



“Long-Term Big-City Concepts in Australian Cities”

Research Report 1

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Scenario Planning Project SBE 1.44

1. What are the main planning documents in the recent history of the city?

Perth

Directions 2031

Directions 2031 (2010) is the most recent high level spatial framework and strategic plan to outline a vision for metropolitan Perth (the Perth and Peel region).¹ *Directions 2031* was prepared in response to the requirements of the State Planning Strategy (SPS 2050). *Directions 2031* is a framework to guide the strategic direction of major planning elements including housing, infrastructure and services. The following description is provided by the Department of Planning on their website regarding the purpose of the plan.

Directions 2031 recognises the benefits of a more consolidated city while working from historic patterns of urban growth. Importantly, the framework sets achievable goals that will promote housing affordability over the longer term. Directions 2031 addresses urban growth needs and also takes into consideration the need to protect our natural ecosystems.

The framework provides for different lifestyle choices, vibrant nodes for economic and social activity and a more sustainable urban transport network. The framework will also encourage a long-term approach to the provision of infrastructure in an economically sustainable way.

Directions 2031 is supported by sub-regional strategies these in turn are interpreted by local governments through local planning controls. Annual report cards are used to track progress against indicators in *Directions 2031*.²

The State Planning Strategy (SPS 2050)

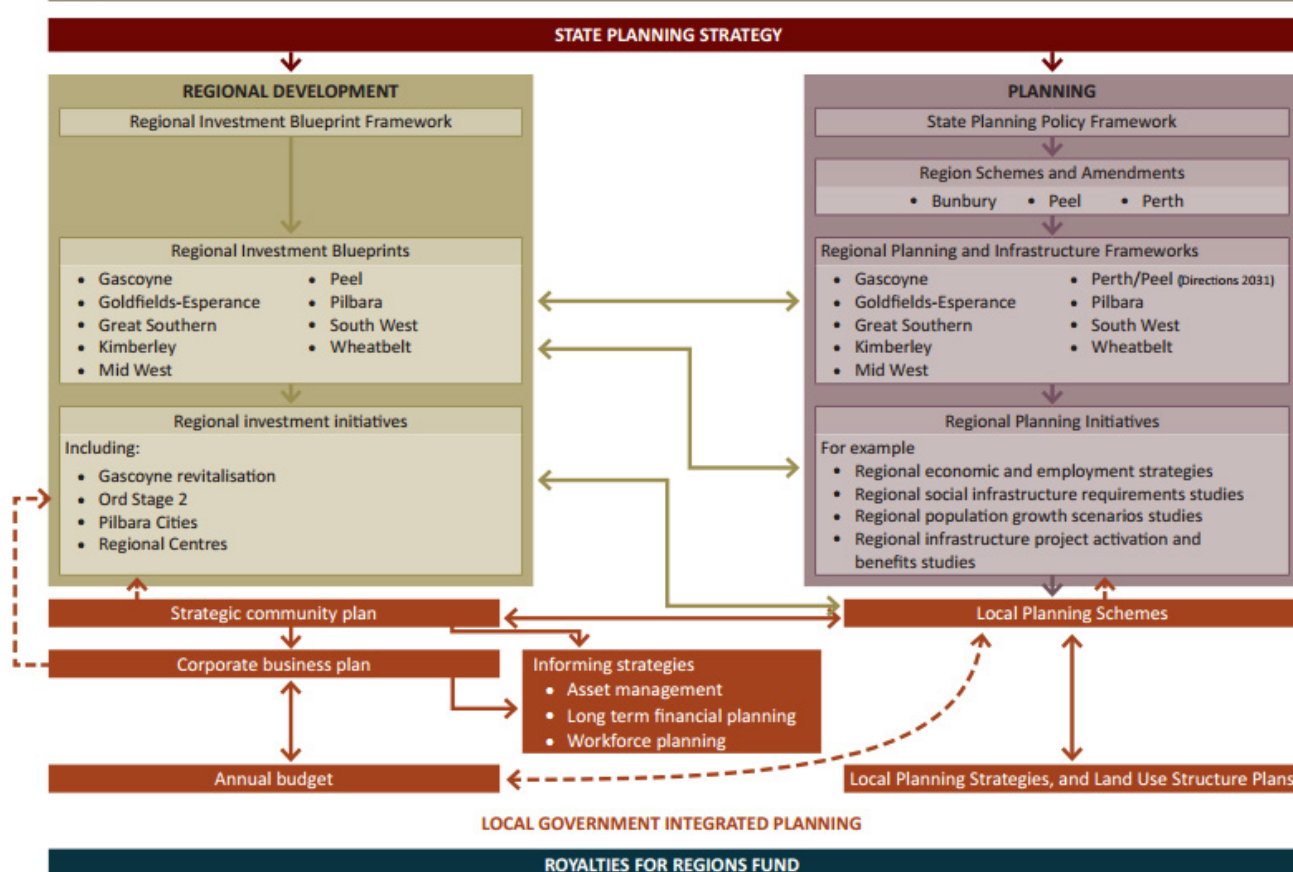
The following diagram sourced from the June 2014 revision of the State Planning Strategy (SPS 2050) describes the current classification systems.³ SPS 2050 is at the top of the planning hierarchy bringing together the various state policies and plans including *Directions 2031* (under Regional Planning and Infrastructure Frameworks). SPS 2050 contains the general principles for land use and development throughout the State by setting out the key principles 'relating to environment, community, economy, infrastructure and regional development which should guide the way future planning decisions are made' (*Directions 2031* p.63).

¹ <http://www.planning.wa.gov.au/publications/826.asp>

² <http://www.planning.wa.gov.au/publications/6508.asp>

³ <http://www.planning.wa.gov.au/6561.asp>

Figure 4 - State planning and development framework



An overview of the WA Planning system across tiers of government is summarised in the diagram below (source SPS 2050 Executive summary)

Overview of the Western Australian planning system

LEVEL	STRATEGIC	STRUCTURE PLANS	STATUTORY	POLICY
STATE	State Planning Strategy 2050		State Planning Policies	Operational Policies eg. Liveable Neighbourhoods, Development Control Policies
REGIONAL	Regional Strategies/Frameworks	Regional and Sub-Regional Plan/s	Region Planning Schemes	
LOCAL	Local Planning Strategies	Local Structure Plan/s	Local Planning Schemes	Local Planning Policies

In May 2015 a draft ‘Perth and Peel at 3.5 million’⁴ suite of documents was released, the purpose of these documents is to prepare strategic land use planning for co-ordinated growth as Perth moves towards it projected 2050 population of 3.5 million. The suite of documents cover a snapshot of Perth’s current planning and where it may end up by 2050 with a focus on considering where future homes

⁴ <http://www.planning.wa.gov.au/publications/3.5million.asp>

and jobs should be located, protection of environmental assets, best use of existing infrastructure, and identifying appropriate areas for greater infill development and residential density.

Perth Transport Plan for 3.5 million People and Beyond (PTP 3.5)

Public information on the future transport planning is not so well documented by the Department of Transport as urban planning is by the WA Planning Commission. However currently in development is the 'Perth Transport Plan for 3.5 million People and Beyond' (PTP 3.5) this document will align with the 'Perth and Peel @ 3.5 million' strategy and plans to accommodate the larger population by providing better access and more transport choices for the community. Information from the Department of Transport website indicates the following will be the subject of an upcoming WA Transport Plan:⁵

PTP 3.5 will examine long-term structural changes in Perth's transport network and will aim to:

- Make the future of urban transport network smarter and better integrated.*
- Provide better access and more transport choices for the community.*
- Promote public and active transport modes to support public health and environmental strategies.*
- Improve economic outcomes for Perth from slowing the predicted rate of travel demand.*
- Provide improved transport modelling that aligns with the Department of Planning's sub regional structure plans for Perth and Peel.*
- Integrate with land use policies to support ongoing and future development of key activity centres.*

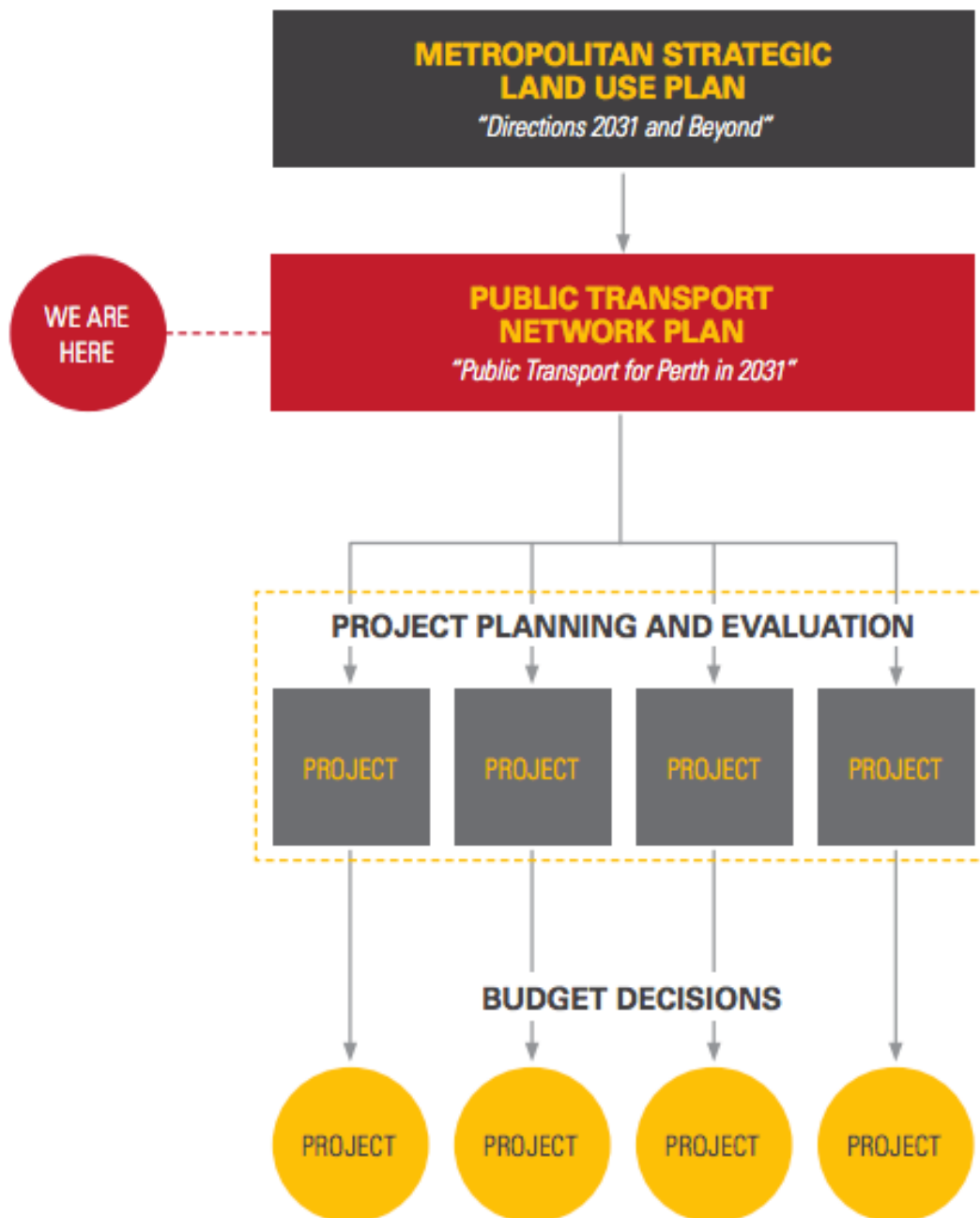
PTP 3.5 will look at options for roads, river crossings, mass transit, cycling, demand management and future technologies while complementing the Perth and Peel @ 3.5 million report. Three working groups will be created and supported with updated transport modelling and ongoing research in order to:

- Develop a travel demand management plan.*
- Develop a mass transit plan.*
- Review the road network plan and river crossing options.*

A Public Transport Plan (2031)⁶ exists in draft form and responds to *Directions 2031* with the following diagram indicating how it is intended to relate to decision making if adopted.

