/sites/default/files/resources/RCTP-SROI-Report.pdf].

Nicholls, J., Lawlor, E., Neitzert, E. and Goodspeed, T. (2012*), A guide to social return on investment*. The SROI Network, Online, Available at [http://www.socialvalueuk.org/app/uploads/2016/03/The%20Guide%20to%20Social%20Return%20on%20Investment%202015.pdf].

Nikfalazar S., Amiri M., Khorshidi, H.A. (2014), Social Impact Assessment on Metro Development with a Case Study in Eastern District of Tehran, Int. J. Society Systems Science, 6(3), 245-263.

NSW Government (2018), *Future transport Strategy 2056*, online, Available at [https://apo.org.au/sites/default/files/resource-files/2018/03/apo-nid137126-1242281.pdf].

NSW Government (2019), *Office of Social Impact Investment Website*, online, Available at [https://www.osii.nsw.gov.au/].

NSW Treasury (2017), *TPP17-03 NSW Government Guide to Cost-Benefit Analysis* (March), online, Available at [https://arp.nsw.gov.au/sites/default/files/TPP17-03_NSW_Government_Guide_to_Cost-Benefit_Analysis_0.pdf].

Productivity Commission (2010), *Contribution of the Not-for-Profit Sector,* Research Report, Canberra.

Roberts B. (2017), *Social Return On Investment (SROI) Case Study: Low Income Monthly Transit Pass*, online, Available at [https://www.tamarackcommunity.ca/].

Social Ventures Australia Consulting (2012), *Social Return on Investment: Lessons learned in Australia*, online, Available at [https://www.socialventures.com.au/news/sroi-lessons-learned-in-australia/].

Sriraj P.S., Zou B., Schlickman S., Weisbrod G., *et. al*. (2017), *Framework for Assessing the ROI for High-Speed and Intercity Rail Projects,* Urban Transportation Center, USA.

SVA Consulting (2011), *Social Return on Investment (SROI) - A Methodology*, In the 34th International Fundraising Conference, Melbourne.

Transport for NSW. (2018). *Problem Statement: Social return on investment tool for infrastructure and transport projects*, online, Available at [https://www.transport.nsw.gov.au].

Transport for NSW (2019), Transport for NSW Projects, online, Available at [https://www.transport.nsw.gov.au/projects].

UK Government Cabinet Office (n.d.), *Social Return on Investment* – and commissioning.

Watson, K. J., & Whitley, T. (2017), *Applying Social Return on Investment (SROI) to the built environment*, Building Research and Information, 45(8), 875–891.

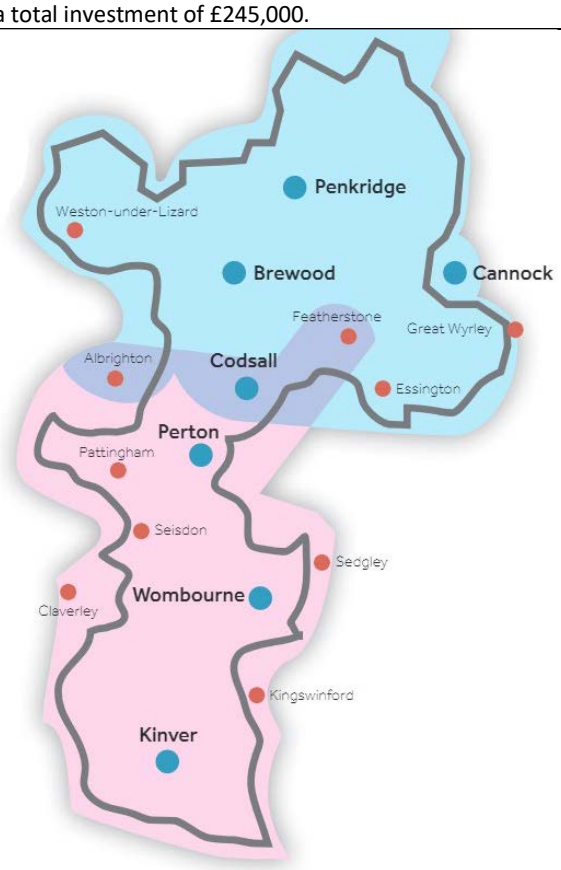
Wright, S., Nelson, J. D., Cooper, J. M., & Murphy, S. (2009), *An evaluation of the transport to employment (T2E) scheme in Highland Scotland using social return on investment (SROI).* Journal of Transport Geography, 17(6), 457-467.

Yates, B. T., & Marra, M. (2017), *Social Return on Investment (SROI): Problems, solutions… and is SROI a good investment?* Evaluation and program planning, 64, 136-144.

Social Return on Investment (SROI) in Public Transport Projects

Appendix - Case Study Proformas

Case Study Proforma 1 - South Staffordshire Connect Bus Service

Project Name	South Staffordshire Connect Bus Service An evaluative SROI report of a rural dial-a-ride bus service covering the period April 2014 – April 2015
Location	South Staffordshire, UK
Transport Type	Bus
Study conducted by	South Staffordshire Council- Joined-up Consulting
Project Budget (local currency and AUD at current exchange rate)	$450,000 AUD
Scale of Region Covered by Transport Mode	Rural areas shown in network map below
Program start and completion dates	2014-2015
High Level Description	- South Staffordshire is a largely rural area and effective transport is vital for residents who cannot drive or access bus routes. - South Staffordshire also has a rapidly ageing population and the project focusses on personal mobility for this population. - Being able to get out and about is also a key enabler to good health and well-being and helps people remain active and independent for as long as possible. - The SROI ratio created by the Connect service lies within the range of 7 and 14, generated by a total investment of £245,000.
Project Network Plan or Map if available	

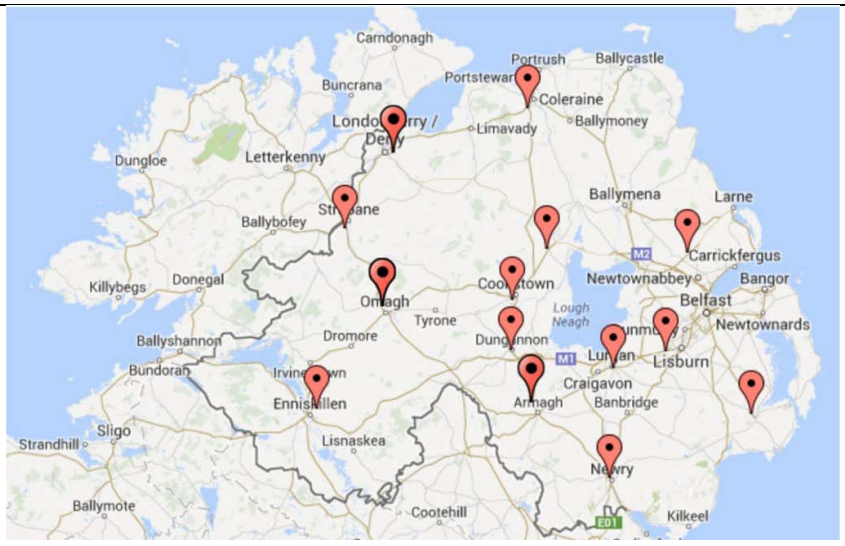
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI	
Stakeholder	**Indicator**	**Method used for assessment**
All passengers	- Independence - Self Confidence - Social Inclusion	Four hundred people were sent detailed postal questionnaires. Two hundred people responded, an example of the questions is 'explain the difference the service makes to their lives"
Passengers recovering from mental health issues	- Self Confidence - Social Inclusion	
Passengers with learning disability	- Access to training opportunities - Self Confidence	
Passengers-Carers	- Confidence by making new friends in the bus	
Passengers learning skills volunteering and employment	- Access to learning, training volunteering and employment	
Staffordshire/Clinical Commissioning groups	- Reduced demand for intensive services - Service redesign	Not specified
South Staffordshire council	- Community leadership - Sustainable communities	
Local Business	- Increased spend in the economy	
Transport commissioners	- Interchange connectivity - Service rationalization	
SROI	7 : 1	
Evidence if SROI achieved	Yes	
References	South Staffordshire Council, An evaluative SROI report of a rural dial-a-ride bus service covering the period April 2014-2015, accessed 10 April 2019, < https://www.sstaffs.gov.uk/planning-files/issues-and-options-statutory-and-stakeholders>	

