

Integrated Public Transport Service Planning Guidelines

Outer Metropolitan Area

June 2016

CONTENTS

1.1 Purpose	3
1.2 Background	3
1.3 Travel in Outer Metropolitan Area	5
1.4 Objectives of the Integrated Public Transport Service Planning Guidelines	8
1.5 Structure of the Integrated Public Transport Service Planning Guidelines	8
2. STRATEGIC TRANSPORT PLANNING FRAMEWORK	9
2.1 Inter-regional Travel	9
2.2 Intra-regional Travel	10
2.3 Travel in Major Regional Centres and Towns	10
3. STRATEGIC PUBLIC TRANSPORT SERVICE PLANNING FRAMEWORK	15
3.1 Guiding Principles for Integrated Public Transport Service Planning	15
3.2 Guidelines for Integrated Public Transport Service Planning	18
3.3 Guidelines for Modal Service Planning - Bus	27
3.4 Guidelines for Modal Service Planning - Government Funded Coach	32
3.5 Guidelines for Modal Service Planning - Ferry	33
3.6 Guidelines for Modal Service Planning - Light Rail	36
3.7 Guidelines for Modal Service Planning - Train	37
3.8 Transport for Newcastle	40
3.9 Service Planning Interfaces	41
3.10 Application of Service Planning Framework	44
4. REFERENCES	45
5. GLOSSARY	47

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1. INTRODUCTION

“Transport will always be about people and connections. Like any well-oiled machine, the transport system requires the right parts to be in the right places and to work together at the right times. Transport is complex, but it is essential that we get it right as it is critical to the life of this State and the people who live here.”

Transport for NSW, 2012(a)

1.1 Purpose

The Integrated Public Transport Service Planning Guidelines provide guidance for service planning activities to support the implementation of the Long Term Transport Master Plan (LTTMP). This document has been designed to provide a starting point for service planning over a 10 year period, with services to be progressively implemented to align with customer demand, government priorities and funding availability. As a result, these guidelines provide indicators that will trigger more detailed consideration of relevant issues, rather than being a target to be achieved.

1.2 Background

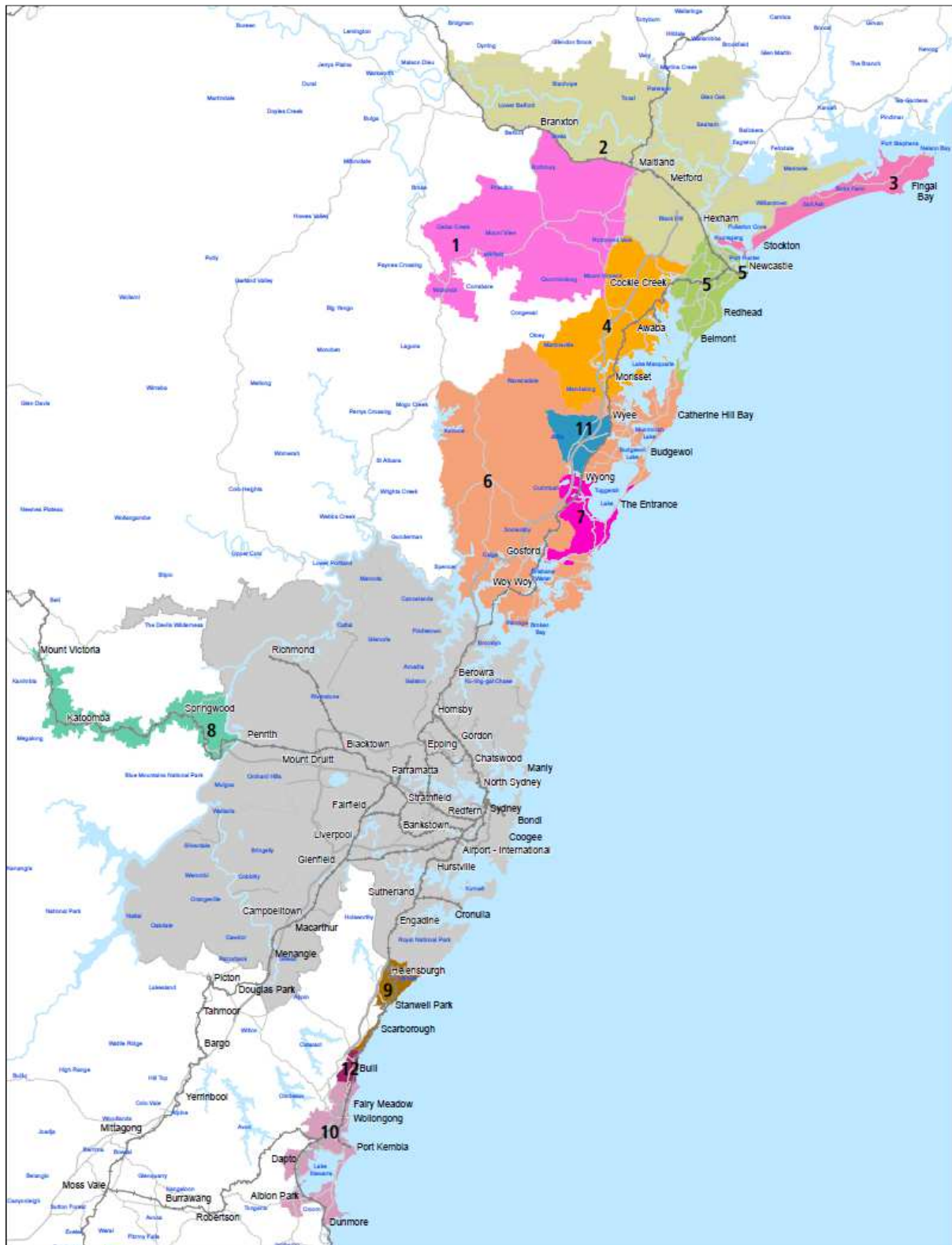
The outer metropolitan transport network has grown cumulatively over a number of decades. The need to improve efficiency and effectiveness across the network has been recognised and work has been undertaken on this. The Integrated Public Transport Service Planning Guidelines aim to further develop this work by aligning the service planning guidelines across all public transport modes.

Transport for NSW is the transport authority of the NSW Government providing an integrated approach to the planning and delivery of safe, reliable and efficient transport. A key role of Transport for NSW is the planning and procurement of transport services. This document sets out the network hierarchy, service planning principles and service delivery guidelines to be used for the planning and procurement of bus, ferry, light rail and train services in the outer metropolitan area to ensure integrated service delivery.

The outer metropolitan area is unique in that it is comprised of four non-adjacent regions – Lower Hunter, Central Coast, Blue Mountains and Illawarra – but is referred to as one area due to shared spatial and community characteristics. The Integrated Public Transport Service Planning Guidelines aim to produce a single set of guidelines that meets the needs of these individual regions.

The spatial area for the use of these guidelines is shown in Figure 1 and includes the outer metropolitan bus services, outer metropolitan ferry services, light rail in Newcastle and train services delivered by NSW Trains.

Figure 1 Outer Metropolitan Area



Note: bold numbers reflect outer Sydney bus system contract designation

Service planning provides a framework for developing and implementing public transport services in an integrated fashion that considers land use patterns, customer values, demand and operational specifications in an environment of continuous improvement.