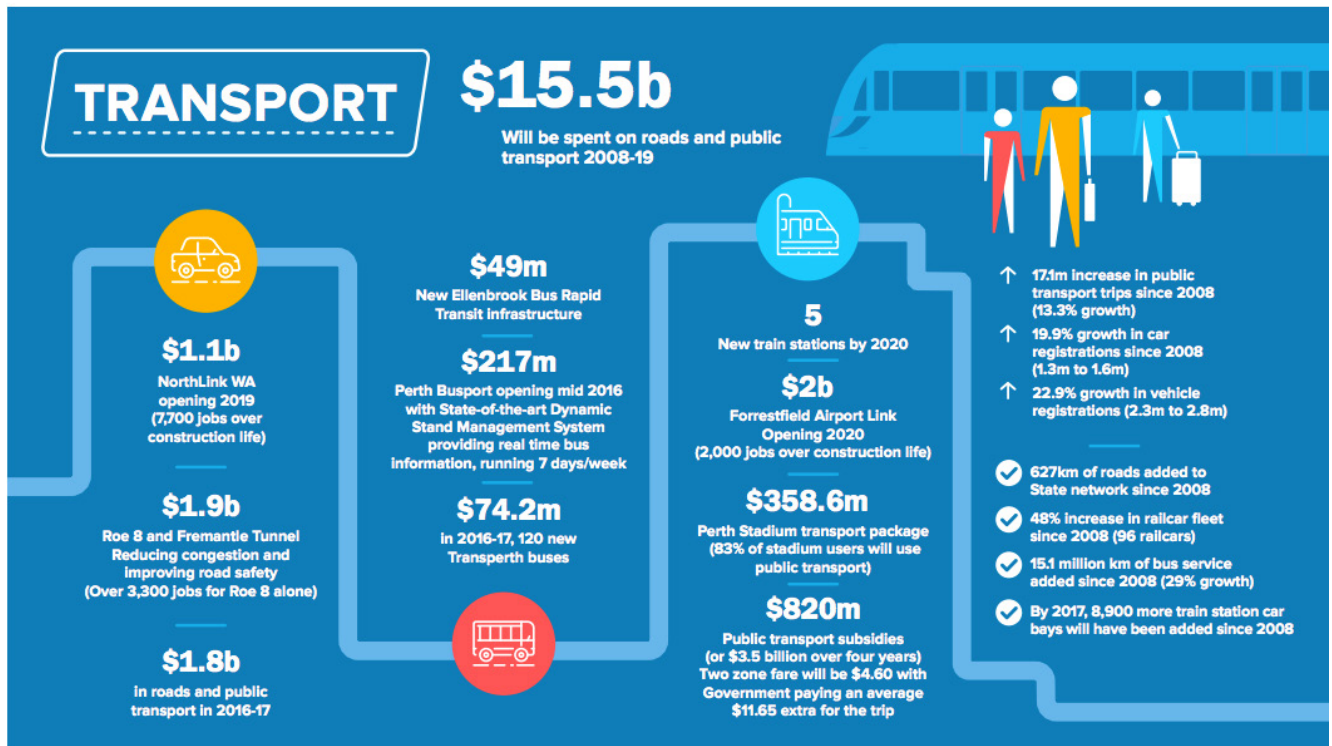
⁵ <http://www.transport.wa.gov.au/projects/perth-transport-plan-for-3-5-million.asp>

⁶ http://www.transport.wa.gov.au/mediaFiles/about-us/ABOUT_P_PT_Plan2031.pdf



Some indication of government priorities can be seen in the following infographic produced by Treasury to illustrate major planned government transport spending.⁷

⁷ http://www.transport.wa.gov.au/mediaFiles/projects/PROJ_P_Budget_Transport_16-17_Infographic.pdf



Major planned transport initiatives by spend include:

- \$1.1b on NorthLink
- \$1.9b on Roe 8 and Fremantle Tunnel
- \$1.8b on roads and public transport
- \$2b on the Forreestfield Airport Link (planned to open 2020)

However several major planned projects have stalled or been shelved eg. Max Light Rail, Perth Freight Link is stalled and the Ellenbrook rail line abandoned. The governments past policies since taking government in 2008 seem to favour road over public transport with a 13.3% increase in public transport trips versus 19.9% increase in car registrations and 22.9% increase in vehicle registrations (source: Treasury 2016 (see infographic)).

Brisbane

State Government

Sustainable Planning Act (SPA)

Queensland has a hierarchy of legislation, acts and policies. The overarching legislation that directs the Queensland State Government and the various Local Government Authorities (LGAs) including Brisbane City Council is the Queensland Local Government Act (2009)⁸ which manages the responsibilities and powers of LGAs. State legislation also includes an act specific to Brisbane City Council, the City of Brisbane Act 2010⁹. With regard to planning and development, the Sustainable Planning Act (SPA) 2009¹⁰ (currently under review by the Paluszak Labor Government)¹¹ is the overarching legislation under which LGAs operate. Briefly, the SPA (and the Sustainable Planning Regulation¹²) is at the peak of a hierarchical body of legislation which include (in descending order of priority), the State Planning Regulatory Provisions, the State Planning Policy, Regional Plans such as the South East Queensland Regional Plan 2009 – 2031, and the Standard Planning Scheme Provisions (Queensland Planning Provisions)¹³.

SPA per se has little in the way of ‘big city’ provisions, and is mostly concerned with administrative minutiae. The purpose of the Act (Ch 1, Part 2, Section 5) includes the usual words to the effect of ensuring environmental sustainability, and includes a mention of the effects of development on climate change, including on urban congestion, and supplying infrastructure in areas where development already exists (i.e. encouraging urban consolidation). Other than this very broad preamble, SPA has no discussion about any ‘big picture planning scenarios’. The proposed replacement legislation for the SPA is the Planning Act, 2016¹⁴, and two associated pieces of legislation, The Planning and Environment Court Act and The Planning (Consequential) and Other Legislation Act. These are due to commence in 2017.

The Planning Act¹⁵ itself states that its express purpose is to “...establish an efficient, effective, transparent, integrated, coordinated, and accountable system of land use planning (planning), development assessment and related matters that facilitates the achievement of ecological sustainability”. It does not contain anything specific to big city planning or ideas. Under the Purpose of the Act, it does refer to accounting for (and avoiding) the potential impacts of development on climate change. The only State planning legislation that has any future/big city discussion is the South East Queensland Regional Plan (SEQRP), which is, however, currently undergoing review. The SEQRP “...is the preeminent plan for the SEQ region and takes precedence over all other planning instruments.” A primary focus of the SEQRP (and of the yet to be released review) is managing growth. The SEQRP was devised at a period of very strong growth in the South East Queensland region, with some LGAs experiencing annual growth rates in the region of 4%.

⁸ DILGP, Local Government Legislation. <http://www.dilgp.qld.gov.au/information-for-local-governments/legislation-for-local-government.html>

⁹ City of Brisbane Act, 2010. http://www.austlii.edu.au/au/legis/qld/consol_act/coba2010155/

¹⁰ DILGP, Sustainable Planning Act, 2009. <http://www.dilgp.qld.gov.au/planning/planning-framework/sustainable-planning-act-2009.html>

¹¹ State Development, Sustainable Planning Act, 2009. <http://www.statedevelopment.qld.gov.au/planning/planning-framework/sustainable-planning-act-2009.html>

¹² Sustainable Planning Regulation, 2009. http://www.austlii.edu.au/au/legis/qld/consol_reg/spr2009303/

¹³ DILGP, Queensland Planning Provisions. <http://www.dilgp.qld.gov.au/planning/state-planning-instruments/queensland-planning-provisions.html>

¹⁴ DILGP, Planning Act. <http://www.dilgp.qld.gov.au/planning-reform>

¹⁵ Planning Act, 2016. <https://www.legislation.qld.gov.au/LEGISLTN/ACTS/2016/16AC025.pdf>

Roads and Transport

The State Departments responsible for roads and transport are primarily Infrastructure, Local Government and Planning¹⁶ (DILGP) and Transport and Main Roads (TMR). These departments administer a number of Acts and other legislation pertinent to roads and transport. The acts administered by TMR are relatively 'old' and specific to the department, such as the State Transport Act, 1938. On the other hand, the legislation administered by the DILGP are much more relevant to the subject matter of this report, and are detailed in other sections. Below is detailed the State Infrastructure Plan 2016, which is the most current legislation described.

State Infrastructure Plan, 2016

The 'State Infrastructure Plan 2016'¹⁷ primarily concentrates on road and then rail infrastructure. It is divided into two sections, Strategy and Implementation. Section A, Strategy, makes reference to infrastructure planning and data analytics in order to guide future infrastructure spending. With regard to actual scenario planning the SIP includes assumptions and projections made on the basis of demographic statistics (derived from ABS Census data). It also has a number of graphics based on 'indicative future service demand' for various types of infrastructure, such as energy, road transport, digital, public transport etc.

This document is very non-specific, but does refer to two 'Case Studies' on Digital Disruption of Infrastructure¹⁸ (the potential for self-driving vehicles to reduce the need to build new roads, and mentions of 'smart' technologies to improve services and facilitate economies of scale). In the Planning section of the document, reference is made to Corridor Planning (see Section 6) and mentions that planning future infrastructure is based on 'three key inputs':

- *"Corridor plans—planning for strategic transport and supply chain corridors that support regional productivity and access to markets;*
- *State strategic infrastructure documents—strategic assessments for transport, water, digital, energy and social infrastructure; and*
- *Local government planning documents".*

The document specifies that it is integrated with other State and Local Government plans, as well as other State Government Departments, including Main Roads, Treasury, State Development, the Coordinator General, government owned corporations and statutory authorities.

For future infrastructure provision, there is a four stage process:

1. Project identification (consideration of a range of ideas);
2. Options assessment (uses a "'prioritisation tier' consistent with the strategic assessment stage of the government's Project Assessment Framework (first adopted in 2007) which seeks to develop and describe a range of solutions that have the potential to achieve the desired outcome";

¹⁶ DILGP, About Us. <http://www.dilgp.qld.gov.au/about-ilgp/>

¹⁷ DILGP, State Infrastructure Plan. <http://www.dilgp.qld.gov.au/infrastructure/state-infrastructure-plan.html>

¹⁸ Australia's future workforce?, CEDA, June 2015 (<http://www.ceda.com.au/research-and-policy/policy-priorities/workforce>) and How Digital Infrastructure can substitute for physical infrastructure, 2015 (http://ussc.edu.au/ussc/assets/media/docs/publications/1507_Digital_Infrastructure_Report.pdf)

3. Options alignment (uses a 'tier of evaluation' based on foundation criteria and focussing on specific areas of investment, such as 'increasing capacity and resilience e of SEQ's transport system'; and
4. Investment decision (assessment of the cost benefit etc of the project).

No mention is made of scenario planning in the infrastructure planning process, although the document states:

In alignment with Step 2: Options assessment, the PAF requires proponents to approach infrastructure from the perspective of service need and to prioritise non-infrastructure methods of meeting that need.

The government requires a business case to be prepared for all major projects and initiatives. For infrastructure projects, the business case will include an economic cost benefit analysis which generates outputs such as a project's net present value (NPV) and benefit cost ratio (BCR). The NPV and BCR are two metrics amongst a number of critical decision metrics the government will use to prioritise projects against each other and also options within projects (e.g. different rail route alignments).

In Part B^{Error! Bookmark not defined.} of this document, it lists a number of different future infrastructure proposals and in the section Implementation Actions, includes a subsection, Improved infrastructure and land-use planning, coordination and integration, to be conducted by the Infrastructure Portfolio Office (as of 03/2016, not yet in existence¹⁹).

This document has the appropriate jargon and buzzwords, such as 'digitally connected smart infrastructure' or to 'focus on innovative infrastructure solutions to relieve capacity constraints in the core inner city rail network to meet the expected passenger demands in SEQ'; but is not particularly specific with regard to any scenario planning or tools.

Connecting SEQ 2031 – An Integrated Regional Transport Plan for South East Queensland (2011)

The Connecting SEQ Plan²⁰ is aimed at improving (doubling) public transport use by 2031. It was designed to support the Desired Regional Outcomes (DROs) of other strategic documents, such as the SEQRP and the Queensland Infrastructure Plan. The Plan has a strong focus on rail, with projects such as Cross River Rail, Gold Coast Light Rail and Brisbane Subway described. It also has sections on bus and road projects, and active travel. In the section on Active Travel, it refers to the Travel Smart Strategy which aims to improve the mode share of sustainable transport (including active transport).

TMR also has a Western Brisbane Transport Network Strategy²¹ which is a "...fully integrated multi-modal approach to transforming the transport network of western Brisbane", and includes rail, bus, active transport and roads. This is related to the South East Queensland Infrastructure Plan and Program, and has a number of different projects, some of which are currently underway or completed (i.e. AirportLink).