Case Study Proforma 2 - The Access Alliance Program

Project Name	The Access Alliance Program
Location	Nottinghamshire and Derbyshire in the UK
Transport Type	Public transport Buses and car
Study conducted by	N. James, C. Waldron STAR Independent Consultants
Project Budget (local currency and AUD at current exchange rate)	$1.8 million
Scale of Region Covered by Transport Mode	North Nottinghamshire and North Derbyshire
Program start and completion dates	November 2006 to November 2010
High Level Description	- Access Alliance Program (AAP) is a $1.8 million fund program to support and develop sustainable transportation systems to improve employment and training opportunities for residents of former coal mining areas in Nottinghamshire and Derbyshire. - The program has used evaluative SROI based on monitoring and assessment of employment and transportation accessibility. - Data was used to inform government investment in transportation, employment and education services. - The total annual social benefit reported was $5.1 million, and the added value of each customer was equivalent to $10,120 resulting in an SROI ratio is 2.56. In other words, for every $1 AAP investment, an approximately $2.56 social value is generated
Project Network Plan or Map if available	

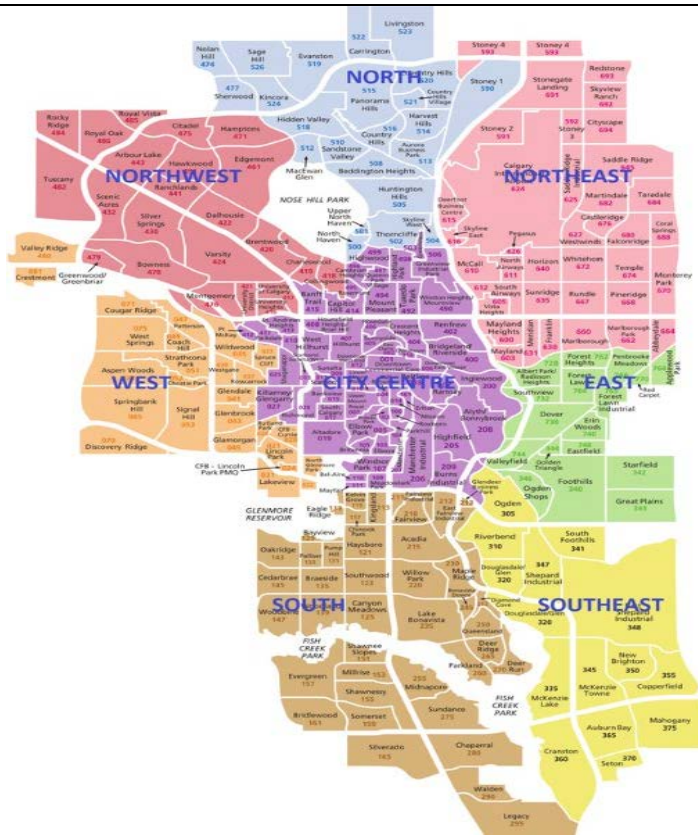
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI calculation is adapted and applied to the AAP	
Indicator Field	**Indicator**	**Method used for assessment**
Local economy	Local economic growth/productivity	Local businesses in a better position to fill vacancies and thus enhance their productivity
Employment	Access to employment	Number of jobs created or safeguarded Number of Individuals assisted to access employment
Connectivity	Travel time	Levered public and private sector funding
Skills	Access to training	Number of individuals assisted to access training opportunities
Accessibility	Personal Travel affordability	Sustainable transport scheme implemented Provision of subsided bus program Transport affordability reported as improved
Carbon emission	Car reliance / walkability	Typical distance to employment reduced
Health	Physical health	Number of individuals cycling or walking
Income and Wealth	Social equity	Benefits payments are reduced Increased social cohesion due to increased employment and training opportunities
SROI	2.56	
Evidence if SROI achieved	Method described but raw data not provided	
References	James, N., & Waldron, C. (2011). Improving access to employment and training in former coalfields areas in the UK: the Access Alliance Programme. Research in Transportation Business & Management, 2, 20-28.	

Case Study Proforma 3 - Rural Community Transport Partnership

Project Name	Rural Community Transport Partnership
Location	Northern Ireland
Transport Type	Rural community transport
Study conducted by	Community Transport Network NI
Project Budget (local currency and AUD at current exchange rate)	Budget not reported Benefits reported as: £2,705,047 GVA to the local economy = 4,269,945AUD £170,760 investment in skills = 269,546 AUD £801,568 value of volunteer contribution = 1,265,284 AUD
Scale of Region Covered by Transport Mode	Northern Ireland
Program start and completion dates	Started in 1991
High Level Description	- The rural community transport partnerships are a group of non-profit organizations that provides affordable transportation services to individuals and groups affected by the lack of transportation, rural segregation and isolation across Northern Ireland. - The SROI analysis considered indicators such as individual transport users, volunteer drivers and community organizations which have gained various benefits. - The project used surveys to evaluate community needs and received much positive feedback.
Project Network Plan or Map if available	

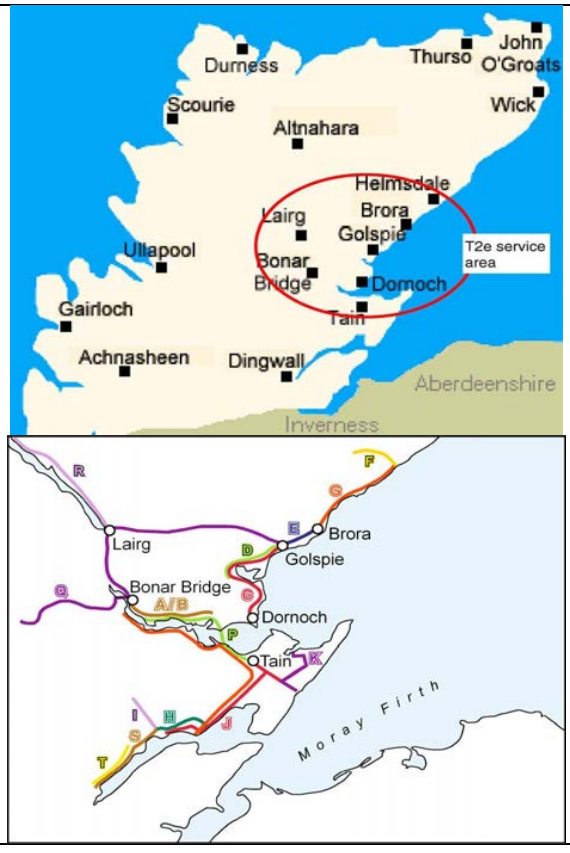
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI	
Indicator field	**Indicator**	**Method used for assessment**
Carbon emissions	Carbon emission	Reduced levels of Co2 emissions as a result of reduced car journeys.
Accessibility	Elderly travel	- 608,251 trips provided to users - 241,690 hours of service - 444,094 bookings - 4,537,922 total miles - Survey
Connectivity	Connectivity	Not mentioned
Employment and skills	Volunteer car drivers Volunteer trained drivers	216 volunteer car drivers 1,257 volunteer trained drivers
Participation & Inclusion	Volunteer car drivers The elderly	Increased awareness of disability & community needs.
Health	Physical health Mental health	- Reduced level of 'Do Not Attend' hospital appointments by the 10.7% utilising service for health & hospital visits - Increased independence - Reduced social isolation
Safety	Safety	Reduced risk of rural car accidents caused by elderly or vulnerable drivers
Family	Family members	- Respite time gained - Reduced stress & anxiety about family members - Time freed for other activities including engaging with friends & family
SROI	12:1	
Evidence if SROI achieved	Yes	
References	Ni, G. (2016) The benefits of rural community transport – Social return on investment report, Community Transport Network NI, online, available at [https://www.gaugeni.co.uk/sites/default/files/resources/RCTP-SROI-Report.pdf]	

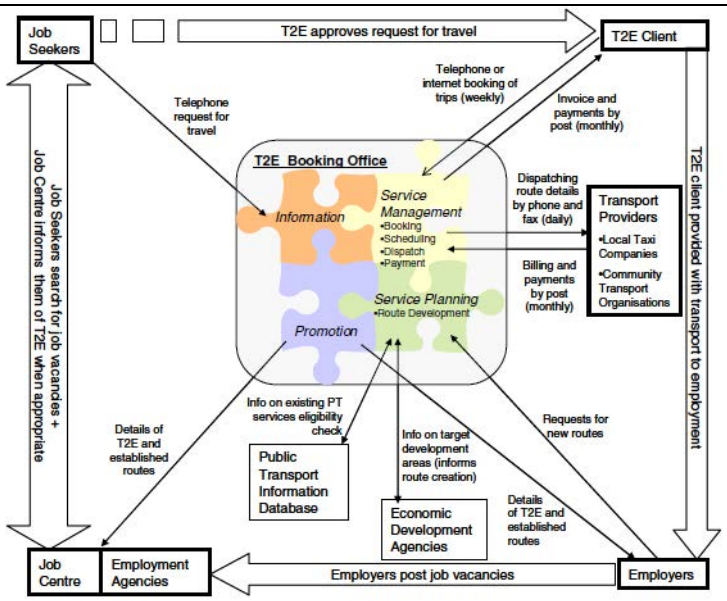
Case Study Proforma 4 - Calgary Low Income Monthly Transit Pass