The Integrated Public Transport Service Planning Guidelines for the outer metropolitan area provide a tool to support improvements to bus, ferry, light rail and train services over the short to medium term (up to 10 years). These improvements are informed by the NSW Long Term Transport Master Plan (LTTMP), individual modal plans for bus, ferry, light rail and train and in the Regional Transport Plans for the Central Coast, Hunter and Illawarra. The guidelines strive to achieve a balance between service frequency and service coverage, simplicity and legibility of the network.

These guidelines also support efforts by Transport for NSW on a number of NSW Government initiatives. These initiatives are outlined in Table 1 below.

Table 1 NSW Government Initiatives

NSW Government Initiatives	
Initiative	Relevant Linkages
State Priorities	The guidelines support the priority to ensure on-time running for public transport
NSW Long Term Transport Master Plan	The guidelines reflect the principles and network structure identified through the Master Plan process and support integrated service planning and delivery across bus, ferry, light rail and train services.
Transport for NSW Corporate Plan 2012-17	The guidelines support the major areas of focus of improving transport services and operations and growing the transport system.
Regional Transport Plans	The plans provide a strategic direction for the delivery of transport infrastructure and services in the state's regions over the next 20 years.

1.3 Travel in Outer Metropolitan Area

Residents of the outer metropolitan area made over 4.8 million trips per weekday and over 4.1 million trips on an average weekend day during the 2013/14 financial year. This information is presented at the regional level in Table 2 below. Outer metropolitan residents travelled a total of 50.5 million kilometres on an average weekday. The number of weekday trips increased by 5.6%, while the total kilometres travelled increased by 13.8% from 2009/10. Outer metropolitan residents favour travel by private vehicle, with eight out of ten trips made in private vehicles.

In the outer metropolitan area in excess of 80% of all trips are made by private vehicle, as either the driver or passenger. On an average weekday more than 40% of vehicle trips had two or more people in the vehicle. On an average weekend more than 60% of vehicle trips had two or more people in the vehicle. Approximately 12 - 13% of all trips were undertaken by walking only.

On an average weekday, 4.9% of all trips are undertaken using public transport, with bus being the predominant mode of transport. On an average weekend day, travel

on public transport drops to just 2% of all trips, with an equal spread of trips across train and bus.

Table 2 Travel in Outer Metropolitan Area by Region

Travel in Outer Metropolitan Area by Region		
Region	Trips per weekday	Trips per weekend
Central Coast / Newcastle / Lower Hunter	3,415,696	2,866,117
Blue Mountains	353,728	305,173
Illawarra	1,036,490	950,840
Total	4,805,914	4,122,130

Source: Transport for NSW, 2014 (a)

A focus on integrated service planning for public transport requires an understanding of current performance where customers are transferring between different public transport services. In the 2013/14 financial year, 80% of public transport journeys made on an average weekday by outer metropolitan residents had only one public transport leg. Of the other 20% who transferred between services, 90% used only two public transport legs, with relatively few journeys using three or more legs. Table 3 shows the key transfers between services and the percentage they represent of the market of customers using two or more public transport legs.

Table 3 Key Transfers between Public Transport Services in Outer Metropolitan Area

Key Transfers between Public Transport Services in Outer Metropolitan Area		
Rank	Transfer between services	% of more than one public transport leg
1	Train, train	31%
2	Bus, train	24%
3	Bus, bus	23%
4	train, train, train	7%
5	Bus, bus, train	4%

Source: Transport for NSW, 2014(a)

Customer research conducted by Transport for NSW provides insights into integrated service planning for public transport services. Research suggests there are four broad propositions that will encourage more people to use public transport. These propositions reflect the trade-offs customers consider in making their travel choices and evaluating where they get best value for money. They also provide the basis of actions that Transport for NSW can take to target, evaluate and measure strategies to improve public transport services. The four propositions are outlined in Table 4.

Table 4 Customer Value Propositions for Public Transport

Customer Value Propositions for Public Transport	
Time	<ul style="list-style-type: none"> • Travel time • Frequency • Reliability • Convenience
Systems and efficiency	<ul style="list-style-type: none"> • Information and technology • Ticketing • Interchange
Reassurance	<ul style="list-style-type: none"> • Safety • Accessibility • Friendly and helpful staff
Comfort	<ul style="list-style-type: none"> • Environment, including temperature, space and cleanliness • Other passengers

Source: Transport for NSW, 2012(b)

Another important consideration for integrated service planning for public transport is journey to work information. The outer metropolitan area is unique in that the journey to work may be over longer distances to the Sydney metropolitan area, or may be in the local area. These travel patterns have the potential to influence the required period of service delivery. Table 5 shows the top five journey to work destinations by geographic areas.

Table 5 Top 5 Journey to Work Destinations

Top 5 Journey To Work Destinations in Outer Metropolitan Area						
Top 5 JTW Destinations	Central Coast / Newcastle / Lower Hunter ¹		Blue Mountains		Illawarra	
	Location LGA	% of JTW trips*	Location LGA	% of JTW trips*	Location LGA	% of JTW trips*
1	Newcastle	28%	Blue Mountains	41%	Wollongong	72%
2	Lake Macquarie	17%	Penrith	28%	Shellharbour	13%
3	Gosford	16%	Blacktown	8%	Sydney	4%
4	Wyong	13%	Sydney	8%	Sutherland Shire	3%
5	Maitland	7%	Parramatta	6%	Campbelltown	1%

Source: Transport for NSW, 2014(a)

* Calculated as a percentage of the total top 10 journey to work destinations.

Based on the current performance of the transport network and the findings of customer research, there is a role for an integrated public transport network in the outer metropolitan area. Changes in the future to the way transport services are planned and delivered will see the need for integration grow in importance over time.

¹ In the combined Central Coast / Newcastle / Lower Hunter area travel to Sydney is 2% of journeys to work. For the Central Coast travel to Sydney is 5% of journeys to work, calculated as a percentage of the top 10 journey to work destinations.

1.4 Objectives of the Integrated Public Transport Service Planning Guidelines

The Integrated Public Transport Service Planning Guidelines for the outer metropolitan area provide the foundation for short and medium term service planning (up to 10 years) by Transport for NSW across bus, ferry, light rail and train services. In doing so, the objectives of the guidelines are to:

- Support a transparent, evidence based and multi-disciplinary approach to service planning
- Provide guidance to transport planners and practitioners on service planning considerations using a consistent approach across public transport modes
- Align service planning outcomes with strategic transport directions outlined in the NSW Long Term Transport Master Plan

1.5 Structure of the Integrated Public Transport Service Planning Guidelines

The Integrated Public Transport Service Planning Guidelines for the outer metropolitan area set out the principles and framework for service planning. The guidelines focus on two key elements – the strategic transport planning framework and the strategic public transport service planning framework. The Guidelines outline the approach identified in the NSW Long Term Transport Master Plan and translate this into guidelines for the delivery of transport in the short to medium term (up to 10 years).

The strategic transport planning framework outlines the strategic transport considerations along corridors of demand in rural and regional NSW, considering travel patterns between regions (inter-regional), within regions (intra-regional) and in major centres and towns. Further information on this approach is provided in section 2 of the guidelines.

The strategic public transport service planning framework outlines an integrated approach in responding to strategic transport planning by identifying guiding principles and guidelines to support the delivery of public transport service improvements. Further information on this approach is provided in section 3 of the guidelines.

