



Transport Networks and Corridors Strategy 2012 – 2031

Background Paper



For further information

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1 Introduction

This paper outlines the process undertaken by Moreton Bay Regional Council (Council) to review the region's transport network and corridors to determine future requirements and infrastructure provision. This paper provides a background on the detailed analysis used to determine the outputs for sections 2, "Defining User Needs" and 3 "Implementation", of the Transport Networks and Corridors Strategy 2011-2031.

2 Purpose

Through the Networks and Corridors Strategy, Council has developed a series of principals and strategic outcomes that drive the provision of road infrastructure at local, district and regional levels. These principals and outcomes direct everything from upgrading existing roads and allocating lanes on roadways, to delivering new road capacity and interconnections, providing safe road crossings at intersections and in activity centres, and influencing travel behaviour.

Vision

"The transport Networks and Corridors are managed to support and prioritise transport modes with land use in the context of their place type, to ensure the efficient and effective movement of people and freight."

This paper outlines the research and analysis that Council has undertaken to inform future Transport Networks and Corridors demand. It will guide investment in these networks as well as support facilities and amenities along the corridors and at destination places throughout the Moreton Bay Region until 2031.

The Networks and Corridors Strategy primarily focuses on facilities required to move between places, to serve major destinations such as activity centres and employment nodes from their catchments, and designing networks to connect districts by convenient routes. This is predominantly in the form of road corridors.

The primary objective of the Networks and Corridors Strategy is to identify a prioritised list of programs and projects to be implemented by the Council over the next 20 years. The prioritised list will inform –

- The Integrated Regional Infrastructure Strategy;
- The Priority Infrastructure Plan;
- The Moreton Bay Regional Planning Scheme;
- Council's future Strategic Road Investment Program.

3 Methodology

The following methodology was used to assess the region's current transport Networks and Corridors provision, determine desired future provision of road infrastructure, and prepare the recommendations of section 2 and 3 of the Networks and Corridors Strategy.

Step 1:

Review the current strategic context, existing internal studies and best practice guidelines for road infrastructure provision to inform Council's vision and identify transport network principles and desired outcomes for the region.

Step 2:

Develop locally appropriate road transport infrastructure desired standards of service based on existing studies and relevant best practice guidelines to assist Council in achieving the vision and desired outcomes.

Step 3:

Develop a profile of existing Council provided road transport facilities using information available from Council databases, site inspections and through interviews with local Councillors and operational staff. Review committed projects and opportunities to incorporate features to meet the needs of all users in other committed works (e.g. incorporating cycle lane marking in road rehabilitation, or including paths in open space embellishment) for future transport infrastructure in the region.

Step 4:

Apply the desired standards of service to existing Council provided road transport facilities and committed development to identify shortfalls, constraints and opportunities in road facility provision on a catchment basis (regional, district and local catchment levels).

Step 5:

Identify, prioritise and estimate the cost of future road transport infrastructure programs and prepare the Networks and Corridors Strategy 2013.

4 Reviewing the strategic context

The Networks and Corridors Strategy tells us how, where and when a local government will provide road infrastructure. The determination of the how, where and when is, in part, influenced by other Council and State government policies.

The Networks and Corridors Strategy 2013-2031, is the consolidated review of Council's road network since the amalgamation of the three former local governments in March 2008. The Strategy incorporates new Moreton Bay Regional Council policy, such as the Corporate and Community Plans and Strategic Framework, as well as significant changes to State Government policy such as the South East Queensland Regional Plan.

4.1 South East Queensland Regional Plan 2009-2031

The South East Queensland Regional Plan 2009-2031 provides the framework for a coordinated and sustainable approach to planning, development and infrastructure provision in South East Queensland. A key theme in this document is the creation of strong communities, and the need promote more sustainable travel, and to plan and co-ordinate the effective and timely provision of transport infrastructure to serve the needs of all users.

4.2 Connecting South East Queensland 2031

The Connecting SEQ 2031 Regional Integrated Transport Strategy was prepared by the State Government as a means to deliver the transport component of the South East Queensland Regional Plan and to guide and coordinate integrated transport planning at the local authority level. A key component of this document was to establish 2031 mode share targets for each regional council area.

4.3 Moreton Bay Regional Council Corporate Plan

Demand for transport needs to be managed effectively into the future. This will require significant changes to land use, public transport infrastructure and services, walking and cycling (active transport) infrastructure, as well as continued investment in the major road network

*"Housing and infrastructure supports our growing population and enhances our lifestyle",
"People can travel easily around the region using different modes of transportation",
"by 2021 our region will consist of well-connected places and residents will embrace more sustainable travel choices and behaviour",
"Council will plan, deliver and maintain Council owned infrastructure...in response to community needs."*

4.4 Moreton Bay Region Community Plan 2011-2021

Moreton Bay Region's Community Plan was developed in 2011 and was prepared in partnership with community groups, businesses, state agencies and local residents. The Community Plan identifies a series of key themes that drive Council's future strategic direction. The key themes and targets specific to developing the Active Transport Strategy are:

Theme – Diverse transport options

By 2021 the region will consist of well-connected places and residents will embrace more sustainable travel choices and behaviour.