Project Name	Calgary Low Income Monthly Transit Pass (LIMTP), Canada
Location	Calgary - Canada
Transport Type	Not transport SROI. Affordable transport
Study conducted by	The Calgary foundation
Project Budget (local currency and AUD at current exchange rate)	$2.65 million
Scale of Region Covered by Transport Mode	Calgary City
Program start and completion dates	2007
High Level Description	- The LIMTP is a discounted monthly transit pass for low-income residents of Calgary. - The potential to create social value through investment in LIMTP was investigated by employing a quantitative research methodology. - The indicators considered in the SROI calculation are residents' income, wealth, education and skills. The social value created as a result of the affordable transportation are improved financial situations, better quality of life, and improved overall health.
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI	
Indicator Field	**Indicator**	**Method used for assessment**
Income and Wealth	Being able to take care of essentials such as grocery shopping, attending medical appointments	Analysing the available data
Education and skills	Being able to furthering education and skills	
Health and Wellbeing	Being able to participate more fully in communities, to volunteer, to access public recreation facilities and to visit family and friends. Being able to afford attending medical appointments	
SROI	Profile 1 (Single adult between 45-64): 9.65 – one year Profile 2 (Single parent): 24.57 – five year Profile 3 (Person with disability or chronically ill): 16.27 – one year	
Evidence if SROI achieved	N/A	
References	Vibrant Communities Calgary , (no date), *The Calgary Foundation (Social Return On Investment (SROI) Case Study: Low Income Monthly Transit Pass*, The Calgary foundation.	

Case Study Proforma 5 – Transport to Employment (T2E)

Project Name	Transport 2 Employment (T2E) scheme in Highland Scotland
Location	Rural communities of East Sutherland, Easter Ross and Southern Caithness in Highland Scotland.
Transport Type	Taxi Shared private vehicle
Study conducted by	Centre for Transport Research, School of Geosciences, University of Aberdeen, St. Mary's, Elphinstone Road, Aberdeen AB24 3UF, UK T2E Transport to Employment and the Transport Research Institute, Napier University, Edinburgh EH10 5DT, UK Transport Operations Research Group, School of Civil Engineering and Geosciences, Newcastle University, Newcastle upon Tyne NE1 7RU, UK
Project Budget (local currency and AUD at current exchange rate)	$382,000
Scale of Region Covered by Transport Mode	East Sutherland, Easter Ross and Southern Caithness in Highland Scotland
Program start and completion dates	Step1: T2E as a pilot project between April 2005 and April 2006 Step2: from April 2006
High Level Description	- T2E (Transport to Employment) is a centrally coordinated shared transportation program. It improves the range of transportation options available in remote communities through the uses of community-based drivers and taxi companies. - The program is particularly beneficial for young people and women in sparsely populated areas, improving access to employment, training and childcare services. - T2E negotiated with taxi operators to reduce 45% of public tariffs to minimize operating costs.
Project Network Plan or Map if available	

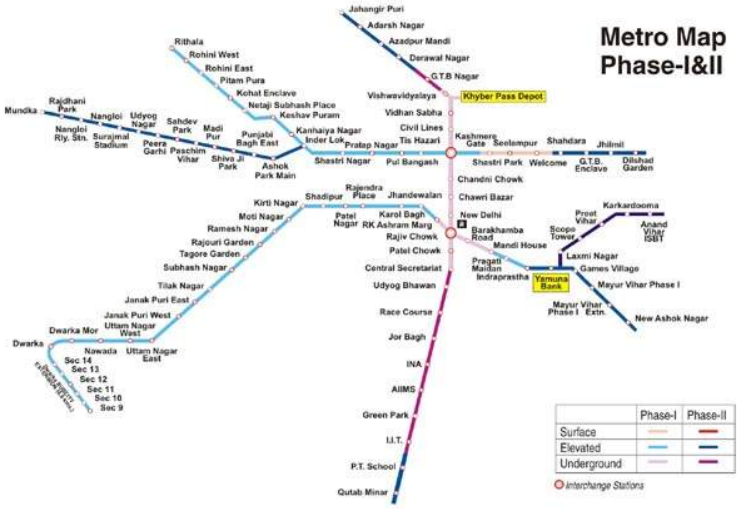
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI	
Indicator Field	**Indicator**	**Method used for assessment**
Employment	- Increase the number of drivers - Increase employment opportunity - Increase training opportunity - Provide more working hours - Improve staff attendance - Easier management - Easier hire staff from local area - Improve working performance	Not mentioned
Accessibility	- More often travel - Travel time savings - Travel affordable	Data analysis
Economy	- Increase income and tax revenue - Less welfare lost - Less national insurance - Welfare saved - Local economic growth	Data analysis
Income and Wealth	- More flexible children care service - Improve the employment and training opportunity for young people and woman	Data analysis
SROI	3.07 : 1	
Evidence if SROI achieved	N/A	
References	Wright, S., Nelson, J. D., Cooper, J. M., & Murphy, S. (2009). An evaluation of the transport to employment (T2E) scheme in Highland Scotland using social return on investment (SROI). Journal of Transport Geography, 17(6), 457-467.	

Case Study Proforma 6 – Heathrow Airport Runway 3

Project Name	Grounded A new approach to evaluating Runway 3
Location	Heathrow airport, London, UK
Transport Type	Aviation
Study conducted by	NEF Consulting
Project Budget (local currency and AUD at current exchange rate)	$9.5 billion
Scale of Region Covered by Transport Mode	Immediate impact on West London
Program start and completion dates	2010 to 2040
High Level Description	- This case study was chosen because its analysis of social costs and benefits at Heathrow provides a useful precedent for reviewing similar costs and benefits at Western Sydney Airport and Aerotropolis in the context of Sydney Metro Greater West. - The paper provides a realistic and comprehensive analysis of the cost and benefits of Runway 3 in Heathrow Airport in UK using SROI. While the construction of Runway 3 is projected to provide $16.5 bn in social and economic benefits and create 12,000 job opportunities, however it will result in significant environmental problems impacting on local communities.
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SROI and CBA comparasion	
Indicator Field	**Indicator**	**Method used for assessment**
Employment	- Access to employment - Create 12000 additional jobs	Data collection
Accessibility	- Travel more frequently - More visitors - More frequent flight	Not mentioned
Economic	- Local economic growth - Provide $16.5 billion in social benefit	Data collection
Transport	- Transportation problem - Surface congestion caused $1.8 billions economic losses	Data collection
Health	- Air pollution increase 8%-11% mortality rate	Community engagement
Environment Hazards	- Higher greenhouse gas emissions - Blight cause $0.55 billions economic losses - Noise cause $3.7 billions economic losses	For quantification of noise costs, the calculation formula: Noise costs = NDI x decibel reduction x property price x no. of properties
Carbon Emissions	- More carbon emission Cost of fuel increase	Not mentioned
SROI	N/A	
Evidence if SROI achieved	N/A	
References	Kersley, H., & Lawlor, E. (2010). Grounded: A new approach to evaluating runway 3. New Economics Foundation.	