2. STRATEGIC TRANSPORT PLANNING FRAMEWORK

The NSW Long Term Transport Master Plan identifies the major transport challenges facing the outer metropolitan area as:

- Delivering better transport links within the region and to Sydney
- Addressing emerging congestion-related issues to keep regional arteries flowing, remove bottlenecks in regional supply chains and protect local amenity and liveability
- Improving public transport connections to support urban renewal, economic development and the creation of local jobs

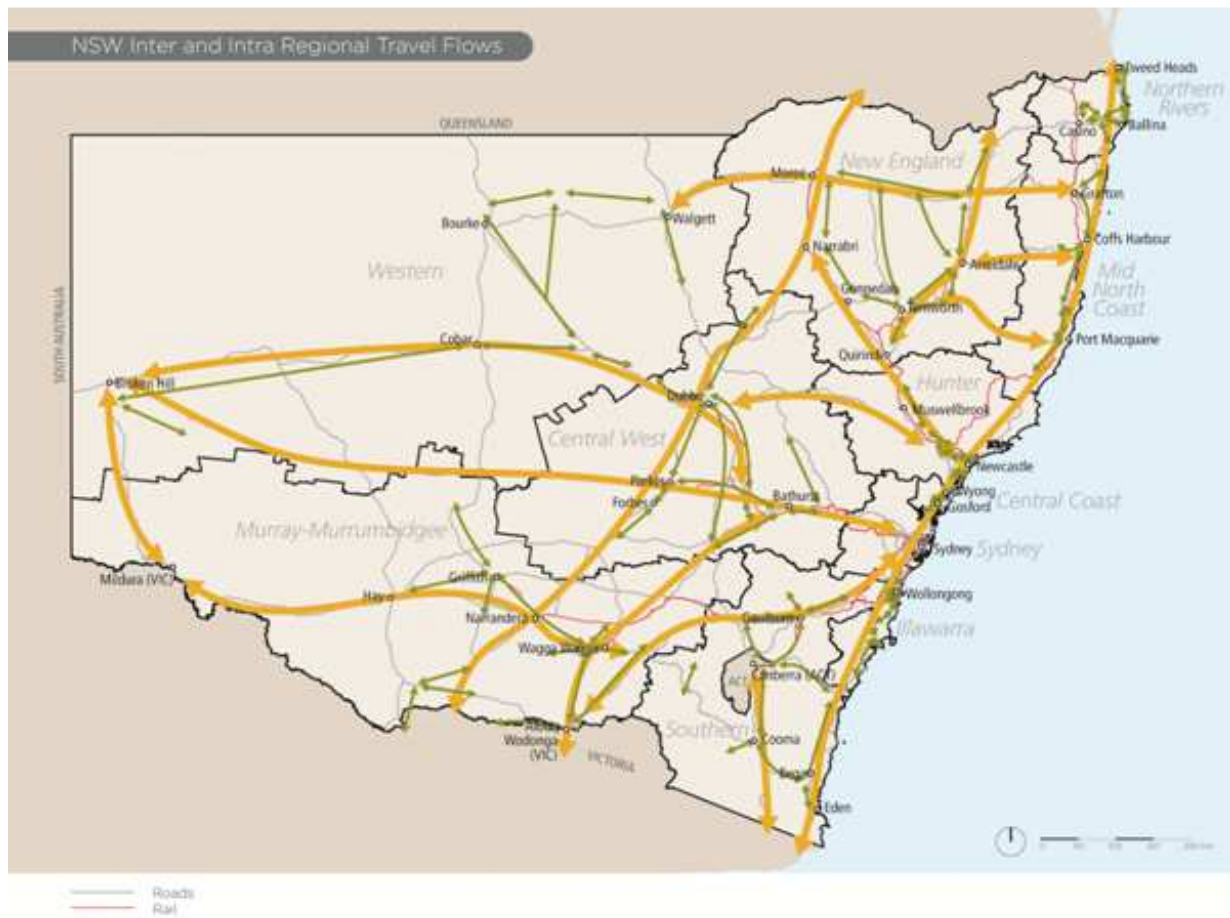
These challenges are addressed in the Regional Transport Plans that have been developed for areas outside of Sydney. These plans cover the following regions that are relevant to the Integrated Public Transport Service Planning Guidelines for the outer metropolitan area: Central Coast, Hunter (part); and Illawarra (part).

A specific focus of the Regional Transport Plans is identifying inter-regional and intra-regional travel patterns as well as those in major centres and towns. Further information on these travel patterns are outlined below.

2.1 Inter-regional Travel

Inter-regional travel is focussed on travel between regions. Regions may be adjoining or travel may be required across a number of regions to reach cities. To support inter-regional travel, a number of road and rail corridors across rural and regional NSW have strategic value in supporting economic development and population and employment growth. These strategic regional corridors, identified in the Regional Transport Plans are shown below in Figure 2.

Figure 2 Key Strategic Regional Corridors in NSW



2.2 Intra-regional Travel

Intra-regional travel is focused on links within each region to access a range of land use activities and public services. Improving transport outcomes for travel within each region relies on the transport network being planned and managed in an integrated fashion. The Regional Transport Plans outline the key links within each region that will be considered as part of the Integrated Public Transport Service Planning Guidelines for the outer metropolitan area.

2.3 Travel in Major Regional Centres and Towns

Major regional centres and towns in each region act as regional focal points, providing access to jobs, shops, education, community services, health care and tourism facilities. It is important that public transport services support access to these facilities and provide linkages within these major centres and towns.

To support travel in major regional centres and towns, the application of the Integrated Public Transport Service Planning Guidelines for the outer metropolitan area is based on regional cities and urban areas identified in Table 6. A spatial representation of the regional cities of Newcastle, Gosford and Wollongong are shown in Figure 3, Figure 4 and Figure 5 respectively. Towns and villages in non-

urban areas will be considered as part of the needs assessment process outlined in Section 3.2.

Table 6 Integrated Public Transport Service Planning – Regional Cities, Urban Areas and Non-Urban Areas