Target 23 – Increase use of public transport

Target 24 – Increase walking and cycling as methods of transport

Target 25 – Promote a safe and effective road network in the region

4.5 Moreton Bay Region Strategic Framework

Council released the Moreton Bay Region Strategic Framework in September 2012. As part of the region's new planning scheme, this document provides a vision and strategy for the Moreton Bay Region to accommodate growth and development to 2031.

The Strategic Framework considers our growing population, residential and economic precincts, as well as their influence on infrastructure such as open space, transport, water, community services and the environment.

A key component of the strategic framework is place types – the different locations where we work, live and play. The place types is a future land use model which establishes specific planning and design outcomes expected in a variety of locations throughout the region.

The Strategic Framework identifies integrated transport planning as integral to achieving strong communities. The integrated Transport Theme of the Strategic Framework specifies that:

The transport system will serve to maximise opportunities for economic development, and social interactions within the region, provide for safe and convenient pedestrian and cyclist mobility in walkable neighbourhoods, and encourage use of public transport, and existing and future transport corridors and linkages will be maintained and protected."

Under that theme, the Strategic Framework identifies a number of specific strategic outcomes relevant to the development of the transport network:

1. "Plan for a more compact urban settlement pattern and urban form to encourage sustainable travel patterns reducing the need to make trips by any motorised form and to reduce the length of motorised trips";
2. "Ensure all people in the region have access to a range of travel options that reflect their budget, their needs and their lifestyle,"
3. "Investing in innovative solutions to make the most of the existing transport network, minimise resources and get the best value for money out of new infrastructure",
4. Influence sustainable travel behaviour by creating attractive places to walk and cycle", and
5. Advocate for regional freight networks improvements to support economic growth of the region."

The Strategic Framework has been a key consideration in the analysis that supports the conclusions of the Networks and Corridors Strategy.

5 Determining desired standards of services

The desired standard of service (DSS) establishes Council's for the region's transport network. The DSS have been developed to be appropriate to the local context. The standards include the relationship between vehicle capacity and demand, and non-capacity criteria relating to the ability to cater for all users. These standards have been developed to align with the vision and policy objectives of the Networks and Corridors Strategy 2031.

5.1 Methodology

Council has defined a desired standard of service (DSS) to identify capacity deficiencies in the road network. It is recognised that the differences in the mix of land uses and the intensity of land use in different “*place types*” under the proposed new planning scheme will influence travel mix and travel behaviour. Therefore, the capacity-based standard is defined separately for each category of place types.

The non-capacity criteria for DSS reflect the functionality of corridor segments for various users (motorists, public transport users, cyclists and pedestrians), and the characteristics of various categories of place types. These standards relate to design features, connectivity, safety, amenities and supporting infrastructure.

5.2 Desired standards of service rationale

It is proposed that the DSS for the traffic function of the road network will be based on capacity analysis.

It is proposed that the DSS for cycling, for pathways, and for pedestrian crossings will be based on criteria other than capacity. The desired functionality and design standards are based on research including case studies of best practice, an analysis of strengths and weaknesses of existing provision, and a gap analysis against the policy intent expressed in the Networks and Corridors Strategy 2031.

Place Type Groupings

The transport function of networks and corridors, if not managed appropriately, may adversely impact on the place. The Strategic Framework identified a number of place types. Place types for this strategy fall into four broad groups:

Group	Place Type	Description
Grouping 1	Activity Centres	The highest concentration of employment and retail activity these areas are highly accessible and contain a mix of complementary uses.
Grouping 2	Urban Neighbourhoods	These are the second most intensively developed place type areas and contain a range of residential and employment land uses.
	Next Generation Neighbourhoods	
	Enterprise and Employment areas	

	Rural Townships	
	Coastal Villages	
Grouping 3	Suburban Neighbourhoods Rural Residential areas	Traditional low density residential suburbs and residential acreage, where housing densities are the lowest or are within a rural environment.
Other Places	Rural areas, Mountain Ranges Forests and Waterways Key extractive industries.	The remainder of land use types, predominantly located in rural areas. The character is one of scattered farms and housing, balanced with landscapes associated with farming, extractive industry or forestry

5.2.1 DSS for the Road Network

Table 5.1 illustrates the level of service for roads and streets dependent on the role each segment plays in the road hierarchy, and the place type category in which it is located. The level of service is expressed as a ratio of volume to capacity.

Desired Standard of Service (Level of Service)		Place Type Grouping		
		1	2	3
		LOS D/E	LOS D	LOS C
Road Link DOS	Arterial	0.95	0.85	0.65
	Sub-Arterial	0.95	0.85	0.65
	Collector	0.90	0.80	0.60
Intersection DOS	Signalised	0.95	0.95	0.90
	Roundabout	0.95	0.95	0.85
	Priority	0.90	0.90	0.80

Table 5.1 Capacity-based levels of service for the traffic function of road corridors

Different Levels of services were identified for links and intersections for road capacity. These identified different acceptable traffic conditions for different place types. For example within an activity centre a lower level of service is acceptable compared to within a rural area. This approach aligns with council supporting more sustainable transport outcomes such as walking, cycling and public transport.