Case Study Proforma 7 – Delhi Metro – Phase 1 and 2

Project Name	Delhi Metro – Phase One and Two
Location	Delhi, Inda
Transport Type	Metro Rail
Study conducted by	Institute of Economic Growth, Delhi University
Project Budget (local currency and AUD at current exchange rate)	Phase 1 = Rs. 64,060 m / $ 1301 m AUD Phase 2 = Rs. 80,260 m / $ 1630 m AUD (2004 prices)
Scale of Region Covered by Transport Mode	Phase 1 = 65.1km Phase 2 = 53.02 km
Program start and completion dates	Phase 1 = 1995-2005 Phase 2 = 2005-2011
High Level Description	- Rapid population growth means that Delhi's existing road network is inadequate resulting in severe congestion with vehicles accounting for more than two-thirds of air pollution. - Delhi Metro was the first stage of a multi-modal regional transport masterplan including rail corridors, metro corridors and dedicated bus lanes. - The indicators considered in the Delhi Metro Phase One and Two CBA include carbon emissions, environmental hazards, urban renewal, safety, connectivity and employment.
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	Non-standard SROI based on Social Criteria CBA	
Indicator Field	**Indicator**	**Method used for assessment**
Car reliance	Reduced traffic count	Traffic count
Carbon emissions	Reduced fuel consumption	Savings in fuel consumption (inclusive of both CNG and petrol) due to the diversion of a part of the Delhi road traffic to Metro and reduced congestion to vehicles still operating on the roads. $F_c = A(\frac{1}{V_c} - \frac{1}{V_d}) + B(V_c^2 - V_d^2)$. where, F_c = savings in fuel consumption (cc/km) due to decongestion V_c = speed of vehicles in a congested situation V_d = speed of vehicles in a decongested situation A = 1675.52 for cars and 3904.6445 for buses B = 0.0133 for cars and 0.0207 for buses
Travel Time	Travel time savings	The savings of travel time of passengers traveling by the Metro instead of by road are calculated as the product of the number of passengers traveled daily and the time saved on the average passenger lead in Delhi. $T = \frac{D}{S_c} - \frac{D}{S_d}$, where, T: time saving on average daily run D: daily run of vehicles (in km) S_c: average speed in congested situation (without Metro). S_d: average speed in decongested situation (with Metro)
Congestion	Reduced road congestion	• Annual vehicle operating cost reduction due to the higher speed of vehicles and consequently lesser hours on road. • Estimated as the product of the residual traffic, time saved on average lead per vehicle annually and the vehicle operating cost per hour.
Pollution	Reduced air pollution	• The distance saved due to decongestion is estimated by multiplying the time saved with the speed of a vehicle in a decongested situation.

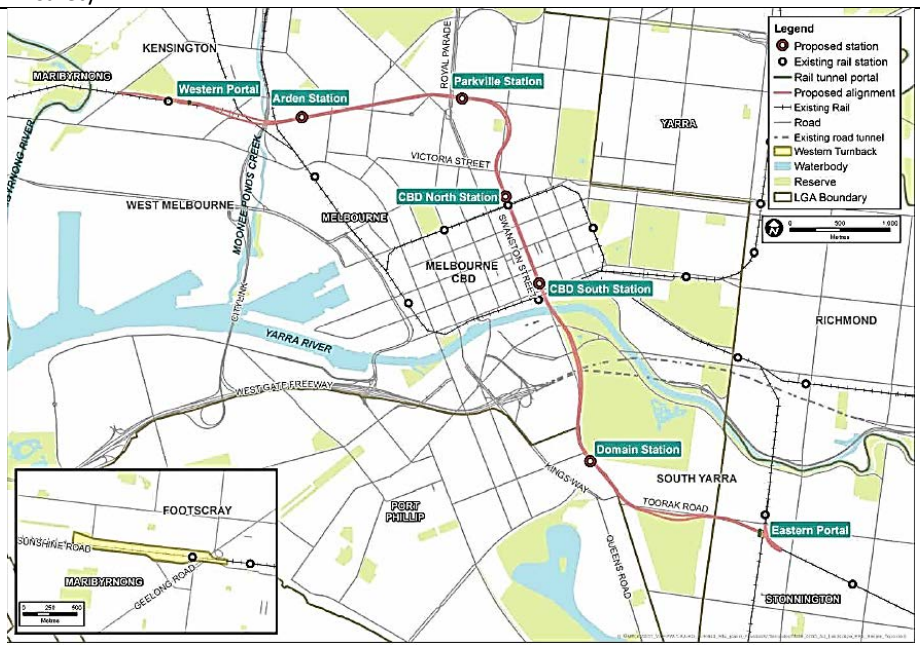
		• An estimate of the pollution reduction by a vehicle in this context could be obtained by multiplying the distance saved by the relevant emission coefficient for different pollutants for each category of vehicle.
Safety	Reduced road accidents	Reduction in fatalities and accidents based on number of vehicles expected to go off the road (diverted traffic) due to the Metro $Y_1 = 49.43X + 750.42$ $R^2 = 0.89$ $Y_2 = 257.04X + 3181.41$ $R^2 = 0.90$ where, X: number of vehicles affected in lakhs Y_1: number of persons killed in road accidents in a particular year Y_2: number of persons injured in road accidents in a particular year And estimated relationship between the number of vehicles on road and accidents resulting in damage to property $Y = 143.63X + 3345$ $R^2 = 0.84$ where, X: number of vehicles on road Y: number of vehicles causing damage to property
Equity	Social distribution of benefits	$D = (Y_i / \bar{Y})^v$ where, Y_i: income of the i^{th} economic agent $\bar{Y}$: per capita gross domestic product of India v: elasticity of social marginal utility of income with respect to income.
Employment	Job creation – long term	Employment statistics
Employment	Job creation – construction phase	Employment statistics
SROI	N/A	(CBA ratio 2.27:1)
Evidence if SROI achieved	N/A	
References	Murty, M. N., Dhavala, K. K., Ghosh, M., & Singh, R. (2006). *Social Cost-Benefit Analysis of Delhi Metro*. *Economic Evaluation of Investment Projects in India*. Delhi.	

Case Study Proforma 8 – Common Social Impact Framework (CSIF) for Rail

Project Name	Common Social Impact Framework (CSIF) for Rail	
Location	United Kingdom	
Transport Type	Rail	
Study conducted by	Action Sustainability, Arup and Simetrica for RSSB	
Project Budget (local currency and AUD at current exchange rate)	n/a	
Scale of Region Covered by Transport Mode	n/a	
Program start and completion dates	Current edition draft 3.3, 10th May 2018	
High Level Description	- Framework designed to provide a common, consistent basis for measuring social impacts across the UK rail industry. - 10 key social impacts with sub-impacts are considered - Includes library of goals, indicators, metrics & monetised values - Describes alternative approaches for qualitative reporting where monetised values cannot be used - The framework is deliberately developed to be broadly applicable and project teams are required to select relevant indicators. - Uses existing tools from HM Treasury, UK Department for Transport, SROI and recent major projects.	
Project Network Plan or Map if available	n/a	
Project Photograph if available	n/a	
Social Assessment Type (eg SROI, SIA)	Multicriteria Analysis (MCA) based on quantified / monetized methods.	
Indicator Field	**Indicator**	**Method used for assessment**
Local & sustainable procurement The impacts of using procurement to manage social, economic and environmental risk and opportunity	Making procurement process inclusive	How procurement opportunities are advertised and awarded and markets developed
	Diversity of supply chain	Participation of small, medium enterprises and 'under-represented' suppliers in supply chains
	Local procurement	Participation of 'local' suppliers and sub-contractors in supply chains
	Resilient supply chains	Prompt payment, managing ethical and environmental risk
Employment & skills The impacts of rail on access to employment, training, skills development and education	Process to facilitate access to employment and skills	Advertising vacancies and using job brokerage services
	Local employment	Extent to which staff, workers and labour are 'local'
	Addressing disadvantage through employment	Employing ex-offenders, previously unemployed and target or priority groups
	People in jobs	People employed and starting work
	Apprenticeships	Apprentice starts, journeys and completions
	Skills and professional development	Accredited and non-accredited training, traineeships, work placements and tasters
	Responsible employment practices	Payment of living wage, types of contracts, retention and transfer between projects,
	Early engagement - working with schools, colleges and their	Work experience and internships, careers and CV advice, educational support
Employee engagement The impacts of the relationship	Employee satisfaction	Staff retention and turnover, job and workplace satisfaction
	Employee contribution	Productivity