Local Government Planning (Brisbane City Council)

¹⁹ Queensland State Government Media Statement, Palaszczuk Government's vision for Queensland's infrastructure released. <http://statements.qld.gov.au/Statement/2016/3/13/palaszczuk-governments-vision-for-queenslands-infrastructure-released>

²⁰ TMR, Connecting SEQ, 2011. [http://www.ppt.asn.au/pubdocs/connecting_seq2031+\(1\).pdf](http://www.ppt.asn.au/pubdocs/connecting_seq2031+(1).pdf)

²¹ TMR, Western Brisbane Transport Network Strategy. <http://www.tmr.qld.gov.au/Projects/Name/W/Western-Brisbane-Transport-Network-Strategy>

The Brisbane City Council (BCC) website lists a number of (possibly) pertinent planning and strategy documents (in various places on their website). These include:

- The Brisbane City Plan 2014²²
- Brisbane Long Term Infrastructure Plan 2012 – 2031²³
- Transport Plan for Brisbane 2008 – 2026²⁴
- Brisbane CityShape 2026²⁵
- Flood Smart Future Strategy²⁶
- City Centre Master Plan²⁷
- Neighbourhood Plans (various)²⁸
- Brisbane's Plan for Action on Climate Change²⁹
- Brisbane Vision 2031³⁰

The Brisbane City Plan 2014 (BCP) is the most relevant and overarching plan at Local Government level. It directly states that it "...appropriately advances the SEQ Regional Plan as it applies in the planning scheme area" (Section 2.2, SEQ Regional Plan). Part 3 (Strategic Framework) refers to 5 themes related to the city, namely, a globally competitive economy, lifestyle, environmental performance, effective transport and infrastructure and CityShape (discussed below).

The most relevant section of the BCP is 3.2. Strategic Intent, which has a number of themes, including growth, economy, transport, housing, heritage, environment, lifestyle and infrastructure. The introduction of Section 3.2 directly refers to Brisbane as a future focussed city, "*Brisbane's future as Australia's new world city is achieved by Council's twenty-year plan for the city, set out in the Brisbane Vision*" (BCP, 3.2.1 Australia's new world city).

²² BCC, Brisbane City Plan 2014. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-plan-2014>

²³ BCC, Brisbane Long Term Infrastructure Plan. <https://www.brisbane.qld.gov.au/about-council/governance-strategy/vision-strategy/brisbane-long-term-infrastructure-plan>

²⁴ BCC, Transport Plan for Brisbane 2008-2026. <https://www.brisbane.qld.gov.au/traffic-transport/roads-infrastructure-bikeways/transport-plan-brisbane-2008-2026>

²⁵ BCC, The Original City Shape 2026. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/neighbourhood-planning/neighbourhood-planning-urban-renewal-process/original-cityshape-2026>

²⁶ BCC, Brisbane's Flood Smart Future Strategy. <https://www.brisbane.qld.gov.au/community/community-safety/disasters-emergencies/types-disasters/flooding/flood-policy-plans-projects/brisbanes-floodsmart-future-strategy>

²⁷ BCC, Brisbane City Centre Master Plan, 2014. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-centre-master-plan-2014>

²⁸ BCC, Neighbourhood Planning. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/neighbourhood-planning>

²⁹ BCC, Brisbane's Plan for Action. <https://www.brisbane.qld.gov.au/about-council/governance-strategy/vision-strategy/brisbanes-plan-action>

³⁰ BCC, Brisbane Vision 2031. https://www.brisbane.qld.gov.au/sites/default/files/Brisbane_Vision_2031_full_document.pdf

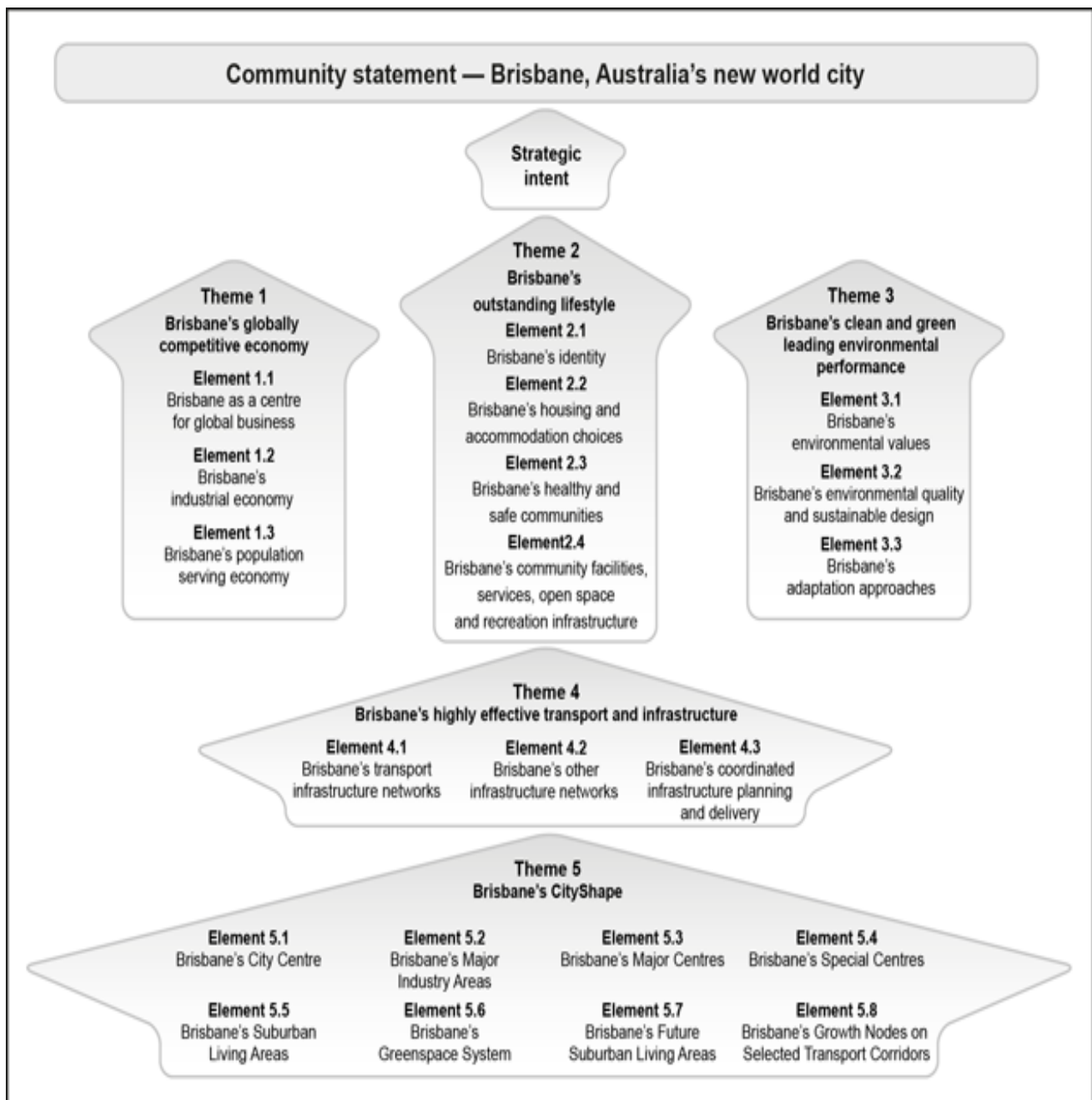


Figure 1: Brisbane City Council Plan 2014, Strategic Intent

The City Plan incorporates a number of documents, including Excel spreadsheets and Word documents, with data on Brisbane suburbs and at other spatial scales. The majority of this data is derived from the ABS Census (i.e. population and projections) as the baseline year is 2011. A search of these supporting documents did not find any mention of scenario planning or modelling (save the expected results, such as in air quality, and flood modelling).

Growth and economy

The 'big city' concepts in the Brisbane City Plan are generally strategic, and refer mostly to the economic sector, for example, employment targets (443k more jobs by 2031) and dwelling targets (156k additional dwellings). A method by which Brisbane intends to increase its growth capacity is through the Neighbourhood Planning process, by which *'...new development opportunities along transport corridors have been progressively facilitated through Council planning processes that provide for the appropriate provision of services, facilities and infrastructure.'*

Brisbane's strategic framework will be provided by CityShape 2026^{Error! Bookmark not defined.}, which identified nodes and corridors out from the CBD, and to confine large scale urban change to <7% of the city (thus maintaining the lifestyle of the city). CityShape identifies four future 'shapes' for Brisbane depending on residents' preferences:

- a) Compact City (18%), development focussed on CBD and inner city suburbs
- b) Dispersed City (15%), low rise development spread across the city;
- c) Corridor City (26%), growth along public transport corridors; and
- d) Multi-Centred City (41%), growth is around major centres.

However, this document is now outdated, and the BCC website states that, "*Council has prepared a new Strategic Framework as part of the new [City Plan 2014](#), which outlines the blueprint for the growth of the city over the next 20 years. The Strategic Framework incorporates the concepts of the multi-centred and corridor city, as identified in the original CityShape in 2006.*" See above for discussions on the City Plan.

Transport

The concept of transit oriented development (TOD) is key in the Brisbane City Plan, and is seen as the fundamentals to balanced growth (current and future). The public transport network, and active travel modes such as walking and cycling are viewed as highly significant in meeting future transport demand, and assumes that by 2026, 20% of all trips will be made by active transport, and 13% by public transport. Given that active transport currently only comprises a 7.9% share of commuter travel³¹, this 150% increase in only 10 years appears somewhat optimistic.

The Transport Plan for Brisbane (2008 – 2026)^{Error! Bookmark not defined.} has been developed as an Integrated Local Transport Plan under the SEQ RP and the Integrated Regional Transport Plan for South East Queensland. The document discusses general issues around transport, benefits of the plan, and various strategic objectives (quality public transport, managed travel demand, coordinated transport and land-use, a safe and efficient road network, delivering the goods on time to the right place, more clean and green personal transport) and finally, transport plan implementation. This document details various information about current transport data, and projections, based on various datasets, such as a graph on 'transport behaviour time series' which charted population, vehicle registrations and public transport trips per person per day, from 1986 to 2007. Extrapolations on future car numbers in Brisbane were based on the 2004 Household Travel Survey ³²(note, there are later versions of this).

A major feature of this document was on setting available mode share targets, in particular on the morning rush hour period. Mode shares were modelled from 2004 to 2026, using 'trend and high public transport scenarios'. Peak hour mode share was based on 'screenlines'³³ and existing corridors, and differentiated into CBD, inner, middle and outer rings.

³¹ Loader, Chris. How commuters got to workplaces in Brisbane 2006 and 2011. <https://chartingtransport.com/2012/11/17/how-commuters-got-to-workplaces-in-brisbane-2006-and-2011/>

³² TMR, Household Travel Survey, 2004. <http://www.tmr.qld.gov.au/~media/communityandenvironment/researcheducation/qld%20household%20travel%20survey/HouseholdTravelinSEQ.pdf>

³³ 'Screenlines are lines drawn along natural or human-made boundaries such as the Brisbane River where the number of transport crossings by road or rail are limited and the capacity and number of people travelling can be established.'

Infrastructure

The Brisbane Long Term Infrastructure Plan 2012-2031:

This BLTIP aligns with Council's corporate strategic planning, Council's Transport Plan for Brisbane and other elements of Council's strategic planning framework. The BLTIP has been prepared with regard to the Queensland Government's South East Queensland Regional Plan 2009-2031, Queensland Infrastructure Plan 2011, Connecting SEQ 2031 and the Queensland Transport and Roads Investment Program 2010-11 to 2013-14.

This plan uses available forecasts and trends of employment, population growth, demographic and social changes. This information and data sources in this plan are largely derived from the grey literature and government websites (i.e. OESR, ABS, BITRE and various BCC documents). The type of forecasts referred to include population growth (extrapolated from ABS data), need for new housing, employment (source NIEIR) and public transport (source DETMR). Indeed, the integration of transport and infrastructure is a key feature of this document, and is the subject of Strategy 1. No mention is made of either digital or scenario planning in the document, although it does refer to broadband infrastructure: "New types of infrastructure such as high speed broadband access will also be critical to business profitability and performance".

Brisbane Vision 2031

This is BCC's long term community visioning document^{Error! Bookmark not defined.}, which has three main goals; to maintain/improve quality of life, ensure services and infrastructure are future proofed, and give a plan of action for Council, stakeholders and people in Brisbane. The themes follow the usual trend of such documents, and include accessible, connected, clean and green, friendly, smart, prosperous, safe, vibrant and creative. This document has a long list of projects that have been completed since 2006, under each of the 8 themes in the document.

Melbourne

Plan Melbourne

Plan Melbourne (2013)³⁴ was the last significant planning document for Melbourne, however a review of this document is underway, in the form of the Plan Melbourne Refresh (2015)³⁵, which was largely informed by the Ministerial Advisory Committee report, Plan Melbourne Review (2015) and the background briefing research Managing Growth in Our Outer Suburbs (2016). Submissions have been received and the Department of Environment, Land, Water and Planning (DEWLP) has indicated that the revised Plan Melbourne will be published in the final quarter of 2016.