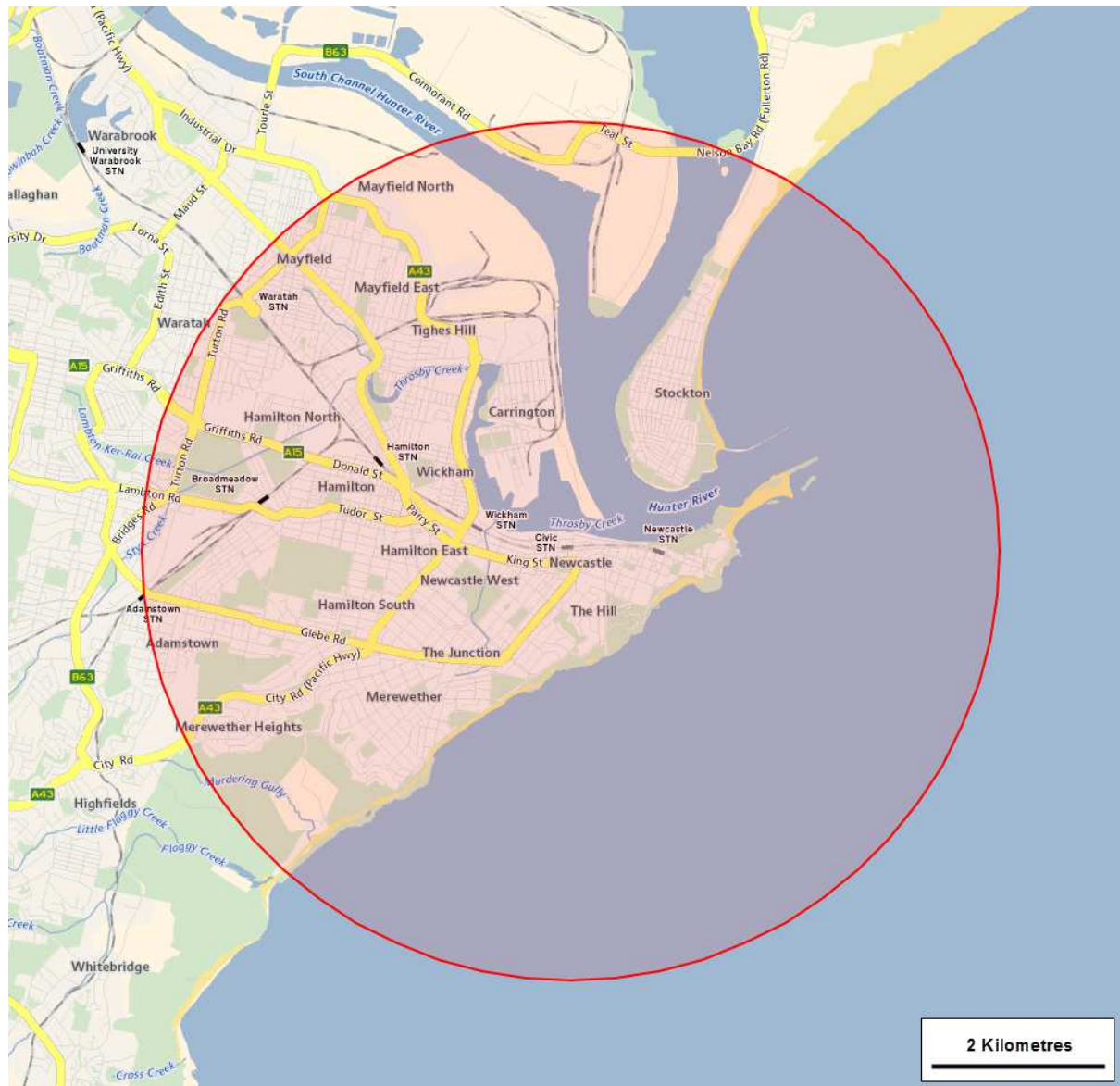
Integrated Public Transport Service Planning – Regional Cities, Urban Areas and Non-Urban Areas				
Outer Metropolitan Area	Outer Metropolitan Bus Contract ²	Regional Cities	Urban Areas ³	Non-Urban Areas
Lower Hunter	1, 2, 3, 4, 5	Newcastle	Existing and planned urban areas, including Maitland, Cessnock, Raymond Terrace, Charlestown, Glendale/Cardiff, Morisset	All other parts of the region
Central Coast	6, 7, 11	Gosford	Existing and planned urban areas, including Wyong/Tuggerah, Erina, Woy Woy, The Entrance/Bateau Bay, Toukley/Lake Haven, Warnervale	All other parts of the region
Blue Mountains*	8	-	Existing and planned urban areas, including Katoomba, Springwood, Blaxland	All other parts of the region
Illawarra	9, 10, 12	Wollongong	Existing and planned urban areas, including Shellharbour, Warrawong, Dapto, Corrimal, Fairy Meadow, Figtree, Unanderra, Warilla, Albion Park	All other parts of the region

* The District Plan that covers the Blue Mountains area is currently being developed. Preliminary work released by the Department of Planning and Environment does not identify any regional cities or urban areas in the Blue Mountains. Urban areas, based on population, were identified by TfNSW.

² Outer metropolitan bus contracts as defined by Transport for NSW.

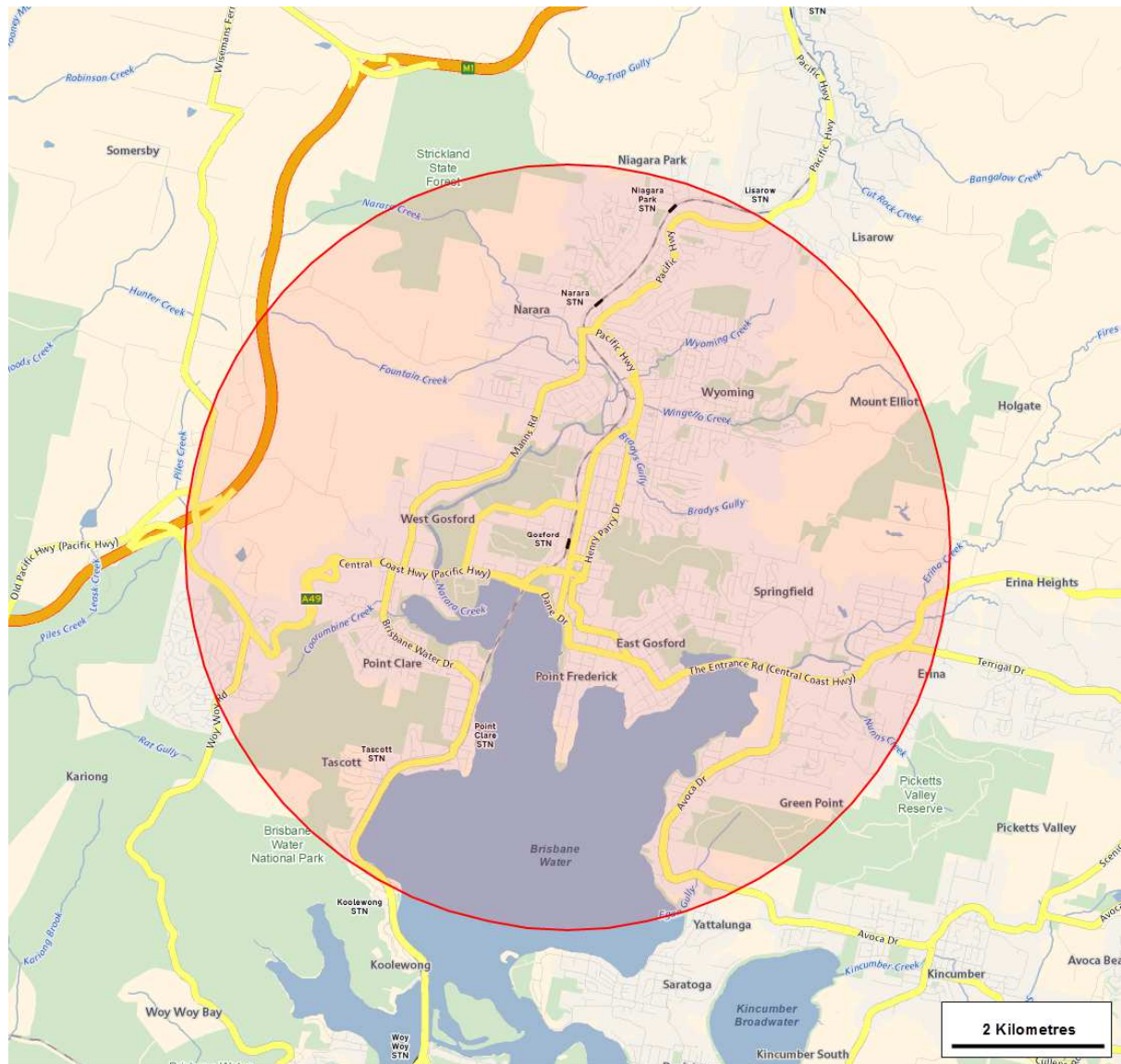
³ Regional cities and urban areas are correct at the date of this document. These are determined by the Department of Planning and Environment and may change from time to time.