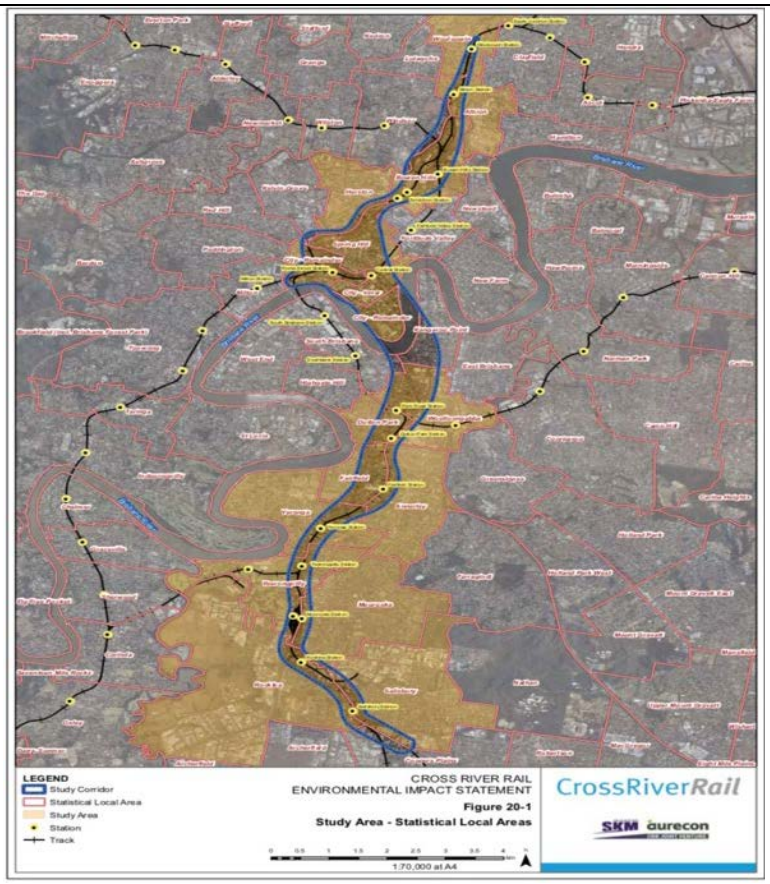
between rail employers and their people	Participation in discretionary activities	Volunteering, payroll giving, share and savings schemes
Diversity & Inclusion The impact of rail on different types of people	Diversity of people	Monitoring diversity of people e.g. passengers, workers, community volunteers
	Workplace inclusion	Supporting people with reasonable adjustments, understanding the pay gap
Community safety The impacts of rail on public safety	Suicide and trespass on the rail network	Activities that prevent suicide and trespass and their effectiveness
	Educating & informing	Safety messaging
	Crime and anti-social behaviour	Activities that address crime and anti-social behaviour (e.g. litter, vandalism) and their
	Managing negative impacts of rail works	Considerate Contractors Scheme, stakeholder awareness, engagement and feedback.
Customer satisfaction The impacts of stakeholders sense of their interactions with rail	Station visitor perception	Repeat use of stations, by choice. Visitor spend and sentiment
	Occupier perception	Measures of occupier satisfaction
Accessibility The impacts of extent to which people with different needs are able to use rail products, services and infrastructure	Infrastructure design	Diversity Impact Assessments, stakeholder consultation, application of inclusive design
	Operations	Confidence and ability of people to use rail services, affordability, website accessibility
	Combined impacts of design & operations	Enabling people to travel and access facilities and services they need
Health & wellbeing The impacts of rail on the mental and physical health and wellbeing of workers, passengers and the public	Workplace health & safety	Performance against benchmarks, workplace health provision
	Physical and mental health	Air quality, noise management, light pollution, community access to health support
	Wellbeing & healthy lifestyles	Designing for well-being, healthy travel, healthy food, providing interventions that boost well-being
Social inclusion The impacts of rail on the functioning and growth of communities, and the extent to which people live alongside each other with mutual understanding and respect	Philanthropic donations	Charitable cash and in-kind donations
	Community volunteering	Community volunteers, station adoption groups and benefits to people of community volunteering
	Community networks	Collaboration with local authorities, planners and other developers. Contribution to public space and services
	Empowered communities	Sense of belonging, influence and positivity
	Cohesive communities	People's sense of connections and belonging to neighbourhood
	Supporting the most vulnerable	Activities to tackle homelessness and support vulnerable people
	Engagement in culture and heritage	Arts, heritage and cultural facilities and activities
Regeneration The impacts of changes to the built environment on local economies and people	Financial standing of local people	Local economic performance and housing affordability
	Village, town and city centre developments	Change to business count, housing stock, office and commercial space
	Townscapes	Change to walkability and overall townscape
	Green and public spaces	Change to availability of public and green space and to biodiversity
	Tourism	Tourist infrastructure, visitor numbers, spending
SROI	No	
Evidence if SROI achieved	No	
References	Action Sustainability, Simetrica, & Arup. (2018). Common Social Impact Framework (CSIF) for Rail.	

Case Study Proforma 9 – Melbourne Metro

Project Name	Melbourne Metro Rail Project-Social and Community Impact Assessment
Location	Melbourne, Australia
Transport Type	Rail
Study conducted by	Melbourne Metro Rail Authority
Project Budget (local currency and AUD at current exchange rate)	$2.9 billion AUD
Scale of Region Covered by Transport Mode	Two nine-kilometer long rail tunnels from Kensington to South Yarra
Program start and completion dates	2018-2025
High Level Description	- Melbourne metro consists of two nine-kilometers long rail from Kensington to South Yarra. The metro is expected to improve access to employment and social infrastructure. - The report highlights potential impacts in the construction and operation phase. Broader local government areas and surrounding suburbs are studied in the assessment. - The methodology for the impact assessment involved a social survey with approximately 3000 people across Victoria. - Nine information sessions were held for community engagement involving key stakeholders and interviewing residential landholders. - Feedback was received both in person and online. - The main positive impacts reported were community accessibility, amenity and perceptions of safety.
Project Network Plan or Map if available	

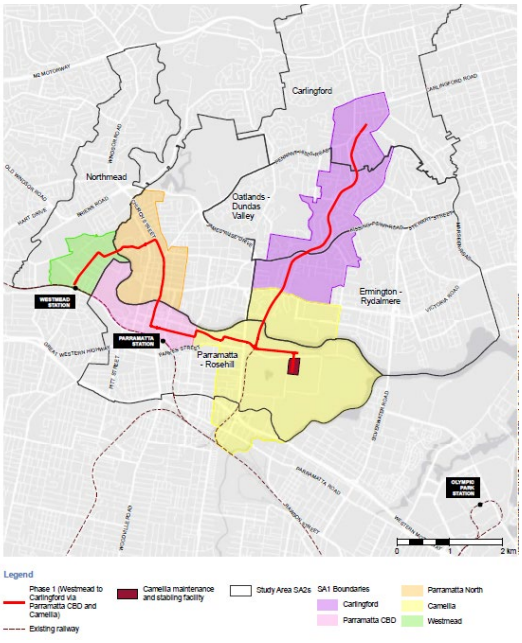
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator Field	**Indicator**	**Method used for assessment**
Accessibility The impacts of rail in access for residents, patients and employees	- Access to Parkville Medical center - Access to Royal Melbourne Hospital - Access to Royal Children's Hospital - Access to Victorian Cancer Centre	Community Engagement
Education The impacts of rail in education for residents and passengers	- Access to Melbourne University - Access to University High School - Access to RMIT	Engagement with the university of Melbourne and RMIT to identify opportunities to integrate construction activities with existing courses
Connectivity The impacts of rail in connectivity for all passengers	- Easier Interchange between tram and bus stops	Surveys
Safety The impacts of the infrastructure for all passengers	- Separate crossing of royal parade to improve pedestrian safety	Not mentioned
Reduced Congestion The impacts of the rail for all passengers	- Enhanced access to the CBD for wider Melbourne	Not mentioned
Employment The impacts of the rail in employment for all passengers	- increase employment in St Kilda road - Increase employment in hospitals - Increase employment in universities and schools	Not mentioned
Tourism The impacts of the rail in the increase of tourism in the area	- Access to Shrine of remembrance - Access to albert park - Access to royal botanic gardens	Community engagement in Albert Road Reserve with a possibility of including a pedestrian link between shrine of remembrance reserve and albert park
Frequency of trains The impacts of the rail in the increase of frequency in trains for all passengers	- increasing the numbers of trains traveling on the Frankston line would make it easier for South Yarra residents to access wider Melbourne	Not mentioned
SROI	n/a	
Evidence if SROI achieved	n/a	
References	Melbourne Metro Rail Authority (2016) . Melbourne Metro Rail Project-Social and Community Impact Assessment	

Case Study Proforma 10 – Brisbane Cross River Rail

Project Name	Cross River Rail
Location	Brisbane
Transport Type	Rail
Study conducted by	CRR JOINT VENTURE
Project Budget (local currency and AUD at current exchange rate)	$5.4 billion AUD
Scale of Region Covered by Transport Mode	10.2 km
Program start and completion dates	2017 - 2024
High Level Description	- Cross river rail runs from Dutton park to Bowen Hills and iincludes a 5.9km tunnel under the CBD and Brisbane river. - Cross river rail is intended to address problems in Brisbane's existing transportation network, provide a fast and convenient transportation system for southeast Queensland and create opportunities for economic development and the prosperity of CBD. - It is also expected to reduce the possibility of traffic accidents and traffic jams. - The project SIA considered environment, connectivity, employment and accessibility indicators
Project Network Plan or Map if available	

