

3. Sustainability

3.1 Introduction

'Sustainable development' supports the notion that development must not only meet current needs, but also protect the needs of future generations. Sustainability is a central theme of busway planning and is reflected by the inclusion of social equity, economic prosperity and environmental protection within the project vision.

The South East Busway extension from Rochedale to Springwood is a long-term planning project. Whilst undertaking studies to protect the busway corridor, it is important to identify how the busway can contribute to sustainability within the local area and the region as the project progresses.

Sustainability principles are incorporated into the concept design by integrating the busway alignment and station with the existing corridor environment to minimise ecological impacts while maximising economic and community benefits. A well-integrated outcome will encourage patronage on the busway extension, thereby contributing to the more efficient movement of people within the Rochedale to Springwood corridor.

3.2 How are busways sustainable?

3.2.1 A sustainable transport mode

In broad terms, the planning of transport infrastructure is critical for the sustainable development of towns and cities. Efficient transport outcomes contribute to the sustainability of a region. Public transport infrastructure in particular is a form of sustainable development as it encourages the efficient movement of people and can help promote more self-contained land use patterns. By removing buses from traffic congestion, busways help improve bus engine efficiency, and thereby reduce emissions.

The carrying capacity of a busway lane is significantly higher than that of a typical freeway lane (as used by private vehicles). A freeway lane has, typically, a people-carrying capacity of about 2,400 people per hour. In contrast, a busway lane can carry up to 36,000 people per hour. By carrying more people per vehicle per hour, the environmental footprint per passenger kilometre travelled can be reduced, which in turn reduces the average emissions per person per trip.

3.2.2 Sustainable infrastructure

The design, materials and procedures used in the construction, operation and maintenance of a busway can also enhance sustainable outcomes. Whole-of-life sustainability in products promotes minimal resource consumption and cost savings by providing better value-for-money. It also helps to build social capital through the design of spaces that encourage personal interaction and equitable access.

3.3 Sustainability within the Concept Design Study

Sustainability principles have been utilised in the planning of the South East Busway extension from Rochedale to Springwood and are outlined below. These principles ensure that sustainability is incorporated in two different ways:

- the sustainability of the transport mode
- the sustainability of busway infrastructure (through design, construction, operation, maintenance and decommissioning).

Promote the primary sustainability benefit of busways as being able to contribute to a more sustainable transport network

The spatial and temporal scale of transport as an activity makes promoting a more sustainable transport network the largest contribution that a busway project can make to sustainability. Increasing the proportion of trips made on public transport helps to manage the impacts of travel demand growth by using road space and fuel resources more efficiently than can be achieved with low occupancy private vehicles.

The network integration strategy (see Chapter 20) presents information that promotes this sustainability principle. The focus of the network integration strategy is to ensure that the busway extension is well integrated with the surrounding transport network. This approach will improve the connectivity, efficiency, accessibility and capacity of the transportation system in the extension catchment. The strategy also guides provision for cycling, pedestrian and local bus access which will facilitate less reliance on the private car and greater use of more active and sustainable modes of travel when accessing the busway.

Look for resource efficiencies across the whole of project and infrastructure life

Achieving resource efficiencies means promoting the use of renewable, long-lasting and/or fully recyclable resources and minimising the consumption of disposable, non-recyclable and non-renewable resources. Adoption of this approach to resource sustainability will help minimise the production of waste and emissions, maintain asset value and its component materials, and potentially reduce capital and recurrent costs.

The engineering chapter (see Chapter 5) has broadly outlined opportunities for resource efficiencies in the detailed design and construction phases of the project. This includes features such as rainwater and solar energy collection and use, water-sensitive urban design, climate-sensitive design, energy and waste minimisation, recycling facilities and whole-of-life considerations.

Protect and enhance natural, physical and human environments

Protecting natural, physical and human environments will ensure biodiversity and environmental quality are maintained or enhanced. Encouraging particular types of urban development and infrastructure will help to promote self-sufficient and connected communities.

The ecology chapter (see Chapter 11) identifies existing ecological values and outlines the types of strategies that could be used to maintain or enhance the integrity of flora and fauna habitats adjoining the extension. Particular strategies include avoiding unnecessary clearing of vegetation (in particular important habitat trees), and landscaping with local native plant species.

Soil, water quality and air quality are investigated in chapters 7, 10 and 16 respectively. These investigations aim to maintain and enhance these qualities by ensuring any changes to the environment achieve the relevant standards, and impacts are minimised.

Promote community capacity, equity and social wellbeing

Improving community capacity through greater public involvement in busway planning helps improve the validity of planning and design outcomes.

The social environment chapter (see Chapter 13) outlines the existing social environment and types of strategies that could be used to maintain or enhance equitable access and community connectivity. It is noted in this chapter that improved connectivity can be achieved by linking public transport with community facilities and spaces (such as a town square). This also helps strengthen the study area's connection to Logan City and Greater Brisbane.

Consultation and communication with the public and key stakeholders has been undertaken for the Concept Design Study for the South East Busway extension from Rochedale to Springwood. Consultation strategies have included processes to ensure community feedback is reviewed and responded to, and meetings have been held with property owners in the study corridor. These have been undertaken to better understand public interests and aspirations for the area and to ensure that reasonable changes generated by community feedback are incorporated into the concept design. See Chapter 2 for more detail on the consultation process.

Promote sustainable forms of local and regional economic growth

Growth in regional and local economies will promote self-containment by ensuring the availability of employment and a mix of local services and recreational opportunities. Coordinating local economic development with land use planning is important in realising sustainable transit-oriented development.

The land use planning chapter (see Chapter 12) recognises the importance of incorporating bus stations with transit-oriented development, especially activity centres. Planning for the extension is not responsible for land use outcomes, however, the Department of Transport and Main Roads is working closely with key stakeholders such as Logan City Council to coordinate transit and land-use outcomes.

This sustainability principle is also promoted within the economic chapter (see Chapter 14). This chapter recognises the importance of local and regional economic viability and aims to support additional economic opportunities and employment availability through the busway proposal.

Undertake informed and responsive project governance and decision making

This principle has been promoted through adopting a collaborative approach to busway planning. The Department of Transport and Main Roads is consulting with the community and key stakeholders at key project phases to ensure all issues are identified and managed appropriately. The Department of Transport and Main Roads has also fostered positive relationships with other stakeholders through its pursuit of open communication and the development of shared goals.

There are a number of other projects currently being planned in the area. Their communication and project timeframes have influenced the planning for the busway extension. Continued coordination and communication between project teams will seek to ensure that future transport outcomes in the area maximise social and environmental benefits, as well as seeking community and economic cost savings.

3.4 Future investigations

This chapter has provided an overview of sustainability considerations within the Concept Design Study for the busway extension. As this project progresses the following should be considered:

- updated sustainable legislation, policy, standards or relevant busway planning manuals
- changing government priorities and programs, which may provide funding and support to sustainability initiatives, or which change sustainability targets or aspirations
- development of improved technology and practices that improve the availability of more sustainable products, practices and materials
- designing for 'whole-of-life' sustainability through construction, maintenance and decommissioning.

Sustainability considerations within the concept design should be carried forward to the detailed design phase. Future impact management planning will also contribute to the sustainability of the project by ensuring opportunities are captured and impacts are mitigated effectively during the construction and operational phases of the project.