Figure 3 Geographic Area of the Regional City of Newcastle*



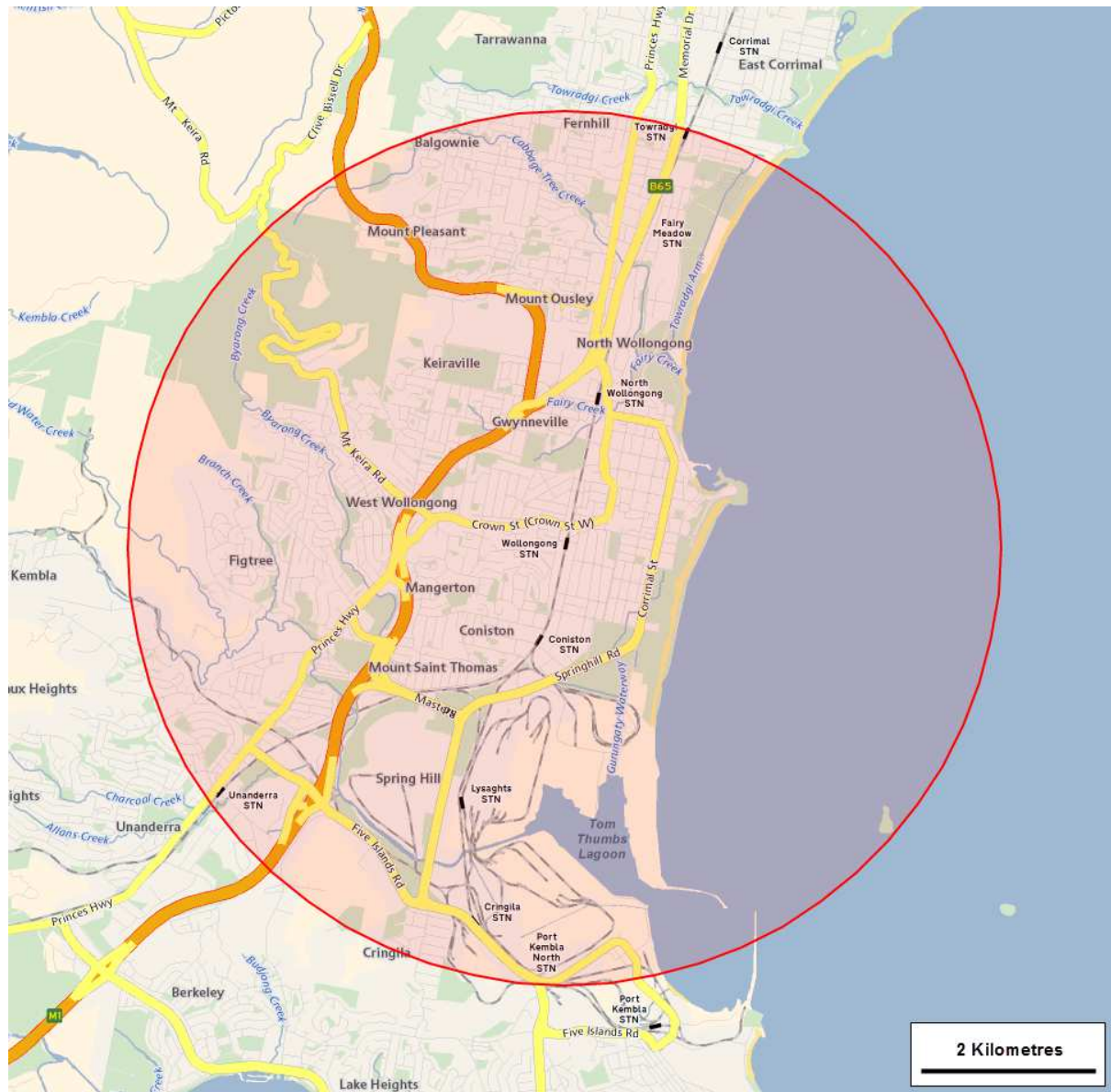
* Area based on 5km radius from Newcastle CBD

Figure 4 Geographic Area of the Regional City of Gosford*



* Area based on 5km radius from Gosford CBD

Figure 5 Geographic Area of the Regional City of Wollongong*



* Area based on 5km radius from Wollongong CBD

3. STRATEGIC PUBLIC TRANSPORT SERVICE PLANNING FRAMEWORK

This framework provides a guide for the planning of integrated public transport services within the context of a connected network. The framework is intended to be used as a guide rather than a performance measure. Performance is measured on the implementation and monitoring of network and service improvements over time.

The framework consists of a set of guiding principles and guidelines that are common to all public transport types. Guidelines for individual modes types are also included to reflect the unique characteristics of each public transport mode.

3.1 Guiding Principles for Integrated Public Transport Service Planning

The guiding principles provide an overarching framework for service planning for bus, ferry, light rail and train services. These guiding principles underpin Transport for NSW's integrated service planning; however, they are not intended to prescribe a particular outcome. These guiding principles are based on a multi-disciplinary approach that considers service integration, customer interface, assets and infrastructure and policy. These principles support an evidence based planning approach.

The guiding principles for integrated public transport service planning are:

- Provide a positive customer experience
- Consider government policy
- Develop an integrated public transport network
- Plan for efficient asset and infrastructure usage and operation
- Foster continuous improvement

Further details of the guiding principles for integrated public transport service planning are outlined in Table 7.

Table 7 Integrated Public Transport Service Planning – Guiding Principles

Integrated Public Transport Service Planning – Guiding Principles				
	Principle	Considerations	Outcome	Description
1	Provide a positive customer experience	<ul style="list-style-type: none"> • Timeliness • Safety and security • Ticketing • Convenience • Accessibility • Comfort • Cleanliness • Information • Customer service 	Customers are encouraged to use public transport services	Customers consider public transport as an integrated 'product'. Service planning needs to align with other elements of the 'product' where possible, including customer information, ticketing, facilities and pedestrian access, and needs of all customers using the network
			Customers are able to comment on the service planning process	This includes: <ul style="list-style-type: none"> • Broad or targeted community consultation on significant changes • Community information on new services and minor service changes
			Changes to public transport services consider overall customer benefit	Changes to public transport services will result in the majority of customers being better off Changes to public transport will take into account the Customer Value Proposition (CVP) priorities
2	Consider Government policy	<ul style="list-style-type: none"> • Examine existing policy, commitments and long term strategies • Identify areas for policy development and input to strategic development 	Public transport services provided align with transport and government initiatives	Considers current strategic planning framework, including the Long Term Transport Master Plan and modal strategies, and the Regional Transport Plans
			Public transport services are made available in new growth areas as early as possible	Establishing services in new growth areas from an early stage facilitates greater take up of services
			Public transport services provide value for money to customers and taxpayers	Service planning takes into account funding and resource availability
3	Develop an integrated public transport network	<ul style="list-style-type: none"> • Plan for a hierarchy of mass, intermediate and local transit services in a network • Provide simple and direct services that can be easily remembered • Follow consistent timetables and stopping patterns for services 	The overall journey time is more important than individual trip times	The journey time comprises the on-board journey time and wait between services, commencing from the time of departure of the first trip to the arrival time of transport on the final trip
			The public transport network is effective and easy to understand and navigate	This includes: <ul style="list-style-type: none"> • High level of consistency for span of hours, headways and stopping patterns across similar service levels and days of week