		Place Type Grouping		
		1	2	3
Desired Standard of Service (Level of Service)		D/E	D	C
Road Link DOS	Arterial	0.95	0.85	0.65
	Sub-Arterial	0.95	0.85	0.65
	Collector	0.90	0.80	0.60
Intersection DOS	Signalised	0.95	0.95	0.90
	Roundabout	0.95	0.95	0.85
	Priority	0.90	0.90	0.80

Table 5.2 Desired Standard of Service for Road Capacity.

5.2.2 DSS for cycling provision

Table 5.3 shows the standard of facility for cycling provision relating to the role of the corridor segment in the road hierarchy, the traffic speed environment, and the place type category in which it is located. The standard is expressed in terms of pathway width.

Desired Standard of Service	Place Type Grouping		
	1	2	3
State Road	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater)
Arterial	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	On-road 1.5 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater)
Sub arterial	On-road 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) Off-Road (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	On-road 1.5 60kph, 2.0m 80kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	On-road 1.5 60kph, 2.0m 80kph (4.0-4.5m with parking 60 - 80kph), Off-Road (shared) 3.0m both sides (or greater)
Collector	On-road 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) Off-Road (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	On-road 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) Off-Road (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	On-road 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) Off-Road (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones

Table 5.3 – Standards of service for cycling facilities

5.2.3 DSS for pathways

Table 5.4 shows the standard of facility for pathways relating to the role of the corridor in the road hierarchy, the traffic speed environment, and the place type category in which it is located. The standard is expressed in terms of pathway width.

Desired Standard of Service	Place Type Grouping		
	1	2	3
State Road	Off-Road (shared) 3.0m both sides (or greater) Off- Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off- Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
Arterial	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
Sub arterial	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
Collector	Off-Road (shared) 2.0 to 2.5 both sides (or greater)	Off-Road (shared) 2.0 to 2.5 both sides (or greater)	Off-Road (shared) 2.0 to 2.5 both sides (or greater)

Table 5.4 – Standards of service for pathways

5.2.4 DSS for pedestrian crossings

The provision of adequate crossings for pedestrians in the network needs to be coupled with adequate provision of paths and cycle facilities. The table shows the appropriate maximum spacing of crossings depending on the role of the corridor in the hierarchy and the place type category in which it is located.

Desired Standard of Service	Place Type Grouping		
	1	2	3
State Road	200m distance is desirable. Crossings to be no further apart than 400m in centres.	400m distance is desirable. Crossings to be no further than 600m apart.	400m distance is desirable. Crossings to be no further than 600m apart.
Arterial	200m distance is desirable. Crossings to be no further apart than 400m in centres.	400m distance is desirable. Crossings to be no further than 600m apart.	400m distance is desirable. Crossings to be no further than 600m apart.
Sub arterial	200m distance is desirable. Crossings to be no further apart than 400m in centres.	400m distance is desirable. Crossings to be no further than 600m apart.	400m distance is desirable. Crossings to be no further than 600m apart.
Collector	200m distance is desirable. Crossings to be no further apart than 400m in centres.	200m distance is desirable. Crossings to be no further apart than 400m in centres.	200m distance is desirable. Crossings to be no further apart than 400m in centres.

Table 5.5 – Standards of service for pedestrian crossing spacing

5.3 Design Standards

The design standards for networks and corridors were developed on the basis of best practice models for infrastructure provision to achieve the vision of the Networks and Corridors Strategy. The design standards have been adopted to accommodate walking, cycling and public transport as viable travel choices where possible. The standards -seek to achieve the necessary quality of network to serve potential users, and to provide an interconnected network to facilitate exchange through genuine travel choice.

Appendix A provides planning and design standards and guidance for the various facility types appropriate to the various settings and proximity to major destination types.

6 Assessing the network and corridor infrastructure

The Desired Standards of Service (DSS) has been applied to Council's existing transport infrastructure network to identify gaps in provision and future requirements for new and upgraded transport facilities. This has revealed a significant disparity between the characteristics of the existing network and the desired future network. A gap analysis has been undertaken to identify the scope of that disparity.

6.1 Methodology

Two models were developed to identify opportunities to deliver the greatest benefit to transport network and corridor users.

1. A Strategic Transport Model was developed and calibrated to assess existing and projected deficiencies in capacity.
2. A GIS model was also developed to evaluate the functionality and connectivity of the existing network and to identify existing and future network gaps.

These models were then used to identify and prioritise the packages of projects necessary to address those capacity deficits and functional gaps. The models inform and guide investment in delivering a future network to meet user needs by 2031.

Consultant Arup provided input to support this approach, including:

- Network condition review
- Gap analysis
- Identification of current intersection capacity deficiencies,
- Identification of potential solutions to address deficiencies,
- Testing of potential solutions, and
- Prioritisation of identified solutions.

Details of the approach are contained within the Arup technical note see **Appendix B** for detail. This report elaborates on the current situation and analyses user needs. This report contains an appendix with a detailed technical report on the modelling process including development and operation.

6.2 Assessing the base conditions of the existing network

A range of network attributes were identified and used to define existing conditions from available GIS data, aerial photos and land use plans. These conditions were assessed and documented in the context of the desired standards of service.

6.3 Identifying Capacity Deficiencies

A “policy-based” model was developed for 2031 which reflects increased public transport usage along with assumptions about behaviour change and a response to land use intensification. For comparison a trend-based model for 2021 and 2031 was developed to reflected current assumed mode share, planning proposals and infrastructure commitments.