Infrastructure Victoria 30-YEAR STRATEGY

The strategy is being developed. It will outline short, medium and long-term infrastructure needs and priorities for Victoria. It will include a pipeline of projects to provide guidance to government and the community and allow the private sector to plan and make investment decisions. In the interim, IV has released “All Things Considered” which includes some 250 options (not recommendations) for Victoria’s 30-year infrastructure strategy. These options support the next stage of community consultation, which will culminate with the release of a draft strategy and then final strategy by the end of 2016. In 2015 a review was undertaken for the Ministerial Advisory committee.³⁶ Further work has been done to consider outer suburbs.³⁷

VicRoads Investment Management Approach (IMA)

A holistic approach to how VicRoads plans, delivers and learns from the investments it makes on behalf of the community.³⁸ A number of projects are listed by VicRoads including:

- Western Distributor. The \$5.5 billion Western Distributor Project will provide an alternative to the West Gate Bridge, a second river crossing, and direct access to the Port.³⁹
- Monash Freeway Upgrade. The Monash Freeway Upgrade will improve safety and reliability along the 44 kilometres between Chadstone and Pakenham, extending what is already Australia's longest stretch of managed motorway.⁴⁰
- CityLink Tulla Widening. The CityLink Tulla Widening project involves adding new lanes and other measures to improve traffic flow across 24 kilometres of freeway between the CityLink tunnels and Melbourne Airport.⁴¹

³⁴ http://www.planmelbourne.vic.gov.au/_data/assets/pdf_file/0016/131362/Plan-Melbourne-May-2014.pdf

³⁵ https://s3-ap-southeast-2.amazonaws.com/ehq-production-australia/07c104ea20ae3a512623ddeb71ad7a614a12141/documents/attachments/000/028/204/original/Plan_Melbourne_refresh_Discussion_paper_WEB_FA_R2.pdf?1445401978

³⁶ https://s3-ap-southeast-2.amazonaws.com/ehq-production-australia/45189c582e1cf1f4e6b12125a1ebef13d682729f/documents/attachments/000/028/064/original/MAC_2015_Final_Report.pdf?1445230381

³⁷ https://s3-ap-southeast-2.amazonaws.com/ehq-production-australia/7683eba2c5a06c50b66e8107f96d4c7bcdabc71/documents/attachments/000/030/037/original/Managing_Growth_Version_3_12_2015_WEB.pdf?1449182811

³⁸ <https://www.vicroads.vic.gov.au/planning-and-projects/evaluating-investments>

³⁹ <http://economicdevelopment.vic.gov.au/transport/major-projects/western-distributor>

⁴⁰ <http://economicdevelopment.vic.gov.au/transport/major-projects/monash-freeway-upgrade>

⁴¹ <http://citylinktullawidening.vic.gov.au/>

- Melbourne Metro Rail Project. Planning is underway on the Melbourne Metro Rail Project. The project will overhaul Melbourne's rail network and create an international style metro system with independent, end-to-end train lines.⁴²

Sydney

*A Plan for a Growing Sydney*⁴³ was released in 2014 by the New South Wales government. The intent of the plan is to guide land use and planning decisions for 20 years (NSW 2014 p. 3). The plan is rooted in a vision and a series of four goals intended to help achieve the vision. The vision is, "...a strong global city, a great place to live." (NSW 2014 p. 2). The goals are:

- A competitive economy with world-class services and transport;
- A city of housing choice with homes that meet our needs and lifestyles;
- A great place to live with communities that are strong, healthy and well connected; and
- A sustainable and resilient city that protects the natural environment and has a balanced approach to the use of land and resources (NSW 2014 p. 2).

The plan presents a 'strategy' for accommodating population growth for 20 years. The plan outlines means of moving between home and work, developing a variety of housing options and infrastructure that will accommodate project population growth and protect the natural environment (NSW 2014 p. 4).

There are several actions set out by the plan intended to help deliver the goals:

- Accelerate urban renewal at train stations
- Grow an internationally competitive CBD
- Grow Parramatta as a second CBD
- Invest in and grow Western Sydney
- Enhance capacity at the city's gateways: Port Botany, the airport and the proposed Badgerys Creek airport.
- Deliver needed infrastructure
- Protect the natural environment; and
- Manage long-term growth (NSW 2014 p. 5).

A Plan for Growing Sydney is meant to be interpreted within the context of the *NSW Long Term Transport Master Plan*⁴⁴ and the *Rebuilding NSW-State Infrastructure Strategy 2014*⁴⁵. As mentioned in *A Plan for Growing Sydney*, the land use strategies presented in that document are integrated with the transportation and infrastructure initiatives in the coordinated plans (NSW 2015 p. 18).

The *NSW Long Term Transport Master Plan (2012)* is indicated as being New South Wales' first integrated transportation strategy. Much of the focus of the document is on cutting congestion and improving public transportation. The document both identifies the challenges in NSW transportation through 2031 and provides a set of actions to address those challenges. Benefits as put forward by the plan include a fully integrated transportation system, a modernized rail system, an expanded light rail

⁴² <http://melbournemetrol.vic.gov.au/about-the-project/business-case/>

⁴³ <http://www.planning.nsw.gov.au/Plans-for-Your-Area/Sydney/A-Plan-for-Growing-Sydney>

⁴⁴ <http://www.transport.nsw.gov.au/engagement/long-term-transport-master-plan>

⁴⁵ https://www.nsw.gov.au/sites/default/files/miscellaneous/sc000222_2014-state-infrastructure-strategy_nov24_web.pdf

network, a modern bus system, a connected motorway network in greater Sydney, reduced congestion in the Sydney CBD, supporting new economic growth, developing regional connectivity, improving freight transport, improving access to Port Botany and the Sydney airport, improving walking and cycling including their integration with public transport and providing for future transportation corridors. Specific improvements include widened and expanded motorways, additional ferry services, and electronic ticketing (Opal). The plan provides both general and mode-specific recommendations for making public transportation more attractive.

The *NSW Long Term Transport Master Plan (2012)* suggests a number of transportation scenario evaluation criteria including infrastructure costs, environmental impacts, social impacts, commercial feasibility as well as additional demand focused market criteria. The plan presents a 'do nothing' scenario as a point of comparison with 2011 numbers for things such as travel time and as a comparison with metrics for 2031 presented in the plan. There is also an initial plan and map for high speed rail between Melbourne and Brisbane that includes Sydney and Canberra. The plan culminates with actions and a corresponding timetable by transport mode and a discussion of funding.

The *Rebuilding NSW-State Infrastructure Strategy 2014* is a plan to invest \$20 billion in productive infrastructure. As put forward in the plan, the implementation will create more than 100,000 jobs and increase the NSW economy by \$300 billion over 20 years. The plan indicates a number of funding targets including WestConnex extensions, a second harbour rail crossing, increasing sports and cultural funding, regional transportation, schools, hospitals, water, regional tourism and environment.

2. What was the timeline for the planning scenarios and were any other longer term ones done at the same time? Why were the timelines chosen?

Perth

Time frame	Document	Timing Rationale	Scenario	Planning rationale
20 years	<i>Directions 2031</i>	Typical planning horizon aims to manage controlled release of land for urban growth.	Land use planning and infrastructure needs for a 20 year vision to support an expected population of 2.7 million by 2031	Identification of key activity centres, Movement network and green (open space) network. Aim to integrate land use, transport and infrastructure. Aims to improve the balance between infill (from 30% to 47%) and greenfield targets and residential density targets (increase from 10 to 15 dwellings per 'gross urban zoned hectare')
20 years	<i>Public Transport Plan (2031)*</i>	To match <i>Directions 2031</i>	PT needs for an expected population of 2.7 million by 2031	Identifying the main public transport infrastructure needs and the links required between major activity centres. Expansion of current PT services including the introduction of light rail and rapid transit corridors, expansion of the rail network and more buses and trains.

35 years +	<i>Perth and Peel @ 3.5 million</i>	Planning for 3.5 million population (expected at 2050)	170km city along the coast from North to South. Increased density in the central area and activity centres.	To adequately plan for the accommodation of major population growth (70-100% increase) through future urban consolidation, integrated infrastructure and development while remaining “liveable, prosperous, connected, sustainable and collaborative”.
35 years +	<i>Perth Transport Plan for 3.5 million People and Beyond*</i>	To match <i>Perth and Peel @ 3.5 million</i>	To be released	To be released

Brisbane

According to SPA (2009), LGA planning schemes in Queensland are supposed to be revised every ten years, “...to ensure that they respond appropriately to changes at a local, regional and state level”⁴⁶. They must also reflect the provisions of the Queensland Planning Provisions^{Error! Bookmark not defined.}. Thus, the maximum future planning horizon of the planning scheme itself is considered to be 10 years (and may be much less, depending on when the actual plan was gazetted). In the case of Brisbane, this is 2014. Of course, all planning schemes are updated and revised at more frequent intervals, to reflect changes in a variety of issues.

Timelines below are given for the Brisbane Long Term Infrastructure Plan^{Error! Bookmark not defined.} (BLTIP), Active Transport Strategy 2012 – 2026 (ATS)⁴⁷, and Connecting SEQ 2031 (CSEQ)^{Error! Bookmark not defined.}. Table 1 below, details planning scenarios about specific transport infrastructure only (these documents list multiple infrastructure, amongst others, including water, energy, telecommunications and waste management).

Table 1. Timelines for planning scenarios

Time frame	Type	Scenario	Responsibility & Planning rationale
1 – 5 years	Road	Airport Link	State/BrisConnections. Airport Link is open
	Road	Legacy Way	Legacy Way is now open.
	Road	Various road and corridor improvements (widening, intersections, upgrades)	Improve traffic flows, congestion and bottlenecks. LGA and State. Ongoing
	Bus	Suburbs to City Buslink ⁴⁸	LGA/ Feasibility study
	Bus	Northern/Eastern/South Eastern busways	State/LGA. Brisbane’s substitute for light rail (bus network)
	Bus	CBD Bus Infrastructure Capacity Program – Cultural centre upgrade	State
	Rail	Mitchelton to Ferny Grove track duplication	State
	Rail	Mayne-Ferny Grove line connection	State
	Rail	Cross River Rail	Supposedly the Qld Government’s highest priority infrastructure

⁴⁶ DILGP, New Local Government SPA Planning Schemes. <http://www.dilgp.qld.gov.au/planning/local-government-planning-schemes/new-local-government-spa-planning-schemes.html>

⁴⁷ BCC, Active Transport Strategy 2012 -2026. https://www.brisbane.qld.gov.au/sites/default/files/active_transport_strategy_2012-2026.pdf

⁴⁸ Note, specific road names are not detailed, see Tables 4.1 – 4.3 Brisbane Long Term Infrastructure Plan

			project. Unfunded in last Federal Budget/unknown in Qld Budget ⁴⁹ .
	Ferry	New permanent ferry terminals	Flood proof?
	Active	Arterial Commuter Cycle Bikeway from CBD to Chermside (Northern Corridor) ⁵⁰	LGA and State
	Active	Commuter Bikeway Upgrade, Local Bikeway and Pedestrian Network Links, Bikeway lighting, signage and mid- and end-of-trip TBD facilities	LGA and State
	Active	Inner city 'green bridge' (cycle and pedestrian) connections over the Brisbane River: West End-Toowong	State
5-10 years	Road	Various road improvements (widening, intersections, upgrades, removal of crossings)	Improve traffic flows, congestion and bottlenecks. LGA responsibility, mostly costed.
	Road	Arterial upgrades (Pacific Motorway, Logan Motorway, Kenmore bypass, etc.)	Based on Connecting SEQ 2031, State Responsibility. Not costed
	Bus	Suburbs to City Buslink ⁵¹	LGA/ Construction
	Bus	Northern/Eastern/South Eastern busways	State/ Future stages
	Bus	CBD Bus Infrastructure Capacity Program – Future Projects	State
	Ferry	Upgrade of ferry infrastructure for DSAPT Council compliance	LGA
	Active	Arterial Commuter Cycle Bikeway from CBD to Carindale and Wynnum-Manly (Eastern Corridor)	LGA
	Active	Commuter Bikeway Upgrade, Local Bikeway and Pedestrian Network Links, Bikeway lighting, signage and mid- and end-of-trip TBD facilities	LGA
	Active	Inner city 'green bridge' (cycle and pedestrian) connections over the Brisbane River: New Farm - Bulimba	State

⁴⁹ Brisbane Times, 13 June 2016. Queensland Budget 2016: Treasurer coy on Cross River Rail funding. <http://www.brisbanetimes.com.au/queensland/queensland-budget-2016-treasurer-coy-on-cross-river-rail-funding-20160613-gphr0r.html>