Integrated Public Transport Service Planning – Guiding Principles

	Principle	Considerations	Outcome	Description
		<ul style="list-style-type: none"> • Offer services for a range of time periods • Coordinate convenient transfers between services • Increase network connectivity • Planning for an integrated network is undertaken using an evidence based approach 		<ul style="list-style-type: none"> • Easy to understand timetables • Route simplification
			The public transport network considers the needs of different customer groups	The network considers the needs of customers travelling out of peak hours and needing to make reliable off-peak journeys. The network provides accessible options for travel
			Changing between public transport services is as convenient as possible	This includes: <ul style="list-style-type: none"> • Clear information on transfer arrangements • Minimising wait times as best as possible, with consideration to frequency of connecting services • Supporting transfers with appropriate facilities and connecting infrastructure where required • No cost or low cost transfers
4	Plan for efficient asset and infrastructure usage and operation	<ul style="list-style-type: none"> • Provide services making best use of existing assets and infrastructure • Plan for future asset and infrastructure procurement and development 	Appropriate distribution of public transport services across the network	Public transport services aim to maximise customer mobility with available resources. Spatial coverage and demand are considerations of service distribution
			Service provision increases network productivity	Service planning to optimise loadings and vehicle utilisation
			Public transport services are integrated with future asset and infrastructure improvements	Opportunities for public transport service improvements are identified for future asset and infrastructure projects. Assets are procured with stewardship and whole of life management in mind. Ensure the functional requirements for interchanges are provided for
			Public transport services are accessible	Accessible public transport options are provided, including for customers who have a disability, use a wheelchair or mobility device, are elderly or travelling with a pram or luggage

Integrated Public Transport Service Planning – Guiding Principles				
	Principle	Considerations	Outcome	Description
5	Foster continuous improvement	<ul style="list-style-type: none"> Respond to land use changes in existing and new growth areas Monitor performance of services based on an evidence based approach covering demand, service delivery and customer feedback Undertake periodic reviews to ensure that services continue to reflect demand and customer expectations 	An evidence based approach is used for service planning and improvement	Develop and maintain an evidence base to inform service planning and improvement. This is supported by analysis by the operator and/or Transport for NSW on: <ul style="list-style-type: none"> Trends or changes in demographics Land use patterns and planning Access to key centres Infrastructure enhancements Patronage data Customer feedback Customer research Corridor analysis Operational specifications
			Service planning continues to be efficient and effective	This includes: <ul style="list-style-type: none"> Matching the appropriate mode to the task Minimising duplication of services Prioritising investment based on need across the whole network Undertaking service planning in a timely manner, consistent with organisational policies and contractual requirements Aligns with the service delivery chain for public transport services

3.2 Guidelines for Integrated Public Transport Service Planning

The guidelines for integrated public transport service planning provide a series of baseline indicators that support a consistent approach to the planning and development of public transport services. The guidelines focus on four areas – capacity, coverage, service provision and performance.

3.2.1 Service Capacity

Service capacity considers the number of people who can be moved by each vehicle and how to make the most efficient use of existing infrastructure when moving people. While the integrated public transport service planning guidelines are to be used across all service modes, the unique characteristics of each service type also need to be taken into consideration. The indicative capacities for public transport used as part of integrated public transport service planning are provided in Table 8.

Table 8 Integrated Public Transport Service Planning – Service Capacity

Integrated Public Transport Service Planning - Service Capacity			
Service Mode	Description	Indicative Vehicle Capacity*	Considerations
Bus	A key component of the overall transport system expanding the train catchment area and providing an important intermediate mode for cross-regional connections. Provides limited mass transit	<p>Small to medium bus – varies but less than 30 people.</p> <p>Standard bus – varies from 50 to 60 people.</p> <p>High capacity bus – varies from 100 to 120 people.</p>	<p>Can be demand responsive, offer local services and tailored to provide mass transport along strategic corridors or low level service provision</p> <p>Services can be changed quickly to service emerging issues, new operating conditions and link regions that cannot be connected by other modes</p>
Ferry	A specialised transport mode	Dependent on the class of vessel and area of operation, from 50 to 400 people.	<p>An attractive form of transport for both commuters and tourists</p> <p>Service area is constrained and services are affected by weather conditions more than any other mode</p>
Light Rail	An important interchangeable mode of transport, providing flexibility for cross-regional connections while also facilitating mass transit services	Dependent on the vehicle and area of operation, 100 – 300 people, at 4 people per m ² .	<p>Supports corridors of high demand levels with linkages to major centres and activity generators</p> <p>Linked with other public transport services to support a connected network</p>
Train	Mass transit mode, able to move many people quickly	<p>Intercity – seating capacity of 88 to 122 passengers per car, depending on internal configuration.</p> <p>Hunter – seating capacity of 69 to 77 passengers per car, depending on internal configuration</p>	<p>The backbone of the public transport system</p> <p>Provides a platform that supports all other transport modes</p> <p>Typically actions implemented on the train network affect all other transport modes</p>

* Indicative vehicle capacity includes both seated and standing customers.

3.2.2 Service Coverage

Planning for integrated service provision needs to consider the ratio of service to be directed to support customer demand and the ratio to be directed to coverage to extend the reach of public transport services. Coverage guidelines support the provision of a minimum level of service to the majority of households in the outer metropolitan area, supplemented by higher frequency services on key corridors and areas of higher customer demand. Service coverage guidelines support the development of a connected and integrated public transport network that facilitates travel opportunities to meet the needs of different customer groups, particularly for Regional Cities and urban areas outlined in this document.

The guidelines are to be considered as a starting point when determining service coverage. It is recognised that uniform geographic coverage cannot always be achieved due to constraints such as low population density, topography and street network restrictions. Local characteristics and evidence need to be considered when determining service coverage.

Service coverage considers ease of access, proximity to households, consideration of the walking component of travel and the percentage of the households covered within a defined distance.

Coverage guidelines support a connected transport system by providing direct or linked service for cross-city and cross-regional journeys. Coverage guidelines provide an economic and environmental benefit by providing a viable, cost effective alternative to car travel. Coverage guidelines also provide social benefits by ensuring social inclusion and equity of access to all members of the community.

The service coverage guidelines need to be balanced in the service planning process with the need to minimise travel time and provide direct routes. The low population densities in some outer metropolitan areas means households can be remote from the main settled areas. It may not be practical or desirable to introduce frequent public transport services. However, in keeping with the provision of a social benefit, a local service providing a low frequency service of several trips per day or week may be feasible. There may also be an opportunity to provide a pre-booked timetabled service where customers have requested pick-up.

Outer metropolitan service coverage guidelines have previously been defined only for bus services and have been described as typically between 400 metres during the daytime and 800 metres at night (as the crow flies) of a bus route in built up residential areas with higher population densities. The guidelines recognised that walking distances may be greater in areas with low population densities or with a topography which isolates pockets of settlement. Where service coverage guidelines were not in place very low frequency services (several trips per day or week) were to be considered, primarily provided for shopping purposes.

The coverage guidelines have been revised so that coverage in the regional cities of Newcastle, Gosford and Wollongong is equivalent to the Sydney metropolitan area and coverage in urban areas is equivalent to major regional centres in rural and regional NSW. Coverage guidelines are not specified for other parts of the outer metropolitan area, where low frequency services will continue to be considered. While service coverage guidelines are not specified for non-urban areas, service coverage is to be considered in planning local and/or tailored services.