Mode share targets adopted for the policy-based model reflect a greater shift away from car-based travel to public and active transport modes compared to the trend-based projections.

To access the road network against the desired standard of service The Moreton Bay Regional Strategic Transport Model was used to identify capacity deficiencies.

The deficiencies were determined by calculating the degree of saturation of links and intersections using modelled AM and PM peak flows and compared against DSS thresholds. To determine the level of upgrade required the intersection deficiencies were further assessed using SIDRA analysis using the peak hour traffic volumes predicted by the strategic model.

6.4 Identifying “non-capacity” corridor deficiencies

Link attributes of pathways, pedestrian crossings, cycle provisions, verge and median width, shading, and link capacity were used to compare existing conditions against the desired functionality, connectivity and design standards applicable to the category of place type which each segment is located.

The analysis shows that deficiencies in pathways and cycle provisions are almost universal, while deficiencies in capacity are relatively rare.

Attribute	As Function of # of Segments			As Function of Total Length		
	Standard	Below Standard	Deficient	Standard	Below Standard	Deficient
Pathways	0%	2%	98%	7%	34%	59%
Pedestrian Crossings	25%	17%	58%	not calculated		
Cycle provision	1%	3%	96%	N/A	N/A	97%
Verges	95%	5%	N/A	not calculated		
Medians	12%	13%	N/A	not calculated		
Shade Trees	4%	29%	66%	not calculated		
Capacity	96%	3%	1%	96%	3%	1%

Table 6.1 Corridor deficiency analysis

6.5 Determining potential solutions

An “opportunities” identification process used the GIS condition and the capacity and non-capacity deficiency analyses to highlight where upgrading infrastructure was required. At the same time it was used to identify opportunities in corridors suitable for “right-sizing” of streets – where existing streets have more capacity than is required to accommodate the traffic levels.

All improvements were assessed to yield the greatest benefit and cost-effectives and the ability to meet desired standards to meet user needs. This process identified a large number of opportunities characterised as “quick wins” where relatively modest intervention could yield high benefits for a low infrastructure cost.

6.6 Project scoping

From the range of possible solutions identified, those assessed as offering the greatest opportunity to effectively improve network performance and cater to users' needs, according to the degree to which they satisfied:

- safety for all road users
- Efficient movement of people
- Strengthened connections to and between activity centres
- Increased self-containment, and
- Sustainability – reduced carbon emissions

These selected projects were scoped to a broad conceptual level. The segments affected by projects were packaged at district and catchment level, and according to the place type category in which each is located.

6.7 Cost Factors

Cost factors for various priority elements assist in establishing value propositions for prioritisation and for informing budget processes. In turn, these value propositions underpin subsequent priority infrastructure planning, capital works programs, grants submissions and operational programs.

Such factors include:

- Nature of project (new facility, upgrade or renewal, amenity enhancement),
- Scope of project (elements, length, width, context, constraints)
- Ability to “bundle” with related projects (co-location, economies of scale)

The work by the consultants to scope and cost selected projects has provided a basis for extrapolating cost factors across comparable projects and packages.

6.8 Funding Sources

Funding for corridor elements is derived from a range of sources, depending on role in the network, responsibilities, and governance arrangements. These include:

- Developer-provided facilities integral to standard obligations, through mutual agreements, or imposed as development approval conditions, in accordance with scheme codes,
- Defined trunk facilities subject of Priority Infrastructure Plans funded through mandatory developer contributions,
- Local area enhancement (potentially subject of “benefitted area” levy)
- Council capital and operational works programs
- State and Federal responsibility for State-controlled roads, and for the National Highway.
- Facilities provided by State or Commonwealth as part of other programs (Road improvement programs on State-controlled roads, Nation-building investments – e.g. associated with the Moreton Bay Rail Link, etc.)
- Grants or special purpose programs of State or Commonwealth (these may incorporate Council co-funding).

Historically, available funding for transport networks and corridors has generally been insufficient to provide the nominated “*level of service*” (or desired functionality) for unconstrained traffic growth. This dictates that the “*suite*” of complementary strategies will be necessary to help leverage the most effective benefit:

- from the existing network
- to deliver the associated amenity and enhancements
- to meet desired standards or community expectations.

The degree to which alternative transport options can temper growth in car-dependence will support business cases for increasing investment in active and public transport, in more travel-efficient land use patterns, and in travel demand management measures. For instance, increased investment in active transport will defer or avoid significantly greater levels of cost which would otherwise be incurred in alternative car-based initiatives. Equally, the degree to which active transport, more travel-efficient land use, and travel demand management enhances social, health and economic outcomes will justify increased investment to secure community benefits not otherwise available.

7 Prioritisation

The methodology for the prioritisation of projects for the transport networks and corridors is based on a 3 stage process involving demand analysis, opportunities for cost savings through bundling like projects project and readiness (ie; the time it takes for Council to progress with the relevant phase of the facility development).

Diagram 1 Prioritisation Methodology (Networks and Corridors)



Integration with other network outcomes (water sensitive urban design, open space, community infrastructure, etc.) through the Integrated Regional Infrastructure Strategy (iRIS) will incorporate other relevant considerations such as financial sustainability and broader strategic outcomes when considered against Council's long-term financial forecasting.