⁵⁰ TMR, North Brisbane Bikeway. <http://www.tmr.qld.gov.au/Projects/Name/N/North-Brisbane-Bikeway.aspx>

⁵¹ BCC. Suburbs to City Buslink. <https://www.brisbane.qld.gov.au/traffic-transport/public-transport/suburbs-2-city>

11 - 20 years	Road	East West Link	TBA.
	Road	Various road improvements (adding additional lanes, building new connections etc.)	LGA responsibility, mostly costed.
	Road	Arterial upgrades (Pacific Motorway, Logan Motorway, Kenmore bypass, etc.)	Based on Connecting SEQ 2031, State Responsibility. Not costed
	Bus	SEQ TransitWays / HOV Program	State
	Rail	Brisbane Subway	State
	Rail	Cleveland rail corridor upgrades	State
	Rail	Sandgate to Shorncliffe track duplications	State
	Rail	Northwest rail	State
	Active	Arterial Commuter Cycle Bikeway from CBD to Mitchelton (North West Corridor)	LGA
	Active	ULDA Bikeway, Fitzgibbon	ULDA
	Active	Inner city 'green bridge' (cycle and pedestrian) connections over the Brisbane River: West End- St Lucia	State

These are (apparently) related to the time of developing the scenario and seem to just be a case of adding a multiple of 5 or 10 (i.e.15 or 20) years to the date of drafting. For example, the Brisbane City Shape 2026 was originally drafted in 2006, with BCC asking participants and the public on how they thought the city should look in 20 years. Likewise, the Brisbane Vision 2031 and the Connecting SEQ 2031 were both related to the SEQRP which had an end date of 2031. Many of these were first drafted around 2006 too, so this might be because 2031 was (then) 25 years in the future. Other timelines seem to be generic, to the mid or end of the century, 2050 or 2100.

The State Infrastructure Plan (part B)⁵² cross references the Australian Infrastructure Plan, which defines timescale as near-term (<5 years), medium-term (5 – 10 years), longer-term (10 - 15 years), and future (>15 years).

⁵² DILPG, Draft State Infrastructure Plan Part B. <http://www.dilgp.qld.gov.au/resources/plan/sip/draft-sip-part-b.pdf>

Melbourne

The following table illustrates the large scale

Time frame	Document	Timing Rationale	Scenario	Planning rationale
0-4 years	Infrastructure Victoria Act	To remove long term infrastructural decisions from political changes (post city-link debarcle)	Establishment of IV (Infrastructure Victoria). Infrastructure Victoria 30-year Strategy.	Identify short, medium and long-term infrastructure needs and priorities for Victoria. Identify pipeline of projects to provide guidance to government and the community, and allow the private sector to plan and make investment decisions.
	Plan Melbourne		Melbourne rail link (including Airport Link)	Link East West- North South OR airport
	Plan Melbourne		Cranbourne-Pakenham rail corridor commenced	Link Fisherman's bend
	Plan Melbourne	Political expediency	East-west link commenced	Based on traffic modelling and demographic analysis to connect two growth areas.
	Plan Melbourne	Current demand and ease of operation	City-link (Tulla freeway) widening	Based on traffic modelling & demographics for future demand.
5-10 years	Plan Melbourne		East-west link operational	Traffic modelling (existing demand)
	Plan Melbourne		Employment clusters developing	

	Plan Melbourne		Docklands complete & Fisherman's bend underway	Based on ongoing MPA work identifying areas of significant employment opportunity
	Plan Melbourne		Cranbourne – Pakenham rail complete	Fisherman's bend – largest urban regeneration project in Australia
	Plan Melbourne		Rail link operational	Linking two growth areas
	Plan Melbourne		Capacity increase at port of Melbourne finished and Hastings port development underway	
10-35 years	Plan Melbourne		Rail to Rowville and Doncaster	To move industrial areas to the south east as well as north west
	Plan Melbourne		Rail link to Avalon completed	To accommodate growth (largely unproven in ViV documentation)
	Plan Melbourne		Third airport in the South East (probably)	To accommodate significant Western population growth
	Plan Melbourne		Outer metro ring road complete, including two freight terminals.	
	Plan Melbourne		North-east link complete	
	Plan Melbourne		Port of Hastings fully operational as Melbourne's main port	
	Plan Melbourne		Rail link Dandenong-Hastings	

	Plan Melbourne		Train station regeneration to be a key supplier of housing	
	Plan Melbourne		Fisherman's bend complete	
	Plan Melbourne		Lockerbie and Toolern now major activity centres	
	Plan Melbourne		National employment clusters booming	

Sydney

A Plan for a Growing Sydney (2014) is visionary and goal oriented, but does not explore scenarios or development alternatives. The NSW Long Term Transport Master Plan (2012) focuses on transport objectives, meeting six key transport challenges with four types of actions. The plan includes a 20 year vision (p. 30-37), and mentions alternative scenarios in section 4.1.1 beginning with mention of consideration of greenfield vs. infill development (p. 80). The term scenario is also mentioned within the context of vehicular traffic congestion in a 2011 vs. 2031 'do nothing' scenarios presented for peak travel times and five specific routes, the airport to the CBD, Parramatta to the CBD, Rouse Hill to Macquarie Park, Mona Vale to the CBD, and Liverpool to the Sydney Airport on pages 83-89. The 2031 'do nothing' scenario is applied to rail network performance and presented as a Figure 4.24 on p. 95. The plan uses the term scenario as synonym in a discussion of lower and higher grow projections on future rail demand (p. 96).

The 'do nothing' scenario is described as:

Under a 'do nothing' scenario, most travel in Sydney would continue to be by motor vehicle, with roughly the same percentage of trips still made by car in 2031 (NSW Long Term Transport Master Plan 2012, p. 25).

Transport modelling shows that on a 'do nothing' scenario we cannot accommodate the increased demand for travel on our existing networks without generating more congestion, overcrowding along key corridors and longer travel times (NSW Long Term Transport Master Plan 2012, p. 74).

Similarly to the 'do nothing' rail scenario, the plan presents a 'do minimum' scenario evaluating am peak road network performance (Figure 4.30 on page p. 103). The plan uses the term scenario as a synonym for projections of forecast motor vehicle emissions in Figure 4.33, page 105. The plan presents 2031 scenarios of morning peak car travel and public transport travel to the CBD on pages 164-166. Here, the term scenario is used as a means of supporting long term transport master planning. A rail freight 'business as usual' scenario is discussed on page 278. The final mention of scenario planning is on page 383 suggestion the use of scenario planning in order to develop more specific transportation plans:

Detailed Delivery Plans ... will set out the specific initiatives required across different transport modes and in different places to achieve the Long Term Transport Master Plan objectives and outcomes. These plans will be based on detailed assessments of demand, travel behaviour, detailed customer analysis, existing capacity of the system and modelling to predict impacts of different scenarios to inform investment decisions (NSW Long Term Transport Master Plan 2012, p. 383).

Relevant to other project, she plan also mentions "...better walking and cycling infrastructure" (p. 12) as a way to unclog the CBD as well as increasing car parks and bicycle parking at rail stations (p. 61). There is information on walking and cycling in the CBD on page 111-112, 122-124.

As shown in Table 1 and Table 2 just below Sydney planning documents have been using a 20 year planning horizon. Recent plans are based on projections to 2031.

Table 1. Alternative scenarios in the NSW Long Term Transport Master Plan (2012):

Timeframe	Timing Rationale	Scenario	Planning rationale	Page #
20 Years	Not presented, but internally consistent within the document.	Not specified	Greenfield development vs. infill.	80
20 Years (2011 – 2031)	""	Peak travel times along strategic corridors for cars	Supports an argument about road congestion as a developing problem.	83
20 Years (2011 – 2031)	""	Airport to the CBD 'do nothing' volume-capacity (V/C) ratio (crowding).	Supports an argument about road congestion as a developing problem.	84
20 Years (2011 – 2031)	""	Parramatta to the CBD 'do nothing' (V/C) ratio.	Supports an argument about road congestion as a developing problem.	85–86
20 Years (2011 – 2031)	""	Rouse Hill to Macquarie Park 'do nothing' (V/C) ratio.	Supports an argument about road congestion as a developing problem.	87
20 Years (2011 – 2031)	""	Mona Vale to the CBD 'do nothing' (V/C) ratio.	Supports an argument about road congestion as a developing problem.	88
20 Years (2011 – 2031)	""	Liverpool to the airport 'do nothing' (V/C) ratio.	Supports an argument about road congestion as a developing problem.	89
20 Years (approximate)	""	A.M. peak rail travel 'do nothing' V/C ratio.	Supports an argument to expand the Sydney rail network.	95 - 96
20 Years (2011 – 2031)	""	A.M. peak road network travel 'do minimum' V/C	Supports an argument that growth is putting	103

		ratio, 2011 vs. 2031.	pressure on the road network.	
20 Years (2011, 2021, 2031)	""	Motor vehicle emissions	Supports an argument about road congestion as a developing problem.	105
20 Years	""	Car and public transport travel times 'do nothing'	Supports an argument about road congestion as a developing problem.	149
20 Years	""	Change in AM peak car travel / public transport duration to CBD with Long Term Master Plan initiatives	Supports long term transport master planning	164 / 166
20 Years	""	'business as usual' increases in rail freight	Supports long term transport master planning	278

Table 2. The *Rebuilding NSW-State Infrastructure Strategy* (2014):

Timeframe	Timing Rationale	Scenario	Planning rationale	Page #
20 Years	Not presented, but internally consistent within the document.	Opportunity cost of a no action or 'do nothing' alternative.	As a point of contrast to highlight plan benefits.	1, 9, 14

3. How were the scenarios modelled? Outline the models used and how it was done.

Perth

Document	Model	Modeller	More information
<i>Directions 2031</i>	<ul style="list-style-type: none"> • GIS multi criteria analysis 	WAPC	(awaiting more detailed info from Bryce Bunny / Lawrence Man at DoP)
<i>Public Transport Plan (2031)*</i>	<ul style="list-style-type: none"> • A Strategic Transport Evaluation Model (STEM) has been used to assess the demand for public transport and to identify current pressure points and future corridors of demand. STEM predicts travel demand and patterns using a number of sub-models (eg. household structures, car ownership, trip generation, trip distribution, mode choice and network assignment). 	Department of Transport	A critique of Perth's current modelling practices was prepared by PATREC in 2014 ⁵³
<i>Perth and Peel @ 3.5 million</i>	<ul style="list-style-type: none"> • GIS based multi-criteria model 	WAPC	Following the release of Directions 2031 and the draft central and outer metropolitan sub-regional strategies 2010, creation of an urban footprint for a city of 3.5 million people was undertaken through a sequence of planning processes, urban values modelling and multi-criteria analyses.

⁵³ available here: http://www.patrec.uwa.edu.au/data/assets/pdf_file/0003/2578710/2014-Transport-Modelling-Review.pdf and here: http://www.patrec.uwa.edu.au/data/assets/pdf_file/0008/2631644/OCTOBER-2014-PATREC-PERSPECTIVES.pdf

Brisbane

In the Transport Plan for Brisbane 2008-2026, “...the Brisbane Strategic Transport Model (BSTM) was used to predict the outcomes of various future transport scenarios. BSTM uses existing household travel behaviour and forecasts population and employment numbers to predict travel demand”⁵⁴. This document forecasts future demand on roads as well as public transport, and shows, without intervention, worsening of congestion and public transport crowding. Forecasts show that the expected growth of Brisbane will result in a worsening of traffic congestion and crowding on public transport if no action was taken. The trend scenario accommodates all forecast demands on roads and public transport. Other scenarios (such as detailed in Connecting SEQ 2031, were based on a Queensland Growth Management Summit⁵⁴, which was held in 2010. Data for this was based on a survey of 801 randomly selected residents of SEQ (over 18 years of age). Data was post weighted by postcode, age and gender. Of note, impacts on sustainability and housing were seen as the major features of population growth in SEQ.

The results of the Queensland Growth Management Summit appeared to be simple quantitative statistical analysis of a large-scale questionnaire/interview process conducted in 2010. Frequencies were calculated on the questions, and qualitative analysis methods (word clouds) were generated to identify the most pressing issues regarding future growth in SEQ. Connecting SEQ 2031 gives a number of targets to improve active transport and public transport use, such as doubling active transport and public transport mode shares (respectively, from 10 to 20% and 7 to 14%). The Plan states that these targets were derived from “...computer modelling of forecast public and private transport use in 2031”, analysis of travel behaviour data, and results of TravelSmart programs. With regard to the actual models used, the document is not forthcoming, however, for freight movements, it refers to a “Sd+D Input-Output Model”⁵⁵. A diagram (Figure 9.3) also refers to the ‘South East Queensland Strategic Transport Model.’ There are no references given to the models used, but the document thanks the TMR Modelling and Data Analysis Centre. The TMR has a webpage⁵⁶ that lists technical manuals on various types of roads and traffic modelling.