The guidelines have been revised so that travel is measured to a stop, rather than a route, and is to cover a specified span of hours and service frequency. The coverage guidelines are a minimum and services at the local level may be offered at a greater level.

The service coverage guidelines for outer metropolitan regional cities and urban areas are provided in Table 9.

Table 9 Integrated Public Transport Service Planning – Service Coverage Guidelines for Regional Cities and Urban Areas

Integrated Public Transport Service Planning - Service Coverage Guidelines for Regional Cities and Urban Areas		
	Regional Cities	Urban Areas
Weekday	90% of households to be within 400 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 06:00 – 22:00.	85% of households to be within 800 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 06:00 – 22:00.
Saturday	90% of households to be within 400 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 08:00 – 18:00.	85% of households to be within 800 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 08:00 – 18:00.
Sunday and Public Holiday	90% of households to be within 800 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 09:00 – 18:00	85% of households to be within 800 metres (as the crow flies) of a bus stop, ferry wharf, light rail station or train station between the hours of 09:00 – 18:00.

In non-urban areas where low frequency services are to be considered, factors for consideration have been developed. These provide an evidence based approach to determine the provision of local services within the available resources. The specific factors to be considered are outlined in Table 10.

Table 10 Integrated Public Transport Service Planning – Factors for Consideration for Non-Urban Areas

Public Transport Service Planning – Factors for Consideration for Non-Urban Areas	
Factors	Characteristics
Origin Generators	<ul style="list-style-type: none"> • Population aged 11 – 20 years • Population aged 60 years and over • Student numbers • % of population not holding a drivers licence • % of households with no vehicle • Australian Bureau of Statistics, SEIFA Index of Relative Socio-Economic Disadvantage • NSW Department of Planning and Environment, Projected Annual Population Growth Rate of NSW LGAs
Destination Generators	<ul style="list-style-type: none"> • Location of major regional centres, major towns and towns, and the relationship of the trip origin to these • Location of hospitals and health services • Location of education facilities • Location of transport hubs • Tourist attractors • Retail services and precincts • Specialised precincts and sectors • Land use activities
Customer Assessment	<ul style="list-style-type: none"> • Available transport services (contracted, non-contracted) • Customer benefits and impacts • Consideration of alternatives

There may also be an opportunity for flexible services to be considered as part of service coverage arrangements for the outer metropolitan area.

As part of service coverage an understanding of catchment areas for public transport modes informs the planning and development of public transport services. Further details are provided in Table 11.

Table 11 Integrated Public Transport Service Planning – Service Catchment Areas

Integrated Public Transport Service Planning - Service Catchment Areas		
Travel Pattern	Service Type Attribute	Description
Inter-regional	Travel to cities or other major centres.	Focus is generally on transport to cities or major centres in the adjoining region.
	Focus on train services.	Catchment area is the whole region, requiring passengers to travel to the major centre to access inter-regional services.
Intra-regional	Travel between major centres within the region. Some travel from towns to major centres.	The primary focus of intra-regional travel is between major centres within the region. The secondary focus is from towns to major regional centres.
	Focus on coach, some train services and some bus services.	Catchment area is the major regional centres and major towns. Catchment may be widened by passengers travelling to major centres or where the service operates through villages.
Travel in major centres and towns	Travel within regional cities, centres, major towns and towns. Some travel from villages to towns.	Walking catchment is generally within 800 metres (as the crow flies) of the stop for bus services within a regional city or urban area.
	Focus on bus, ferry and light rail services.	Targeted catchment for travel within major towns and towns, as well as travel between villages, towns, major towns, centres and regional cities.

Service coverage is also a function of the service days and service periods. In order to achieve network simplicity in an integrated network, standard service days and service periods are to be observed when planning for public transport services, as outlined in Tables 12 and 13 respectively.

Table 12 Integrated Public Transport Service Planning – Service Days

Integrated Public Transport Service Planning - Service Days	
Period	Description
Weekday	Monday – Friday
Saturday	Saturday
Sunday	Sunday
Public Holidays	Public holidays, both national and state. Operators advise which timetable will be used. ⁴

⁴ Transport for NSW specifies some train timetables for public holiday periods.

Table 13 Integrated Public Transport Service Planning – Service Periods

Integrated Public Transport Service Planning - Service Periods			
Period	Inter-regional	Intra-regional	Travel in Major Regional Centres and Towns
Overnight	Daily and/or per week, where provided.	Daily and/or per week, where provided.	Additional services provided as required between 18:00 – 08:00.
Base	Daily and/or per week, where provided.	Daily and/or per week, where provided.	Frequent – The base level of services operated 7 days a week from 06:00 – 22:00.
			Standard - The base level of services operated 5 - 7 days a week from 08:00 to 18:00.
			Tailored - tailored services operate as required.
Shoulder	Daily and/or per week, where provided.	Daily and/or per week, where provided.	Shoulder services may operate for an hour pre peak or post peak.
Peak	Daily and/or per week, where provided.	Daily and/or per week, where provided.	The morning peak is 06:00 – 09:00 and the afternoon peak is 15:00 – 18:00 on weekdays excluding public holidays.
			The school peak may create a demand for service that must be managed outside of base service level provision.

The definition of peak periods is taken from the NSW Long Term Transport Master Plan. Peak periods may vary by mode from this definition, however all services are to meet the defined peak period. An extension to the peak service periods may be required for long distance or inter-regional travel, for example to and from Sydney. Where additional peak services are required, services should be delivered as Shoulder period. Where service delivery is varied, the impact on the integrated network needs to be considered.

Local needs may vary from the service periods specified. Where variations to the service periods are considered, evidence of the need for a variation is to be collected and documented.

Across most public transport services, demand varies on Saturday and Sunday with peak demand being experienced at different times on the two days. Demand also varies across public holidays depending on the nature of the holiday. As a result, service days have included Saturday, Sunday and public holidays as different days. When determining which timetable is to be used on a public holiday, Transport for NSW and operators need to take into consideration connecting services and the timetables they will be operating, particularly in relation to where there is an increase or decrease in the number of services provided during a public holiday period.

3.2.3 Service Provision

Service provision considers the components required for quality service delivery and sets out the guidelines that need to be met to achieve this. The service provision guidelines, as outlined in Table 14, should be used as a starting point when planning public transport services across all modes.

Table 14 Integrated Public Transport Service Planning – Service Provision Guidelines

Integrated Public Transport Service Planning - Service Provision Guidelines	
Guideline	Description
Minimum service frequency to be applied.	Minimum mode specific service provision based on scope and role of service, unless it is a tailored service.
Consistent running time between stops.	Unless required due to circumstances such as peaks the running times between stops should be consistent. Where running times are different in the peak they will be consistent in the AM and PM peaks.
Consistent timetable journey time for each trip.	Same journey time from start to finish for each trip. Service operating in base and peak periods may have different journey times to take into account changed conditions. Where journey times are different in the peak they will be consistent in the AM and PM peaks.
Service stopping patterns will be repetitive.	Minimum variants to stopping patterns in the peak and off peak. Where stopping patterns are different in the peak they will be consistent in the AM and PM peaks.
Provide even spacing of services.	Where services are not operated as turn up and go then clock-face, memory timetables should be implemented. Services depart at regular intervals and at the same number of minutes past each hour. Where spacing of services is different in the peak they will be consistent in the AM and PM peaks.
Services will have a consistent span of hours.	This provides a simple and consistent message on all first and last services.
Provide accessible services for all commuters.	Service provision in line with the Transport for NSW Disability Action Plan. Accessible services refer to both the infrastructure (stops and interchanges) and the transport modes.