7.1 Phase 1 - Gap Analysis

The catchment analysis and transport modelling determines whether a project is to cater for an established shortfall or is required as new development progresses within the catchment. The expected rate of development within the catchment, as prescribed by the Urban Growth Model, supports the prioritisation of new facilities or upgrades to existing facilities.

7.1.1 Spatial Analysis

Movement corridors within Moreton Bay have been described in Council's spatial data as land parcels including road segments, intersections, and open spaces. These parcels and the corridor segments they comprise were interrogated by the consultants for their contribution to the existing transport network and their potential contribution and priority in enhancing the network.

These corridor segments have been assessed by Arup consultants in terms of the potential and priority for implementing network enhancements, including active transport facilities as part of their background investigations for Stage 1 of the MBRC Networks and Corridors Strategy.

This analysis showed that quality vehicle capacity on roads is very well catered for. However, pathways, cycle provision, and pedestrian crossings, as well as opportunities for shade trees, are relatively poorly provided for. This indicates a need to re-direct infrastructure investment into greater support for active transport facilities.

Arup's work included identification of Opportunities for additional facilities and enhancements (e.g. verge widths sufficient for pathways, pedestrian crossings, median space for shade planting, etc.) with respect to segments of collector and higher status road corridors.

This work complements Council's spatial analysis. The combination of these investigations informs the prioritisation of interventions, and helps guide future investment in effective transport facilities.

Condition Aspect	Criteria and Coding
Pathway availability and condition	0 – none available 1 – available – partially available 2 – available – available along whole length
Nature strip/highway verge condition	0 – none available 1 – available – limited opportunities for embellishment 2 – available - provides some opportunities for embellishment
Provision of shade tree planting	0 – none 1 – yes – average amount of plantings (more than 30 metres apart) 2 – yes – abundant plantings (12-15 metres apart)
Provision of marked on-street cycle lanes	0 – none 1 – yes – one side of the street only 2 – yes – both sides of the street
Central medians and intersections	0 – none 1 – has normal width central median 2 – has exceptionally wide central median
Shoulders	1 – none 2 – existing gravel or very poor condition 3 – existing sealed - on-street parking legally allowed 4 – existing sealed non parking (e.g., redundant, unnecessarily hatched)
Number of lanes	1S – one in each direction 1A – one lane (one way street) 2S – two lanes each direction 2A – two lanes in one direction, one lane in the other direction 3S – three lanes in each direction 3A – three lanes in one direction, two lanes in the other direction 4S – four lanes in each direction 4A – four lanes in one direction, three lanes in the other direction
Intersections	<ul style="list-style-type: none"> • Number of Signalised intersections per segment • Number of Roundabouts per segment • Number of priority intersections per segment (where link in question is the major movement) • Number of priority intersections per segment (where link in question is the minor movement)
Pedestrian crossings	<ul style="list-style-type: none"> • Signal crossing count • Zebra crossing count • Uncontrolled crossing count • Refuge crossing count • Side street crossing count
Freight routes	0 – No 1 - Yes

7.1.2 Strategic Modelling

The MBRC Strategic Transport Model 2013 identifies existing and projected traffic volumes for comparison against the capacity of the transport corridors and intersections to accommodate such volumes. The model identified those trips which are short enough to be realistically undertaken as walking or cycling trips. The proportional assignment of active modes to these trips, in comparison to longer trips which are more car-dependent, generates a gradation of mode share between localities.

This process provides a guide to the expected mode share targets necessary in localities characterised by these short trips (e.g. near major and district centres, and in proximity to more “urban” place types) to achieve the global mode share across the Moreton Bay Region sought by the Connecting SEQ and the Moreton Bay Integrated Transport Study⁵ (MITS) strategies. This will also enable calculations to be made of potential trip volumes by walking and cycling in critical locations.