The Western Brisbane Transport Network Investigation Factsheet⁵⁷ states that the models used (at least for this project) was the EMME/2 regional model. Searching the TMR website brings up a number of other projects that use the EMME/2 software; as does a generic search using the term, ‘EMME, site:tmr.qld.gov.au’.

⁵⁴ Premiers Department, Queensland Growth Management Summit: Social Research on Population Growth and Liveability in South East Queensland, March 2010. <http://www.parliament.qld.gov.au/Documents/TableOffice/TabledPapers/2010/5310T1926.pdf>

⁵⁵ Cannot find information on this at present, further research is being conducted

⁵⁶ TMR, Technical publications. <http://www.tmr.qld.gov.au/business-industry/Technical-standards-publications.aspx>

⁵⁷ TMR, Western Brisbane Transport Network Investigation Factsheet. http://tmr.qld.gov.au/~media/Projects/W/Western%20Brisbane%20Transport%20Network%20Investigation/Pdf_wbntni_land_use_planning.pdf

Melbourne

The assessment of major transport infrastructure projects in Victoria are based on strategic transport modelling using either the Victorian Integrated Transport Model⁵⁸ (owned and maintained by the Department of Transport) or the Zenith Victoria Transport Model⁵⁹ (Owned and maintained by consultant Veitch Lister). A freight modelling tool was also developed by IMIS (now part of Aurecon)⁶⁰ along with a rail study being undertaken.⁶¹ A number of further tools are used for planning and demographic modelling, including:

- *Proposed East West Link Evidence to the Assessment Committee – Traffic & Transport*: The study focused on three aspects of major transport infrastructure project assessment: (1) Whether the base transport model has been demonstrated to be adequately calibrated and validated, so as to provide confidence in its ability to predict the traffic demands, patterns and impacts of the Project; (2) Whether the future year traffic demands have been prepared using accepted methodologies and assumptions; and (3) Whether the business case has been based upon accepted principles of transport benefit-cost analysis.⁶²
- *VISTA integrated travel and activity data surveys*: Travel planning in Melbourne is based on a number of sources, including that ABS travel data and the local VISTA travel surveys.⁶³
- *Victoria in Future (population and house-hold projections)*: VIF data provides the most insight into growth in Melbourne. It examines population growth by LGA and suburb based on localised (and contextualised) births and death rates, as well as expected internal and external migration. There also appears to be some integration with Urban Development Program (UDP) data, which highlights areas of significant housing supply. While this data is heavily relied on by all planners, all stakeholders (as well as its developers) are aware that these projections can vary with time and are provided as a guide only.⁶⁴
- *Urban Development Program*: The UDP shows the availability of land and the major projects planned (10+ dwellings) within the urban boundary.⁶⁵
- *Travel demand in Melbourne*⁶⁶
- *Growth Corridor Plans*: The Growth Corridor Plans were designed to address many of the issues facing outputs from the above research, primarily through the generation of jobs in growth corridors. These growth corridors were selected primarily due to their access to specialist services, significant tracts of commercial and industrial land and their proximity to transport nodes. The underlying assumptions behind this research appear to be based on the presumption that population increase in areas will also produce jobs in many growth areas and

⁵⁸ <http://www.aitpm.com.au/ArticleDocuments/194/Transport%20and%20Land%20Use%20Modelling%20winning%20submission%20Henry%20Le.pdf.aspx?Embed=Y>

⁵⁹ http://www.veitchlister.com.au/pdf/zenith/Victoria/Zenith_VIC_Brochure_2013.07.pdf

⁶⁰ http://www.imis.com.au/clients/clients_traffic.html

⁶¹ <https://ptv.vic.gov.au/assets/PTV/PTV%20docs/Feasibility-Studies/Doncaster-Study-Scope.pdf>

⁶² http://www.dtpli.vic.gov.au/_data/assets/pdf_file/0019/230095/Thompson-EWS.pdf

⁶³ <http://economicdevelopment.vic.gov.au/transport/research-and-data/vista>

⁶⁴ http://www.delwp.vic.gov.au/_data/assets/pdf_file/0018/308511/Victoria-in-Future-2015-WEB.pdf

⁶⁵ <http://www.dtpli.vic.gov.au/planning/plans-and-policies/urban-development-program>

⁶⁶ http://www.planmelbourne.vic.gov.au/_data/assets/pdf_file/0016/130930/Travel-Demand-in-Melbourne-Updated-Oct-13.pdf

the assumption that clusters of specialist industries will be a magnet for additional jobs growth.⁶⁷

Sydney

Neither the *NSW Long Term Transport Master Plan* (2012), *A Plan for a Growing Sydney* (2014) or the *Rebuilding NSW-State Infrastructure Strategy* (2014) present modelled scenarios nor methods for modelling scenarios. The *NSW Long Term Transport Master Plan* (2012) primarily uses the term scenario as a synonym for forecast.

⁶⁷ <http://www.mpa.vic.gov.au/wp-content/Assets/Files/Growth%20Corridor%20Plans%20ON%20SCREEN.pdf>

4. Were there any data issues involved?

Perth

Planning

UDIA's public submission (2009) on Directions 2031 was critical of the land consumption modelling including assumptions about population growth and infill uptake⁶⁸. They cited the land shortage that they predicted and that occurred in 2006 during Perth's boom, therefore as a precautionary principle they suggest an oversupply of land is preferable to an undersupply although this would align with their industry interests and not necessarily good planning, certainly not from a compact city perspective. However their request for a more transparent methodology is legitimate request and they note that multiple different models can be used and these provided significantly different demands for future land requirements. Their request for a 40-50 year as opposed to 20 year planning horizon was required, this has subsequently occurred with *Perth and Peel @ 3.5 million*.

Transport

PATREC in their report '*Going Platinum! A new approach to transport modelling in Perth*' (available here: http://www.patrec.uwa.edu.au/_data/assets/pdf_file/0008/2631644/OCTOBER-2014-PATREC-PERSPECTIVES.pdf) note that there are essentially two strategic transport models in operation in Perth these being:

The Strategic Transport Evaluation Model (STEM) is used to assess the impacts of alternative land-use scenarios on Perth's multimodal metropolitan transport systems. There are currently two versions of STEM in existence – one using the EMME/2 software platform and the other, the Cube Voyager platform. The outputs of STEM are flows of vehicles and travellers per mode at the cordon or screenline level, and measures of the performance of the metropolitan transport system in terms of economic efficiency, social impact and broad environmental impact. STEM also provides several accessibility indicators.

The Regional Operations Model (ROM24) is suitable for more specific studies of traffic impacts of road infrastructure projects, land-use developments and metropolitan-wide area traffic management measures. It is also used to provide traffic volume data for use in

the planning and design of elements of the road traffic system, such as interchanges and intersections. It is built using the CUBE/ TRIPS software platform. The ROM24 outputs are flows of vehicles at the network link level, and measures of metropolitan road network performance in terms of economic efficiency. Outputs may also be used in evaluating social and environmental impact.

They note the limitations of current modelling on the basis of insufficient theoretical underpinnings and excessive data requirements. They also note a general trend away from focus on road capacity alone to a more complex policy environment that includes non-motorised and transit modes, demand side policies (e.g. travel demand management and land use policies (e.g. growth boundaries)). In response to these issues PATREC promote the use of their own new tool PLATINUM which they argue is 'in line with best international practice and also avoiding duplication and other resource inefficiencies, yet not impeding specialised and advanced work already underway by the ROM24 and STEM modelling teams')

⁶⁸ for more information see: https://s3-ap-southeast-2.amazonaws.com/nds-windows-server/udiawa.com.au/www/Uploads/File/Submissions/Directions2031_UDIA_Submission.pdf

Brisbane

The vast majority of the scenarios and plans listed above used static, cross-sectional data, mostly derived from the ABS (Census and other data) and the Queensland OESR (now the Queensland Statistician's Office). They also use the TMR Household Travel Surveys⁶⁹, which are conducted on a regular basis. Many of the documents mentioned in this report use this data (i.e. Connecting SEQ) but the travel surveys that they use are often not current (as these Plans are often drafted over many years). Connecting SEQ 2031 states, *"The computer transport models used by the Department of Transport and Main Roads require very detailed inputs, which rely on the latest available census data. At the time that Connecting SEQ 2031 was prepared, the last census was conducted in June 2006, and this is therefore adopted as the base year in the transport models. Therefore, most of the base and forecast data quoted in Connecting SEQ 2031 relates to the period between 2006 and 2031."*

The Brisbane Long Term Infrastructure Plan^{Error! Bookmark not defined.} mostly refers to data from the 2006 Census (with some projections from 2011, which at the time of printing, was not yet released). However, unlike most of the State Government documents, this Plan does have a reference list at the end, showing some data sources, such as the Federal BITRE⁷⁰. No mention is made in the document of modelling (if any, other than use of cross sectional and other department data). The Transport Plan for Brisbane^{Error! Bookmark not defined.} is not current as most of the modelling and data is at least a decade old. It is however, supposed to be updated every five years, with the most current data at the time⁷¹. Generally in Queensland, data access is good, and most State and LGA data is of high quality and open source. The Queensland State Government has a Google Earth .kml plugin called the Queensland Globe⁷², which has multiple, themed spatial datasets, many of which are also available to download (free) as various GIS file types (i.e. shapefiles). Brisbane City Council also has extremely good spatial and other data.

Melbourne

Planning

The biggest issue appears to be the projections of job creation, which is largely based on population growth and the assumption that it will naturally generate jobs in a series of Growth Corridors (comprising Major Activity Centres, National Activity Centres and minor employment clusters serviced by train). The flow on effect of this is that the Growth Corridors (incl. MACs and NECs) have become the primary focus for the Metropolitan Planning Authority, the organisation directing much of the resources into urban planning in Melbourne. With the result that Growth Corridors have become the new Activity Centres, i.e. large clusters of activity that can resolve all housing and business needs. However, research (Newton and Glackin 2014) has indicated that Activity Centres are not the magnets for growth that they were designed as, which may also be the case with the Growth Corridors.

⁶⁹ TMR, Household Travel Survey Notes (2016) <http://www.tmr.qld.gov.au/Community-and-environment/Research-and-education/Queensland-Household-Travel-Survey-summary-reports.aspx>

⁷⁰ Australian Government Bureau of Infrastructure, Transport and Regional Economics (BITRE) (2009), Working Paper 75: National Road Network Intercity Traffic Projections to 2030

⁷¹ Could not find a more up-to-date version than the one listed in the references

⁷² Queensland Government, Queensland Globe. <https://www.business.qld.gov.au/business/support-tools-grants/services/mapping-data-imagery/queensland-globe>

Transport

The Victorian Integrated Transport Model (VITM) is based on Origin-Destination data from 2011. The accuracy of the travel demand forecasts is one of the major issues which impact strategic transport models.

Sydney

Neither the NSW Long Term Transport Master Plan (2012), A Plan for a Growing Sydney (2014) or the Rebuilding NSW-State Infrastructure Strategy (2014) mentions data issues in development of their scenarios and forecasts. The preponderance of data incorporated in these documents are general transportation, infrastructure and community data that appear to be collected regularly in New South Wales.

5. How were the corridors and areas chosen for the urban areas? What were the environmental constraints driving these choices.

Perth

In Perth areas of growth are limited to the west by the Indian Ocean, to the south east by Midgegooroo National Park. Rooted in its historical origins as a maritime settlement Perth has continued to experience its greatest growth in close proximity to the water bodies of the Swan and Canning Rivers and the coast. Perth currently sprawls for around 150km along the coast from Yanchep in the North to Yunderup in the south. With the lack of distinct geographical boundaries pressure for land releases in desirable beach side locations is likely to continue and perpetuate the spread further north and south. The Swan Coastal plain being a biological 'hot spot' is peppered by smaller national parks, regional parks and 'bush forever' parcels.