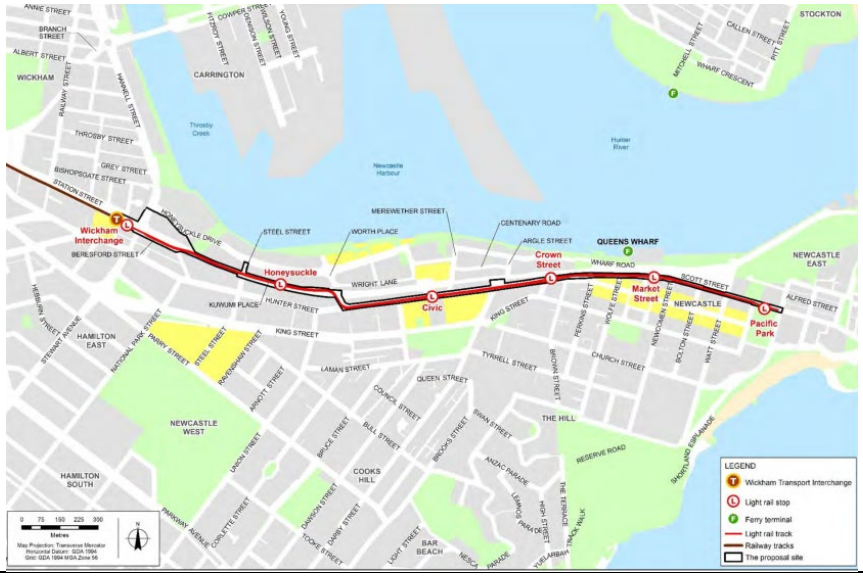
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator Field	**Indicator**	**Method used for assessment**
Economic	Household income	The ABS produces four socio-economic indices for areas (SEIFA) based on Census data
Carbon emission	Greenhouse gases	Cutting Queenslander's carbon footprint by one-third through reduced car and electricity use
Safety and security	Safety	Did an analysis of the potential benefits and impacts of the Project on the social environment of safety and security.
Connectivity	Connectivity	These were informed by local and state government publications, guidelines and community plans, outcomes of community consultation undertaken for the Project including input from community information sessions and local advisory groups, and observations of conditions in the study area.
Employment and skills	Unemployment rate	According to Commonwealth Department of Employment and Workplace Relations, on unemployment rates
Accessibility	Easily access to education, health and employment	community consultation undertaken for the Project
Community	Community value	These were informed by local and state government publications, guidelines and community plans, outcomes of community consultation undertaken for the Project including input from community information sessions and local advisory groups, and observations of conditions in the study area.
Employment	Employment	The Project's construction phase would provide a range of employment and training opportunities
SROI	n/a	
Evidence if SROI achieved	n/a	
References	SKM aurecon, 2011, 'Cross River Rail, CHAPTETR 20 social impact assessment', *CRR JOINT VENTURE*, Brisbane.	

Case Study Proforma 11 – Parramatta Light Rail

Project Name	Parramatta Light Rail Social Impact Assessment
Location	Parramatta, Sydney, Australia
Transport Type	Rail
Study conducted by	Jacobs
Project Budget (local currency and AUD at current exchange rate)	$2.4 billion AUD
Scale of Region Covered by Transport Mode	First Stage Westmead to Carlingford (12m) Second Stage Carlingford to Sydney Olympic Park (9km)
Program start and completion dates	2015-2023
High Level Description	- The Parramatta Light Rail currently being developed by Transport for NSW seeks to connect areas such as Westmead, Parramatta north, Camelia, Telopea, Rydalmere and Sydney Olympic park. - The light rail network will be approximately 12km in length with a total of 16 stops. - Our casestudy considered social impacts during the construction and operation phase of phase 1 (Westmead to Carlingford) using a social impact assessment methodology. - A range of potential social and economic impacts were identified as well as the communities affected during the construction and operation from the project. - Positive impacts include improved access to the major hospital precinct at Westmead and resulting synergies with health service provision.
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator Category	**Indicator**	**Method used for assessment**
Access The impacts of rail in access to regional and state facilities	- Connectivity to employment - Connectivity to services - Connectivity to education - Access to leisure activities	Ongoing Community Engagement with managers of community facilities near the project about potential impacts and proposed mitigation of such impacts
Community health and safety The impacts of rail in residents of the area	- An active transport link along the existing railway corridor will: - Improve safety for pedestrians and cyclist - Promote physical activity by increased walking and cycling	Ongoing Community Engagement
Esthetic The impacts of rail in passenger and residents	- Removal of heavy rail systems may help to enhance perceptions of safety for communities in the precinct	Not mentioned
SROI	n/a	
Evidence if SROI achieved	n/a	
References	Jacobs (2017) Parramatta Light Rail Social Impact Assessment.	

Case Study Proforma 12 – Newcastle Light Rail

Project Name	Newcastle Light Rail
Location	Newcastle- NSW- Australia
Transport Type	Light rail
Study conducted by	Transport for NSW
Project Budget (local currency and AUD at current exchange rate)	$600 million
Scale of Region Covered by Transport Mode	Newcastle Interchange in Wickham to Newcastle Beach in the east end of Newcastle.
Program start and completion dates	September 2017 – February 2019
High Level Description	- Newcastle Light Rail runs from Newcastle Interchange in Wickham to Newcastle Beach in the east end of Newcastle. - It includes about 2.7 km of light rail track, consisting of about 2.5 km of dual track and 180m of single track. - The SIA undertaken for Transport for NSW involved an assessment of socio-economic benefits and impacts during construction and operation has been. - Key impacts were access and connectivity, amenity and aesthetics, business performance, social infrastructure, land values, employment and economy and community safety
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator Field	**Indicator**	**Method used for assessment**
Access and Connectivity	- Changes to travel times - Reduced access to shops and services - Changes to movement patterns and accessibility - Improved transport services	Involved desktop analysis, drawing on the extensive data and information available as a result of the planning and consultation completed to date for the Newcastle Urban Renewal Strategy
Amenity and aesthetics	- Visual amenity impacts - Noise, vibration, dust, emissions reducing local amenity	
Business performance	- Increasing effort required to operate business	
Property	- Property acquisition	
Employment and economy	- Opportunities for local employment and capacity building	
SROI	n/a	
EVIDENCE	n/a	
References	Transport for NSW, (2012), New Castle Light Rail, Technical Paper 6- Socio economic assessment	

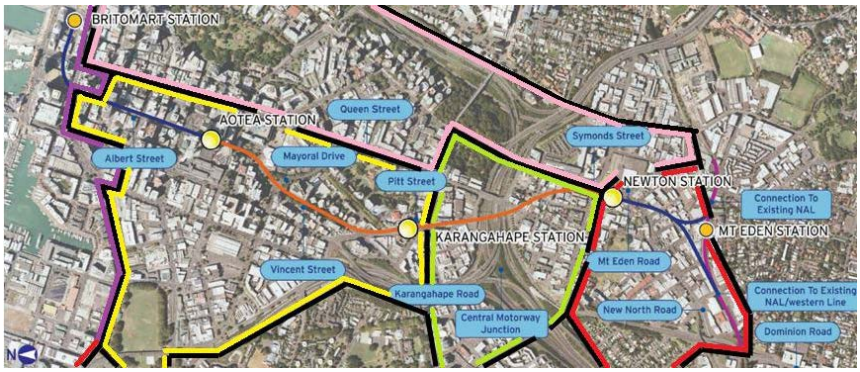
Case Study Proforma 13 – Aberdeen Social Transport Project

Project Name	ACVO TSI Supported Social Transport Project
Location	Aberdeen, Scotland
Transport Type	Transportation service
Study conducted by	ACVO Aberdeen 's 3rd sector interface
Project Budget (local currency and AUD at current exchange rate)	Not Applicable
Scale of Region Covered by Transport Mode	Covered Aberdeen
Program start and completion dates	Not Applicable
High Level Description	- The ACVO TSI Supported Social Transport Project (STP) provides nil or low-cost door to door services to Aberdeen city residents over 55 years for whom general public transport is not convenient. - Free carer support is provided during the trips. - The main indicators in the SIA consisted of economy, safety and security, health and accessibility. - It has improved access to health care services and facilities and reduced social and economic exclusion.
Project Network Plan or Map if available	Not Applicable