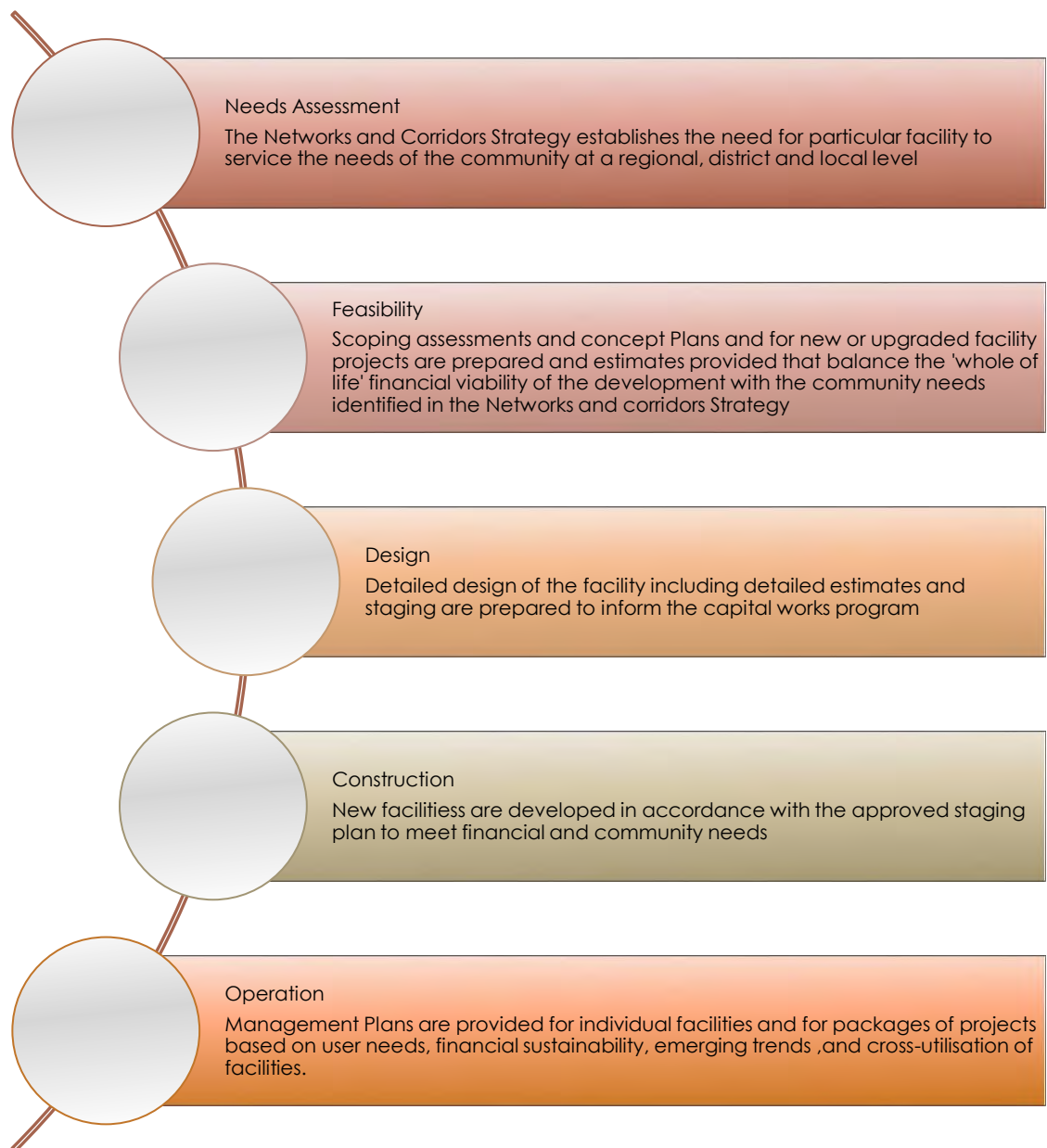
7.2 Phase 2 –Packaging

The packaging of like projects, such as the introduction of cycle lanes in conjunction with road re-sealing or rehabilitation projects, provides opportunities for Council to save considerable expenditure over time. Through phase 2 these projects are identified where they generally fall within a 5 year increment as defined by the gap analysis.

7.3 Phase 3 - Project Readiness

Once packaging opportunities are prioritised, the project-readiness of the packages are considered. The purpose of this phase is to ensure that the prioritisation schedule is appropriate and able to inform future detailed planning processes and budget discussions. Project readiness will consider any possible impediments which may set a project back or opportunities in bringing a project forward. Awareness of the 5 key phases of facility development is necessary to determine timelines for delivery.

Diagram 2 5 Key Phases of Facility Development



8 References

- Queensland Government, South East Queensland Regional Plan 2009-2031 (2009)
- Queensland Government, Statutory Guideline 01/11 – Priority Infrastructure Plans (2011)
- Queensland Government, PIP practice note 2 – desired standards of service (2011)
- Queensland Government, PIP practice note 3 – plans for trunk infrastructure (2011)
- Urban Land Development Authority, Neighbourhood Planning & Design - ULDA guideline no. 5 (2012)
- Australian Bureau of Statistics, Census of Population and Housing 2011
- Profile.id, Moreton Bay Region Community Profile, <http://profile.id.com.au/moreton-bay/home>, 2013
- Moreton Bay Regional Council, Moreton Bay Region Strategic Framework (2012);

Background Paper Appendix A

Desired Standard of Service

Transport Networks and Corridors Strategy 2012 - 2031

The Desired Standards of Service for Transport Networks and Corridors relate to the “place type” the infrastructure is located. The place types are the basis for the Strategic Framework of the new Moreton Bay Regional Council Planning Scheme. The trunk road network planning will be assessed against service levels appropriate to the relevant “place types”

The “place types” for the Planning Scheme have been grouped into three categories/types to reflect the broad type of access and transport integration intended for each of the areas. This will assist in achieving key strategic outcomes for the Moreton Bay Regional Council area including integrated movement networks, streets that prioritise the needs for pedestrians and cyclists, embracing more sustainable travel behaviour, as well as ensuring a transport network that meets the required needs of other road users in appropriate locations.