Growth is planned across all existing and fringe areas of the city by 2031 but growth will be uneven with the greatest growth planned in the central area and northern and southern coastal suburbs of Perth. Specifically planned growth characteristics include:

- Central metropolitan subregion comprising largely pre-developed historic Perth suburbs is planned to grow by 205,000 (121,000 dwellings) this will largely comprise infill development
- Northeast subregion including Swan, Kalamunda and Mundaring is forecast to grow by 69,000 people (40,000 dwellings), a 37 per cent increase on current population levels.
- Northwest subregion including Joondalup and Wanneroo is planned to grow by 110,000 people (65,000 dwellings)
- Southeast subregion including Gosnells, Armadale and Serpentine-Jarrahdale is planned to grow by 58,000 (35,000 dwellings)
- Southwest subregion encompassing Cockburn, Rockingham and Kwinana is planned to grow by 70,000 (41,000 dwellings)
- The Peel subregion comprising Mandurah, Murray and Waroona is planned to grow by 45,000 (26,000 dwellings)
- In all subregions increased densities are intended for the activity centres to form a connected city of cities.

Brisbane

See Infrastructure planning section for State Government corridor planning^{Error! Bookmark not defined.}. The Brisbane City Council Transport Plan^{Error! Bookmark not defined.} has a section on coordinated transport and land-use, aimed at improving connectivity between residential areas, the CBD and main employment areas. Likewise, the Connecting SEQ 2031 emphasizes development in centres and corridors that have good public transport connections. Growth corridors in the planning documents, such as the Brisbane Long Term Infrastructure Plan^{Error! Bookmark not defined.} are described specific to the type of infrastructure. For example, the road network is described as a series of radial corridors providing connections between employment hubs and commercial areas (shopping centres). Indeed, an emphasis corridors and connectivity between large shopping malls is typical of many of these documents. This document however, also emphasises integrated transport as a driving force for the choice of corridors so these can serve multiple purposes such as delivering active and public transport and environmental benefits such as open space and stormwater flow mitigation. Other corridor identification was done on the basis of maintaining and improving freight movements, particularly to areas such as the Trade Coast precinct and the airport.

Other corridors were chosen on the basis of environmental values, with the Long Term Infrastructure Plan (see above) emphasizing that Brisbane has a very important open space network that comprises riparian areas, wetlands, wildlife corridors, parks and bushland, and also recreational assets such as parks, sports fields and playgrounds. According the Transport Plan for Brisbane, the principles of Environmentally Sustainable Development will pertain to all transport options. Large scale projects such as the Australia Trade Coast⁷³ will also include buffering from sensitive land uses, coordination with the Brisbane Open Space Strategy and Brisbane's greenways development. The Transport Plan also states; *"The 2026 walking and cycling week day mode share targets of 12% and 5% respectively directly support Council's Air Quality Strategy, Sustainable Energy and Greenhouse Action Plan, Clean Air Campaign, Sport and Recreation Strategy, Moving Brisbane and Future Brisbane and the South East Queensland Regional Plan and reflect Council and Queensland Government investment in walking and cycling."*

⁷³ Australia Trade Coast. https://en.wikipedia.org/wiki/Australia_TradeCoast

Melbourne

Areas of growth in Melbourne are environmentally constrained by the hills to the East of the city. The result is that large municipalities, such as Yarra Ranges are considered to continue being areas of low density and rural/environmental protection.

Greenfield growth has largely been located in 5 clusters, comprising the municipalities of, Casey/Cardinia, Whittlesea, Wyndham, Hume/Mitchel and Melton, with Casey/Cardinia and Wyndham producing approximate 50,000 new dwellings each in the 2014/2015 year alone.

Areas of significant planned growth in established areas are broken into 4 categories: Major Activity Centres (MAC), National Employment Clusters (NEC), Growth Corridors and areas with significant public transport capability. The MACs, namely large shopping areas surrounded by housing growth areas, remain central to metropolitan plans for housing. Attention is also now turning to areas of lesser commercial activity where there is significant potential to utilise existing transport networks around train stations which high capacity. A number of Growth Corridors have also been identified, some follow tram lines and others train lines, that connect new and existing MACs. NECs are also planned to be centres of employment activity and are based on a combination of projected surrounding populations, availability of commercial land and the existing clustering of specialist services.

Sydney

The *Plan for Growing Sydney* establishes the greater Sydney Commission with the responsibility to 'drive' delivery of the plan. The greater Sydney Commission is developing six district plans⁷⁴ that will help better coordinate local government and state government planning. District boundaries were set as part of the metropolitan planning process. While the district plans are intended for release prior to the end of 2016, the district plan fact sheets provide a high level overview of district planning, presents a local context through discussion of living, working and socializing in each district, presents a high level overview of housing as well as numbers summarizing population, jobs, size and opens pace. The fact sheets also provide guidance for foreign language speakers by including locally relevant foreign language information for translation and interpretation services. Specifically relevant to the environment are the Green and Blue Grids which are outlined in the Plan for Growing Sydney. The Green Grid and Blue Grid specifically set out to define strategies how Sydney can protect and maximize its open space network and waterways network respectively.

The *NSW Long Term Transport Master Plan* (2012) mentions consideration of environmental impacts as well as social impacts, cost, commercial feasibility, market features and household preferences as factors to consider in scenario development (p. 80).

⁷⁴ <http://www.greatersydneycommission.nsw.gov.au/>

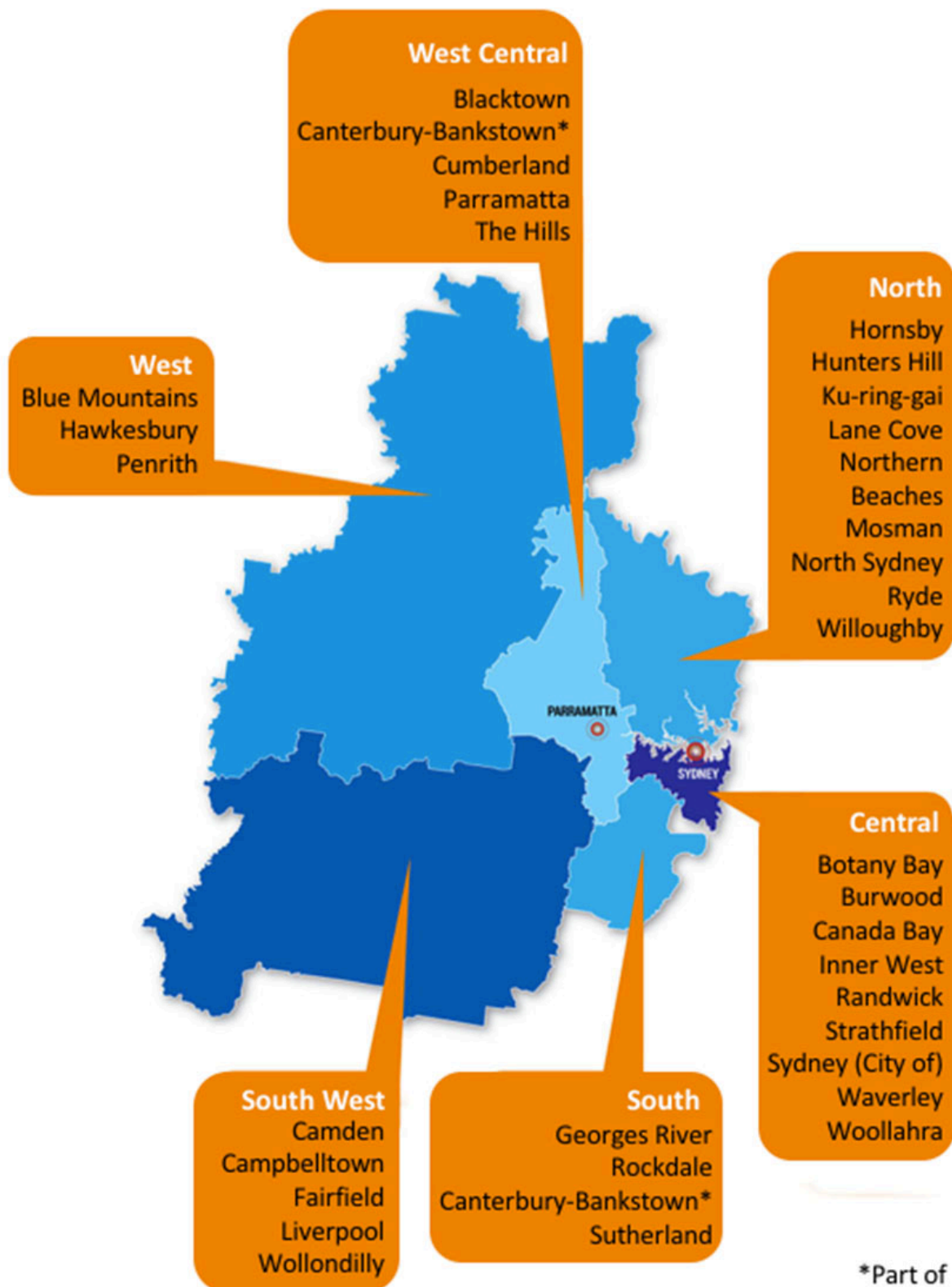


Figure 1. Greater Sydney Commission District Plan Districts
<http://www.greatersydneycommission.nsw.gov.au/What-We-Do/Greater-Sydney-District-Plans/District-Planning-Overview>

6. *Were infrastructure options considered in any of the plans? Were they done separately or were they integrated with the land use?*

Perth

The land use planning outlined in Directions 2031 does consider transport and assumes great uptake around transit nodes which form several of the key activity centres intended to absorb much of the planned (particularly infill) growth. However transport planning falls within the remit of the Department of Transport and as discussed earlier (s1.2) comprehensive multi modal transport planning has not been made public in Perth. The Public Transport plan is still in draft format and a comprehensive transport plan has been expected since 2008 however the minister announced in May 2016 it will be available 'as soon as possible' pending approval from Cabinet. Transport planning in Perth seems to be in disarray with several major projects having been stalled or shelved e.g. Max Light Rail, Perth Freight Link, Ellenbrook rail line.

Brisbane

Infrastructure plans and options have been specifically detailed in previous sections, under State and Local Government Planning. All major planning documents incorporate some sort of infrastructure options (see discussions above).

Infrastructure options are, to a large degree, integrated with land use (see also section 3.4), at least according to the planning documents. For example, the Transport Plan for Brisbane specifically states; *"Land use planning reinforces significant investment in transport infrastructure and services by providing opportunities for best practice urban design, higher density housing development and mixed use around public transport nodes and corridors."* Connecting SEQ 2031 explicitly states that coordinating land use and transport decisions (p. 22) is integral to the future strategic direction. In doing so, it aims to promote the early provision of public transport into new communities, identify public transport hubs and priority transit corridors, create 15 minute walkable neighbourhoods, and protecting priority freight uses.

Melbourne

The major projects described above all involved infrastructure options. However, the only evidence of infrastructure that can be seen in Plan Melbourne is its constant reference to integrated land use and transport strategies that seem to be based on economic development occurring in particular areas (NACs). More research into the level of integration and form of integration would need to be done as part of a wider study.

Sydney

In the NSW Long Term Transport Master Plan (2012) it is indicated that detailed delivery plans will put forward specific infrastructure initiatives. Plans will be based in part on predicted impacts of different scenarios (NSW Long Term Transport Master Plan (p. 383). There is an aspirational discussion of integrating land use and transport planning (p. 320). The Rebuilding NSW-State Infrastructure Strategy (2014) indicates a number of infrastructure planning ideas, presented as recommendations rather than options.

7. How were the density levels chosen in each part of the city? What were the assumptions used in these areas for both residential and employment densities?

Perth

A general intention of *Directions 2031* is for a 50% increase the 'gross urban zoned hectare' density from 10dw/ha to 15dw/ha. This will be achieved through allowing smaller land parcel sizes than the historic subdivision patterns, but more significantly higher density development (much of it infill) will be encouraged at 'activity centres'. This is facilitated through *State Planning Policy 4.2 for Activity Centres*. The general assumption for high density at activity centres is to cluster residential areas around transit and jobs with lower density areas in less well serviced areas.

A challenge is the introduction of large areas of higher density in a city with a history of low density and a cultural preference for detached dwellings. A supporting document prepared by WAPC titled *Perth and Peel Housing we'd choose* (after the Grattan report *Housing we'd Choose*) found that 78% of respondents stated they would prefer a separate house (yet only 56% chose such a dwelling - mainly a result of cost). The housing we'd choose study was conducted in two parts the first online survey of 866 people asked what sort of housing would people like to live in. The second part involved a survey of 1,071 people in an online survey looking at 'housing preferences and trade-offs'. Findings also found that there was a clear preference for living in the Inner central region of Perth but again only half of those stating this preference could afford to live in this location (p.4 housing we'd choose).