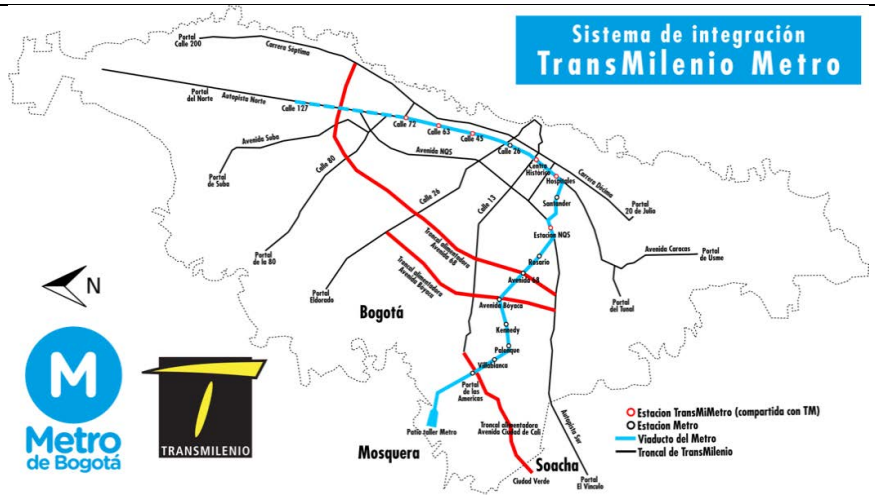
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator field	**Indicator**	**Method used for assessment**
Local economy	ongoing funding	The scale of the potential benefits is such that there is a strong and growing argument for the mainstream and ongoing funding of social transport for this purpose.
Safety and security	Easily access to goods, health, services and public facilities.	Reduced accidents cause by elderly drivers.
Health	The elderly and stakeholder groups	The STP has undoubtedly effected constructive social impact for the 623 people that have so far registered to use the service. Also, people and organisations – that provide such services also be impacted.
The quality of life	To the person travelling	This service continues, successfully, to provide for individuals to travel independently (or with a carer) – to attend a place on a day and at a time, all of their own choosing – in order to access health and social care services.
Accessibility	Personal affordability	STP provides nil or low coast door to door services to Aberdeen city residents
SROI	N/A	
Evidence if SROI achieved	N/A	
References	ACVO., 2016, 'Exploring the Social Impact of the ACVO TSI Supported Social Transport Project', *ACVO aberdeen's 3rd sector interface*, Scotland.	

Case Study Proforma 14 – Auckland City Rail Link

Project Name	Auckland City Rail
Location	Auckland
Transport Type	Railway
Study conducted by	Beca Carter Hollings & Ferner Ltd
Project Budget (local currency and AUD at current exchange rate)	N/A
Scale of Region Covered by Transport Mode	Comprises a 3.4km underground passenger railway (including two tracks and three underground stations) running between Britomart station and the North Auckland Line (NAL)
Program start and completion dates	2013 to 2021
High Level Description	- The City Rail Link Project (CRL) comprises a 3.4km long railway which include two tracks and three railway stations, operating between Britomart Station and the North Auckland Line in the vicinity of the existing Mount Eden station, as well as an 850m additional track within North Auckland Line. - The project SIA used feedback from local residents to further evaluate possible social impacts propose some solutions. - The benefits of the project highlighted in the study were to improve commuting opportunities, reduce traffic congestion and improve travel safety. - Negative were pollution, safety hazards during construction and property rights
Project Network Plan or Map if available	

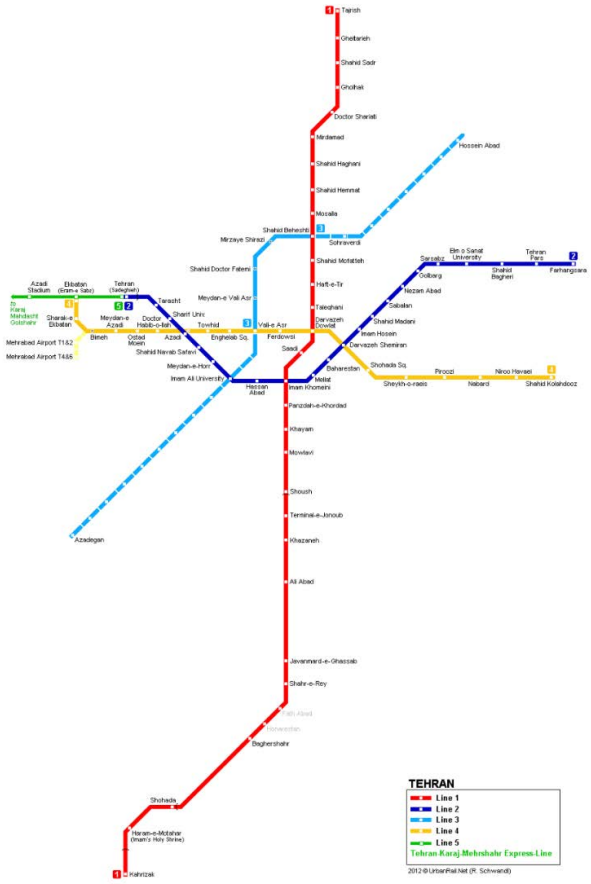
Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	SIA	
Indicator Field	**Indicator**	**Method used for assessment**
Accessibility	- Personal mobility - Impact of access and connectivity that affects people's daily activities - Make railway services more reliable	Data collected from questionnaire and construct
Environmental hazards	- Vibration from underground machinery can cause annoyance and sleep disturbance - Air pollution from ground construction project - Potential water pollution	
Connectivity	- Decrease in road congestion - easier to get transportation	
Safety	- improved safety and mobility for rail, and vehicles, pedestrians and cyclists across the rail corridor - Uncertainty of vibration on building safety	
Employment	- Access to employment - enhance community well-being	
Health	- Sleep disturbance - Create annoyance	
Income and wealth	- enhance community well-being - Unable to get public services in construction progress - Property Uncertainty - Lose community facilities - Increase community cohesion	Community engagement
Urban Renewal	- New major transportation hubs are being built around subway stations to improve land use intensification and regeneration in urban centers, providing energy for urban redevelopment	
SROI	N/A	
Evidence if SROI achieved	N/A	
References	Beca. (2011). *City Rail Link Notice of Requirement: Social Impact Assessment. Technical Report to support Assessment of Effects on the Environment.*	

Case Study Proforma 15 – Bogota Metro

Project Name	First Line project of the Bogota Metro
Location	Bogota Columbia
Transport Type	Metro Rail
Study conducted by	The World Bank
Project Budget (local currency and AUD at current exchange rate)	Environmental component = 135,173,037,794 Pesos = 60,887,353AUD Social component = 136,329,614,472 Pesos = 61,408,321 AUD (2019 prices)
Scale of Region Covered by Transport Mode	23.86 km
Program start and completion dates	2014 - 2024
High Level Description	- Bogota Metro, currently under construction, is a city shaping project targeting urban renewal and is based on a railway viaduct network with an extension of 23.86 km and 16 stations of which 10 have a direct connection to the existing TransMilenio System. - The project was evaluating using an Environmental and Social Impact Assessment (ESIA), which concluded that the Bogota public will benefit substantially from the introduction of metro service. - Indicators included commuting time, reduced carbon emission, improved accessibility and employment opportunities for 8 million labour force. - ESIA helped identify impacts and risks associated with different stages of the project (preconstruction, construction and operation). - Control and mitigation measures for impacts recognized in this feasibility phase were also formulated
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	ESIA	
Indicator field	**Indicator**	**Method used for assessment**
Economic	Local economy	PLMB contribute to the development and growth of the city, which will attract national and foreign investment, generate direct and indirect jobs and contribute to the renewal and development of the city.
Carbon emission	Reduced traffic count	-The contractor will form the UGAS Environmental and Social Management Unit, which will be in charge of an interdisciplinary team that executes, determines and evaluates the socio-environmental aspects during the different stages of project execution. -A reduction of 1.3 million tons of CO2e is estimated in the first thirty years of operation.
Environmental hazard	Surface water Soil quality Numbers of trees	-Survey -It was identified that the activities to be carried out in the different stages of the project may affect soil quality due to the generation of waste. -A forest inventory of 100% of the trees along the route of the PLMB was made, identifying a total of 3,287 arboreal individuals.
Safety and security	Safety The prevention of gender violence	-Through the incorporation of parameters such as: lighting, opening, visibility and security, which generates a greater sense of tranquility. -Improvements in sidewalks and walking infrastructure, along with well-lit and monitored stations, will provide women with safer access to and from public transportation;
Employment and skills	Easily access to education, health and employment	The labor force during the construction phase of the project will be mainly of the 8 million citizens living in Bogotá.
Accessibility	Reduced road congestion	Not mentioned
Connectivity	Connectivity	PLMB will bring will be the connectivity with the zones of greater population flow, for which a 13-kilometer bike path will be built to the West under the Viaduct, and a second 8-kilometer bike path on the sides of Caracas Avenue.
Noise	Noise pollution	Set 18 monitoring points for environmental noise
Communications	Channels with population	-The EMB has been carrying out activities in order to lower levels of disinformation and thus promote the participation of citizens. - A total of 25 meetings were held, convened in an open manner and in which around 5,700 citizens participated.
SROI	N/A	
Evidence if SROI achieved	N/A	
References	Coy, Elsa. 2018, '*Colombia - Support to the First Bogota Metro Line Section One Project : environmental assessment (Vol. 15) : Estudio de impacto ambiental y social (EIAS) Anexo 3.1. Localización general del proyecto (Spanish)',* Colombia : s.n..	