Place Type Grouping

The “place type” groupings are:

Category Type 1: Principal, Major and District Activity Centres

Category Type 2: “Urban” Neighbourhoods, Next Generation Suburban Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages

Category Type 3: Suburban Neighbourhoods and Rural Residential areas, and Rural areas, Mountain ranges, forests and waterways

Desired Standards of Service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p> <p>In Activity Centres (place type 1) and to other key destinations the urban road network will promote safe, accessible and convenient walking and cycling connections And effective public transport operations as part of an integrated and cohesive movement network.</p> <p>Commensurate with the highly urbanised environment within Activity Centres, a lower level of service for motor vehicles and</p>	<p>Local government road design and development manual/standards/codes in planning scheme and planning scheme policy</p> <p>Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads</p> <p>Australian Standards</p> <p>AUSTROADS guides</p> <p>Level of Service for road links and intersections refer to table 4.4.4.1A.</p> <p>Desired standard of service for functional road elements refer to tables 4.4.4.1B to E for Speed, access, parking,</p>

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
	freight is considered acceptable to promote an improved walking and cycling environment and the greater use of public passenger and active transport modes. In comparison a higher level of service is considered acceptable in "place type 2 and 3" where the balance of users requires a greater need to ensure movement across the network for other traffic including freight.	intersections, turning facilities.
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distances to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p> <p>Promotes the provision of public transport infrastructure consistently across the movement network that is compatible with land uses, demand and is fully accessible.</p>	<p>Local government design and development manual/standards/codes in planning scheme and planning scheme policy</p> <p>Design accords with the performance criteria set by Department of Transport and Main Roads</p> <p>Design accords with the performance criteria and guidance set out in TransLink Public Transport Infrastructure Manual (PTIM)</p> <p>AUSTROADS guides for road-based public transport and high-occupancy vehicles</p>

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Cycleway and pathway design/planning standards	<p>Cycle ways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable and attractive alternatives.</p> <p>Design of the network will comply with established codes and standards.</p> <p>Promote networks that are functional and connected and that reflect desire lines to key destinations, and meet appropriate standards of convenience, comfort and amenity.</p>	<p>Local government road design and development manual/standards/codes in planning scheme and planning scheme policy</p> <p>Australian Standards</p> <p>AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths.</p> <p>Complete Streets</p> <p>Desired Standard of Service for Pathways refer to table 4.4.4.2.</p> <p>Desired Standard of Service for Cycling provision refer to table 4.4.4.3.</p> <p>Desired Standard of Service for Pedestrian Crossings refer to table 4.4.4.4.</p>

Table 4.4.4.1A Level of Service (LOS) for Roads / Streets per Place Type

Desired Standard of Service (Level of Service)		Place Type Category		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
		D*/E	D	C
Road Link DOS	Arterial	0.95	0.85	0.65
	Sub-Arterial	0.95	0.80	0.65
	Collector	0.90	0.80	0.60
Intersection DOS	Signal	0.95	0.95	0.90
	Roundabout	0.95	0.95	0.85
	Priority	0.90	0.90	0.80

Table 4.4.4.1B Functional Trunk Road Planning Provisions in the Hierarchy per Place Type – for the Speed Environment

Desired Standard of Service (Speed Environment)		Place Type Category		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State	Note 1	State	State
	Arterial	Note 2	60 – 80 km/h	60 – 100 km/h
	Sub-Arterial		60 – 80 km/h	60 – 80 km/h
	Collector		50 – 60 km/h	60 km/h

Note 1: Where a State Road passes through a Place Type 1 (e.g. Activity Centre) negotiations with the State will consider the appropriate speed environment such that it should be commensurate with the road design and the environmental context of the road link (i.e. land use, status of “place”, and level of pedestrian and cycle activity).

Note 2: the speed environment should consider pedestrian and cycle provision, adjacent land uses and overall environmental context where the desired level of service favours walking and cycling as a priority.

Table 4.4.4.1C Functional Trunk Road Planning Provisions in the Hierarchy per Place Type – for Access

Desired Standard of Service (Access)		Place Type		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State	Note 1	State	State
	Arterial	Note 2	Intersections and limited commercial and industrial access	Intersections
	Sub-Arterial		Intersections and limited commercial and industrial access	Intersections and Frontages
	Collector		Intersections and limited commercial and industrial access	Intersections and Frontage
	Residential Streets (low speed environment)	Frontage	Frontage	Frontage

Note 1: Where a State Road passes through a Place Type 1 (e.g. Activity Centre) negotiations with the State will consider the appropriate level of access, commensurate with the road design and environmental context of the road link (i.e. land use, status of “place”, and level of pedestrian and cycle activity).

Note 2: Level of access provided to be commensurate with the environmental context of the road link in Place Type 1

Table 4.4.4.1D Functional Trunk Road Planning Provisions in the Hierarchy per Place Type – for Intersections and Turning Traffic Provisions

Desired Standard of Service		Intersections	Turning Traffic
Hierarchy	State	State	State
	Arterial	C-0.5 to 1.0 km	Protected acceleration and deceleration lanes
	Sub-Arterial	C – 0.2 to 0.5 km	Protected acceleration and deceleration lanes
	Collector	C/P – 0.1/0.2 km	Localised protection
	Residential Streets(low speed environment)	P- 0.06 km	None

Note: C- Controlled intersections, P – priority intersections

Table 4.4.4.1E Functional Trunk Road Planning Provisions in the Hierarchy per Place Type – Parking provision