Brisbane

Density levels in the various plans appear to be chosen based on existing LGA zonings, and on public input (i.e. Neighbourhood Plans, CityShape, etc.). Each different Neighbourhood Plan⁷⁵ has different density based on a variety of information, such as existing State and Local government planning documents, existing development and community input. For example, the Chermside Neighbourhood Plan included the following:

- High density mixed used development (12-15 stories) based on SEQRP (also note this area is deemed a Principal Regional Activity Centre, largely on the basis of a large shopping centre –see Corridor Planning).
- High density residential development (<10 stories) close to major roads (Gympie Road, hospital and shopping centre)
- Medium density residential development (6-10 stories) also near Gympie road, hospital and shopping
- What were the assumptions used in these areas for both residential and employment densities?

Any assumptions made on densities appeared largely based on population projections made from ABS Census data. This is not explicit in the documents.

⁷⁵ BCC, Neighbourhood Plans and other local planning instruments. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/neighbourhood-planning/neighbourhood-plans-other-local-planning-projects>

Melbourne

Planning

This is difficult to answer. Each municipality takes charge of the height limits for each zone. That being said, each municipality has to accommodate new populations, as indicated in the VIF reports. This is not a target provided by the department, but indicative of the growth that is coming and which the municipality should prepare for. The way that they try and manage this is by implementing the new zones so that areas of significant growth (MACs) have a considerable amount of Residential Growth Zone (RGZ) associated with them. This usually indicates that 4+ stories are allowable, or that lot amalgamation is encouraged to promote higher densities. Inner-city municipalities use the C1Z zone (medium to high densities on top of commercial activity) to promote higher densities. So largely densities are a function of population projects, combined with the height restrictions placed on land. Effectively the market is tasked with providing a solution to the form of dwelling.

Employment densities are, as suggested, based on population growth and the assumption that additional population growth will create job growth locally, or in adjacent NECs. This is then also referencing the UDP and the availability of commercial and industrial land. These densities were informed by existing job densities based on Department of State Development, Business and Innovation Employment Projections, 2013 www.dtf.vic.gov.au/files/59ccc862-784a-4c55-a264.../BP3Ch2DSDBIWord.docx.

Transport

In the strategic transport models, the residential and employment opportunities are modelled as part of the four-step modelling process and in particular trip generation and attractions steps.

Sydney

The NSW Long Term Transport Master Plan (2012) presents population density incorporated in a map of bus service frequency (Figure 5.2, p. 178). Neither population nor employment density were specifically referred to as components of the scenarios discussed.

8. *In what way were the scenarios based on redevelopment of present urban areas?*

Perth

The scenarios still preference greenfield development but make ambitious steps towards stating a preference for infill (stating a desire to increase from 30-47%). However there are no clear mechanisms for this to occur, most infill is ad hoc redevelopment involving 'knock-down rebuilt' following the guidelines stated in the Residential Design Code (R-Codes⁷⁶). This tends to perpetuate a suboptimal built form of automobile dependant urban fabric, replacing private open space with more dwellings, car parking and associated hardscape. Cumulatively across the city this locks in car dependence, increases urban heat island effect and erodes urban character. There is a real need for improved redevelopment models as the current 'planning by numbers' approach only mandates increased density at the cost of other urban performance measures. This has created some backlash in some councils including Perth's largest council Stirling which states that its modelling shows that almost half the city's tree cover could be lost with 15 years under business as usual. In response in mid- 2016 the council was looking at proposals that would require developers to retain significant trees or off set lost trees⁷⁷.

Brisbane

The majority of the planning documents do not emphasize redevelopment, and in infrequent occasions that this is done, it is based largely on demographics. In the Transport Plan for Brisbane^{Error! Bookmark not defined.}, a paragraph on redevelopment is found in Section 3, Coordinated Transport and Land use.

"There will also be opportunities for the redevelopment of industrial and institutional brownfield sites outside of Urban Renewal suburbs. Council will participate and, where possible, facilitate the assembly and redevelopment of brownfield sites in public transport corridors".

The Brisbane City Centre Master Plan 2014⁷⁸ is largely focussed on redevelopment, although mostly in the context of this being constrained by existing buildings and infrastructure, and also that it is in the context of the CBD of the city. It names some strategic redevelopment sites, termed City Frame Renewal Projects whereby BCC can work collaboratively with the State and private developers to facilitate redevelopment. These include the Roma Street Transit Centre, Myer Centre and Queen Street Bus Station, and City Reach.

Melbourne

Due to the infill rates for Melbourne being tipped to be roughly 70%, redevelopment of existing urban land is critical. However no explicit mention of how to achieve this has been provided. Greening the Greyfields and greyfield precincts are expected to be in the revision of Plan Melbourne, as it was included in the Plan Melbourne Refresh white paper.

⁷⁶ Available here: <http://www.planning.wa.gov.au/residential-design-codes.asp>

⁷⁷ see: <https://au.news.yahoo.com/thewest/wa/a/31058587/stirling-eyes-tree-change-for-builders/>

⁷⁸ BCC, Brisbane City Centre Master Plan 2014. <https://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/brisbane-city-centre-master-plan-2014>

Sydney

In the *NSW Long Term Transport Master Plan* (2012) discussion of redevelopment was limited to a mention of greenfield vs. infill development (p. 80), redevelopment of the Town Hall Station in Sydney in order to accommodate more passengers (p. 163) and Gosford waterfront re-development (p. 223). It is also mentioned that improved public transportation could facilitate redevelopment of the limited land in inner Sydney (p. 320).

9. How was redevelopment potential calculated? Was it based on parameters like the demographics, building age/quality, infrastructure status of the area?

Perth

Pending information from the Department of planning's multi criteria model.

Brisbane

See above response.

Melbourne

Redevelopment potential has not been formally considered by state government. Buxton et. al. (2015) and forthcoming research by Glackin & Newton (2016) will highlight the capacity of metropolitan areas to accommodate significant housing increases using metrics such as age of housing and percentage of value in the land (Redevelopment Potential Index -RPI). The Maroondah housing capacity also uses the RPI and is the only housing capacity in Victoria to do so. Other estimates assume that the market will take advantage of undercapitalised lots by placing significant market pressure on landowners to redevelop e their land parcels. As such, redevelopment is largely (at present) considered to be a function of land value and under-capitalisation.

Sydney

The NSW Long Term Transport Master Plan (2012) discusses redevelopment of the Gosford waterfront (p. 223). Re-development was also linked to integrated land-use and transportation planning (p. 320) where it is noted improved public transit could facilitate re-development of low and medium density areas. *A Plan for a Growing Sydney* (2014) discusses the potential redevelopment of a number districts and as a means of land-use intensification. For example, redevelopment leading to increased building heights.

10. Was the concept of the 30 minute city (based on travel time data) used in the scenario planning approach?

Perth

The concept of the 30 minute city is not explicitly described and given the plan for a city stretching 170km north to south is not feasible. What is discussed however is the notion of a connected city, a network of activity centres where each activity centre is an integrated hub of service, employment, residences and transit. So within each activity centre it may be possible to live a 30 minute lifestyle but this is not mentioned or even likely to be possible across the city. The merit of a truly connected city is that a transit network might enable fast commutes between activity centre nodes but the current hub and spoke public transit (particularly) rail would not enable this. To function as a networked city multiple new transit connections would be required.

Brisbane

Connecting SEQ Error! Bookmark not defined. appears nominally based on this principle, but it is not made explicit. In this document, it refers more to encouraging active transport (walking or cycling) for distances under 30 minutes, and that 30 minutes is the recommended minimum activity per day. The document does have a section on 15 minute walkable neighbourhoods, and describes these as a vision on how to create compact, sustainable communities (this idea originated in the Queensland Growth Management Summit Error! Bookmark not defined.).

Melbourne

The concept of the 20 minute neighbourhood was put forward as the ideal urban form, but this was based on walking and cycling times. While transport has been significantly considered (in terms of reducing congestion by locating jobs closer to home), the 30 minute city has not explicitly been mentioned. For the city to become a 30 minute city the NECs would have to become effective magnets for commercial activity and these magnets would have to employ significant proportions of local populations. This is the aim of the NECs and the MACs, but the strategy would require significant decentralisation to become successful. The Swinburne transport expert could not find any evidence that this concept was explicitly mentioned or considered in the above mentioned major projects.

Sydney

The idea of a 30 minute catchment is highlighted in the *NSW Long Term Transport Master Plan* (2012) on page 120 and page 303. The first mention is a presentation of figures on the proportion of metropolitan jobs accessible within 30 minutes by public transportation and, separately, by private vehicle. The second mention of the 30 minute city notes that many who are outside a 30 minute catchment of a major centre live in Western Sydney. Maps of metropolitan jobs within a 30 minute AM peak travel catchment for public transport and private cars are presented on page 120. Extending the geographic range of a 30 minute bus travel time from Parramatta is mentioned. Linking Penrith to the Western Sydney workforce within a 30 minute public transport catchment is also mentioned.

11. Could the scenario planning for corridors be used to create City Deals for urban regeneration and infrastructure projects? What else is needed to make this easier?

Perth

The UK City deals model may indeed work well for Perth given that the overwhelming majority of infill development is undertaken by small developers or 'mum and dad' developers selling of the backyard as a battle axe. There are several examples of local governments attempting to influence market decisions through the development of planning strategies that are met with only lukewarm market interest or find delays due to infrastructure deficits (e.g. City of Stirling town centre, Canning City Centre, Wellard). Better co-ordination between city, state and federal planning and infrastructure investment would undoubtedly help catalyse change in key activity areas identified in Directions 2031, very few (if any) have completed an activity centre structure plan despite it being 6 years on from the release of the plan. This may need a dedicated regeneration authority or a composite team comprising state and local partners as few local governments have the resources or in-house skills to complete such an exercise alone. Co-ordinating the KPIs of (federal,) state and local governments would help overcome some of the frustrations felt by local government when state infrastructure priorities do not align. A compact or other governance agreement would help to align outcomes to provide a mandate for positive co-ordinated action (cf. the Vancouver Agreement⁷⁹).

Brisbane

Apart from the Cross River Rail (which despite being mooted as the most important infrastructure project in Brisbane, is still unfunded), the concept of City Deals is not explicit in any of the planning documents. The Brisbane Vision^{Error! Bookmark not defined.} document however does echo many City Deals ideals⁸⁰, such as smarter cities, innovative financing and encouraging leadership and governance at the local level.

Melbourne

The critical issue for the Plan Melbourne strategies to work is the success of NECs and MACs to attract employment and also for people to relocate close to these clusters. Numerous metropolitan plans have advocated decentralisation and most have largely failed. One way to examine scenarios would be not to look at what is favourable, but what the market is attempting to do. If we could have scenario tools where we can apply a range of possibilities (covering BAU, easily achievable, and difficult scenarios) we could show the effects of implementing change, not only in terms of cost but also effect, in terms of congestion, densities, land values etc) all of which could be ranked in terms of risk. If we could show low risk and good returns, then City-Deals are possible.

Sydney

There are no scenario planning corridors mentioned in the *NSW Long Term Transport Master Plan* (2012). However, scenario planning corridors may be put forward in the detailed delivery plans. The *NSW Long Term Transport Master Plan* (2012) presents a need to identify and protect strategic and future growth corridors, linking the idea to integrated land use and transportation planning (p. 192).

⁷⁹ see: <http://www.vancouveragreement.ca/the-agreement/>

⁸⁰ Burton, P (2016) City Deals: nine reasons this imported model of urban development demands due diligence. The Conversation, 2 April 2016. <https://theconversation.com/city-deals-nine-reasons-this-imported-model-of-urban-development-demands-due-diligence-57040>

Recently the NSW Government commissioned a report produced titled “ Transit and Urban Renewal Value Creation” (2016). The report was produced by LUTI consulting and Mecone Planning (<http://www.luticonsulting.com.au/wp-content/uploads/2013/12/Sydney-Transit-and-Urban-Renewal-Value-Creation-Report.pdf>).

“This report presents the findings of research undertaken to analyse the value created in the land markets surrounding transportation and urban renewal projects within the Sydney metropolitan area from the year 2000 to 2014.” LUTI, (2016, pxx). The report documents a hedonic price modelling approach for understanding the key contributing factors to value uplift specifically covering three aspects (i) Accessibility, (ii) Zoning and (iii) development density. Also, recently the CRC-SI commissioned the development of the Rapid Analytics Interactive Scenario Explorer (RAISE) project <http://www.crcsi.com.au/research/2-rapid-spatial-analytics/2-22-raise/>

“this project focuses on building a highly interactive geo-visualisation toolkit for accessing automated land valuation models through to more complex land value uplift models. This will enable land valuers, city councils, state government policy and decision-makers and industry to collaboratively explore and test hypotheses connected with the likely causes of land valuation changes in relation to infrastructure decision.”

Both of these value uplift modelling initiatives hold future promise in creating and exploring future urban growth scenarios in the context of data driven city deals.