Case Study Proforma 16 – Tehran Metro, Eastern District

Project Name	Tehran Metro Development in Eastern District
Location	Tehran, Iran
Transport Type	Metro Rail
Study conducted by	Nikfalazar S. and Amiri M. University of Tehran, Iran Monash University, Australia
Project Budget (local currency and AUD at current exchange rate)	Not applicable
Scale of Region Covered by Transport Mode	System Length: 168 km Line4 length: 22km
Program start and completion dates	Phase 1 = 1976-2010
High Level Description	- The Tehran study assesses the social impacts of metro development in eastern parts of Tehran after the completion of three new metro stations in line four, which was partially inaugurated in 2007, and completed in 2010. - Various impacts of metro development were examined using a conceptual model. - For this SIA study, indicators were clustered in three categories: accessibility, mobility and social wellbeing. - To evaluate these categories a questionnaire was designed and used to evaluate the social indicators. - A factor analysis was carried out to confirm the proposed model.
Project Network Plan or Map if available	

<table>
<tr><td>Project Photograph if available</td><td colspan="2">  </td></tr>
<tr><td>Social Assessment Type (eg SROI, SIA)</td><td colspan="2">SIA</td></tr>
<tr><td>Indicator Field</td><td>Indicator</td><td>Method used for assessment</td></tr>
<tr><td>Accessibility
- Access to public places and facilities
-Access to education
-Access to employment</td><td>Access to shopping centre, entertainment facility, education institutions, and employment centres,</td><td rowspan="3">Observation and interview via questionnaire survey followed by a statistical analysis

Table 2 Cronbach's alpha for different categories
<table><tr><th>Categories</th><th>Number of questions</th><th>Cronbach's alpha</th></tr><tr><td>Accessibility</td><td>5</td><td>0.654</td></tr><tr><td>Mobility</td><td>3</td><td>0.844</td></tr><tr><td>Social wellbeing</td><td>10</td><td>0.681</td></tr><tr><td>Whole questionnaire</td><td>18</td><td>0.761</td></tr></table></td></tr>
<tr><td>Mobility
-Number of daily trips
-Possibility to do a trip</td><td>Daily trip, increase travel choice</td></tr>
<tr><td>Social wellbeing
-Health
-Social amenity
-Visual amenity
-Safety and security)</td><td>Air Quality, Noise, Street tidiness, Crowd Condition, House location, Local business, Social interaction, Visual attractiveness of the entrances, Station environs security and safety status</td></tr>
<tr><td>SROI</td><td>N/A</td><td></td></tr>
<tr><td>Evidence if SROI achieved</td><td>N/A</td><td></td></tr>
<tr><td>References</td><td colspan="2">Nikfalazar, S., Amiri, M. Khorshidi, H.A. (2014). Social impact assessment on metro development with a case study in Eastern District of Tehran, Int. J. Society Systems Science, Vol. 6, No. 3, pp.245-263.</td></tr>
</table>

Case Study Proforma 17 – California Intercity High-Speed Rail

Project Name	California High-Speed and Intercity Rail Projects
Location	California, USA
Transport Type	High-speed train
Study conducted by	The Urban Transportation Center, University of Illinois at Chicago
Project Budget (local currency and AUD at current exchange rate)	N/A
Scale of Region Covered by Transport Mode	California
Program start and completion dates	2022-2071
High Level Description	- California's intercity high-speed rail project is intended to accommodate increasing rail passenger demand and to meet the rising expectations of riders for a high quality rail travel experience. - The study involves cost-benefit analysis, economic impact analysis, and social impact analysis. - Benefits assessed were travel benefits (such as travel time, travel cost, reliability and traveler productivity), social benefits (such as traveler safety improvement, reduction in greenhouse gas, and energy resources), regional benefits (such as agglomeration and emission reduction for pollutant), and local benefits (such as noise reduction and station area development)
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	EIA, SIA, BCA	
Indicator Field	**Indicator**	**Method used for assessment**
Travel Benefits	Travel time, travel cost, reliability and traveler productivity	Travel time: use of a previously estimated travel demand model by Cambridge Systematics (2013) The reliability benefit is calculated as the reduction in the extra buffer time for a trip Noise pollution is monetized by multiplying the per mile cost for noise (0.13 cents per mile for cars and 2.04 cents per mile for trucks (FHA, 2005)) and the VMT reduced for cars and trucks. The productivity benefit is calculated based on the rationale that the HSR travelers can utilize the travel time more productively than if driving or flying.
Societal Benefits	Traveler Safety Improvement, reduction in Greenhouse Gas, and energy resources	Safety improvement is measured as the number of reduced crashes as VMT decreases. CO2 emission factor per VMT for auto vehicles are calculated in accordance with CEQA (California Environmental Quality Act) and NEPA (National Environmental Policy Act) guidance.
Regional Benefits (of National Significance)	Agglomeration and emission reduction for pollutant	Reduction in VMT will reduce the dependency on imported oil as vehicles using oil are replaced by high-speed rail which uses electricity as the energy source. This will reduce the cost of importing crude and refined oil. The saving is estimated as the product of reduced oil requirement due to reduced VMT and per gallon cost of oil imports which can be derived from NHSTA (2009).
Local Benefits (of National Interest)	Noise reduction and station area development	The total agricultural land and wetlands lost to HSR project is multiplied by the per acre value of agricultural lands (USDA, 2011) and wetlands
SROI	N/A	The B/C ratio of the study ranges from 2.23 to 2.3
Evidence if SROI achieved	N/A	
References	P.S. Sriraj, P.S., Zou, B, Schlickman, S., Weisbrod, G., *et. al*. (2017), *Framework for Assessing the ROI for High-Speed and Intercity Rail Projects,* Urban Transportation Center, USA	

Case Study Proforma 18 – Mumbai Metro – Line Four

Project Name	Mumbai Metro – Line Four
Location	Mumbai, Inda
Transport Type	Metro Rail
Study conducted by	College of Engineering, Mumbai,
Project Budget (local currency and AUD at current exchange rate)	Rs. 190,970 m / $ 3878 m AUD (2004 prices)
Scale of Region Covered by Transport Mode	33.5 km Wadala-Ghatkopar-Teen Hath Naka (Thane)- Kasarwadavli
Program start and completion dates	Phase 1 = 1995-2005 Phase 2 = 2005-2011
High Level Description	- Mumbai Metropolitan Region (MMR) has an over-crowded public transport systems and a congested road network. - The EIA analysis considered in this case study was conducted prior to finalization of business case but after station locations had been announced for Mumbai Metro. - The analysis was based on on-line questionnaires considering impacts at six proposed station locations. - It used 'Leopold Matrix' multi-criteria analysis of environmental and social indicators, weighted to local context but not monetized. - The main benefits considered were construction impacts, employment benefits, urban renewal, population mobility and safety. The study also highlighted negative impacts on environment and population displacement
Project Network Plan or Map if available	

Project Photograph if available		
Social Assessment Type (eg SROI, SIA)	EIA	
Indicator Field	**Indicator**	**Method used for assessment**
Employment and skills	Employment Opportunities	Questionnaire
Economic	Benefit to Economy	
Connectivity	Mobility	
	Displacement of People	
Safety and security	Safety	
Carbon emission	Reduced congestion	
	Reduced fuel consumption	
	Reduced Air Pollution	
	Carbon dioxide Reduction	
	Reduction in Buses	
Noise	Traffic Noise Reduction	
Environmental hazard	Loss of Trees	
	Refuse/Waste Generation	
SROI	N/A	
Evidence if SROI achieved	N/A	
References	Khaire, S. B., & Jeswani, H. S. (2018). Identifying Positive & Negative Impacts of Mumbai Metro Line IV by Leopold Matrix, 4(7), 420–426.	