Desired Standard of Service (Parking)		Place Type		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State	State	State	State
	Arterial	Limited/ low provision	Limited / Controlled	None
	Sub-Arterial	Limited/ low provision	Limited / Controlled	Limited/ Controlled
	Collector	Limited/ low provision	On road / shared off road	On road
	Residential Streets(low speed environment)	Controlled provision	On road	On road

Table 4.4.4.2 Desired Standard of Service for Pathways

Desired Standard of Service (Pathways)		Place Type		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State Road	Off-Road (shared) 3.0m both sides (or greater) Off- Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off- Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
	Arterial	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
	Sub Arterial	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater) Off Road (Separated) 2.5m	Off-Road (shared) 3.0m both sides (or greater)
	Collector	Off-Road (shared) 2.0 to 2.5 both sides (or greater)	Off-Road (shared) 2.0 to 2.5 both sides (or greater)	Off-Road (shared) 2.0 to 2.5 both sides (or greater)

Table 4.4.4.3 Desired Standard of Service for Cycling Provision

Desired Standard of Service (Cycling Provision)		Place Type		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State Road	<u>On-Road</u> 1.5m 60kph; 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater) <u>Off-Road</u> (Separated) 2.0m	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater) <u>Off Road</u> (Separated) 2.0m	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60 - 80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater)
	Arterial	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater) <u>Off Road</u> (Separated) 2.0m	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater) <u>Off Road</u> (Separated) 2.0m	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph, 3.5m 100kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater)
	Sub Arterial	<u>On-Road</u> 1.5m 60kph (1.8m contra flow for speeds 60kph or less where unavoidable) <u>Off-Road</u> (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater) Off Road (Separated) 2.0m	<u>On-Road</u> 1.5m 60kph, 2.0m 80kph (4.0-4.5m with parking 60-80kph), <u>Off-Road</u> (shared) 3.0m both sides (or greater)
	Collector	<u>On-Road</u> 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) <u>Off-Road</u> (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	<u>On-Road</u> 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) <u>Off-Road</u> (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones	<u>On-Road</u> 1.5m (min) (1.8m contra flow for speeds 60kph or less where unavoidable) <u>Off-Road</u> (shared) 2.0m to 2.5m both sides (or greater) Bicycle awareness zones or shared zones

Table 4.4.4.4 Desired Standard of Service for Crossings

Desired Standard of Service (Crossings)		Place Type		
		1 Principal, Major and District Activity Centres	2 “Urban” and “New Generation Suburban” Neighbourhoods, Enterprise and Employment areas, Rural Townships, and Coastal Villages	3 Rural Residential areas and Suburban Neighbourhoods
Hierarchy	State Road	Note 1	Note 1	Note 1
	Arterial	<u>>2 Lanes</u> 200 metres spacing Signalised crossing <u>2 Lanes</u> 200 metres spacing Signalised crossing, Zebra or refuge	<u>>2 Lanes</u> 400 metres spacing Signalised crossing <u>2 Lanes</u> 400 metres spacing Signalised crossing, Zebra or refuge	<u>>2 Lanes</u> Up to 600 metres (max 800 metres) spacing Signalised crossing. <u>2 Lanes</u> 600 metres (max 800 metres) spacing Signalised crossing Zebra or refuge
	Sub Arterial	<u>>2 Lanes</u> 200 metres spacing Signalised crossing <u>2 Lanes</u> 200 metres spacing Signalised crossing Zebra or refuge, raised platform or shared zone	<u>>2 Lanes</u> 400 metres spacing Signalised crossing <u>2 Lanes</u> 400 metres spacing Signalised crossing Zebra or refuge, raised platform or shared zone	<u>>2 Lanes</u> Up to 600 metres (max 800 metres) spacing Signalised crossing <u>2 Lanes</u> 800 metres spacing Signalised crossing Zebra or refuge, raised platform or shared zone
	Collector	<u>200 metres spacing, Zebra or refuge, raised platform or shared zone.</u> Uncontrolled crossing where sightlines are adequate <u>Sub collector</u> <u>200 metres spacing, Zebra or refuge, raised platform, shared zone.</u> Uncontrolled crossing where sightlines are adequate	<u>400 metres spacing, Zebra or refuge, raised platform or shared zone.</u> Uncontrolled crossing where sightlines are adequate <u>Sub collector</u> <u>400 metres spacing, Zebra or refuge, raised platform, shared zone</u> Uncontrolled crossing where sightlines are adequate	<u>Up to 600 metres(max 800 metres) spacing, Zebra or refuge, raised platform or shared zone.</u> Uncontrolled crossing where sightlines are adequate <u>Sub collector</u> <u>600 metres (max 800 metres) spacing</u> <u>Zebra or refuge, raised platform, shared zone.</u> Uncontrolled crossing where sightlines are adequate
	Residential Streets(low speed environment)	Uncontrolled crossing where sightlines are adequate	Uncontrolled crossing where sightlines are adequate	Uncontrolled crossing where sightlines are adequate

Note 1: Review with State on appropriate level of crossing provision, in line with ensuring high level of prioritisation to pedestrian and cycle access commensurate with the environmental context of the road link. Ideally for “place type 1” crossing provision would be at least every 200, for “place type 2” crossing 400 metres spacing, and up to 600 metre spacing (maximum 800 where circumstances warrant) in place type 3.