A connected transport network is also supported through integration of timetables where possible to minimise travel time for customers. Guidelines for this approach are outlined in Table 15.

Table 15 Integrated Public Transport Service Planning – Timetable Integration Guidelines

Integrated Public Transport Service Planning - Timetable Integration Guidelines	
Guideline	Description
Interchange are identified in metro centres/regional cities and major centres/urban areas, with services operating to interchanges.	Identified interchanges with services operating through these improve the opportunity for connectivity between services and modes. Designated interchanges make public transport easier to understand and navigate.
Transfer opportunities should respond to the frequency of connecting public transport services.	Services that meet at a frequency greater than 15 minutes can rely on 'turn-up-and-go' services to facilitate connections. Services that meet at a frequency less than every 15 minutes should be timetabled to the same frequency or a derivative of that frequency. As an example, if a service is operating to a 15 minute frequency, services meeting it should operate at a 15, 30 or 60 minute frequency. Or, if a service is operating to a 20 minute frequency, services meeting it should operate at a 20 or 60 minute frequency or in exceptional circumstances to a 40 minute frequency.
In peak periods, transfers between services should be timetabled at between 5 – 10 minutes.	The proximity of the services and competition for space needs to be taken into consideration when determining the transfer time.
In base periods, transfers between services should be timetabled at between 5 – 15 minutes.	The proximity of the services and competition for space needs to be taken into consideration when determining the transfer time.
Where there are inbound and outbound services, priority for transfers should be given to the service operating in the peak direction.	Where possible, services should be timetabled so that passengers on both inbound and outbound services can transfer. Where this is not possible priority for transfers should be given to inbound services for the morning peak and outbound for the afternoon peak.
All services should focus on the need for connection, either through turn-up-and-go services or timetabled connections.	Particular attention should be given to services with a low frequency or where there are specific traveller needs (eg school student transfers). Connections are generally timetabled to meet but do not wait if a service is running late.
Where multiple services meet, service transfers/timetable integration should be targeted to the most common transfers.	Integration across all services may be difficult at major interchanges where customers come in and leave on a multitude of services. This level of planning requires knowledge of customers' movements.
When transferring between services passengers travelling on an accessible service should expect to transfer to another accessible service without incurring additional journey time.	Transfer between accessible services without a journey time penalty regardless of whether the transfer is between modes or across a single mode.
Consideration is to be given to stopping locations to minimise perceived transfer penalty for customers transferring.	The proximity of stops and ease of transfer can directly influence a customer's perception of the transfer penalty.
The first and last services with the earlier starting or finishing time will have planned transfers.	Planned transfers may not be in place during the day where services are frequent but first and last services should have planned transfers.
The timetable to be used for public holidays will be based on demand, with consideration given to integration with other service types.	Public holiday services operate at a minimum on a Sunday timetable. In determining service levels, demand is considered as well as integration with other service types or timing of seasonal events.

Services provision in non-urban areas is based on need and constrained by available resources. Service provision in non-urban areas needs to consider both when the need justifies service provision and how to provide the required services. Services are to be provided as tailored local services and consider the service provision and timetable integration guidelines where appropriate.

3.2.4 Service Performance

Service performance considers service patronage, operational performance, customer feedback and the rate of take up of new services. It also considers the overall network design and the network's responsiveness to changes in the public transport service environment.

Ongoing service performance monitoring and review is vital to achieving services that meet the needs of the customer and contribute to the overall viability of the network. Service review is generally conducted at a regional or modal level.

The indicators outlined in Table 16 are to be considered when undertaking a service review.

Table 16 Integrated Public Transport Service Planning – Service Performance Indicators

Integrated Public Transport Service Planning - Service Performance Indicators		
Patronage	Total patronage this financial year	Number
	Total patronage previous financial year	Number
	Change in total patronage	Percentage
	Routes with significant growth	Route number, name, % increase
	Routes with significant decline	Route number, name, % decrease
Operational Performance	On-time running this financial year	Percentage
	On-time running previous financial year	Percentage
	Change in on-time running	Percentage
	Boardings per km this financial year	Number
	Boardings per km previous financial year	Number
	Change in boardings per km	Percentage
	Capacity utilisation	Percentage
Customer Feedback	Customer satisfaction	Percentage
	Complaints this financial year	Number
	Complaints previous financial year	Number
	Changes in total complaints	Percentage
	Key complaints raised	Description, percentage
	Key service issues raised	Description
Customer Value Proposition	Time	Yes/No, description
	Comfort	Yes/No, description
Urban Growth	New release areas	Yes/No, precinct name/s
	Development infill and renewal areas	Yes/No, precinct name/s
	Scale	No. of houses / dwellings/ etc
	Time	Years
Operator Feedback	Operational performance	Yes/No, description
	Service considerations	Yes/No, description
Review Outcomes	Service proposals	Description
	Travel time and reliability proposals	Description
	Timetable proposals	Description

A key element of the Government’s urban release strategies is to have public transport services in place from the commencement of development. The early establishment of public transport services is important so that a public transport culture is established from day one. Initial patronage on such services will be low as development progresses.

Starting a new service requires a multi-criteria assessment of the potential demand generation and the impact on any current services. This could consider future population growth, alignment with strategic transport plans, system availability and service operational requirements.

Another element of performance is the level of customer loading on public transport services. Loading guidelines are used to adjust the frequency of services based on loads relative to capacity and minimum service frequencies. Services may operate at a greater frequency than the minimum service frequency guidelines require. Where a service operating at a frequency above the minimum frequency fails to meet the minimum load guidelines, the service should be reviewed with a view to services being reduced. Further details of these indicators are provided at Table 17.

Table 17 Integrated Public Transport Service Planning – Minimum Load Guidelines

Integrated Public Transport Service Planning - Minimum Load Guidelines		
Inter-regional	Intra-regional	Major Regional Centres and Towns
>20% seated capacity	>20% seated capacity	>20% seated capacity, except for targeted services

3.3 Guidelines for Modal Service Planning - Bus

The role of bus in the outer metropolitan area is to provide public transport services for travel in regional cities and urban areas, as well as linkages from villages and other land use activities to these locations. The planning for bus services supports this role through the provision of customer focussed services in existing locations, linking urban growth areas with the existing transport network and targeted access to support local needs.

The integrated public transport service planning guidelines apply across all modes of public transport. In addition to these tools there are a number of bus specific guidelines that need to be considered as part of the integrated planning process.

3.3.1 Service Capacity

In relation to service capacity for bus services, the following guidance is provided when undertaking service planning:

- Where demand is increasing, preference should be given to increasing frequency rather than increasing vehicle capacity
- Where demand is reducing, preference should be given to reducing vehicle capacity rather than reducing frequency.

3.3.2 Service Coverage

The opportunity to provide bus service coverage in regional cities to within 400 metres of 90% of households and in urban areas to within 800 metres of 85% of households will be considered dependent on resources and topographic constraints.

3.3.3 Service Provision

The Outer Sydney Metropolitan Bus System Contract gives Transport for NSW the responsibility for developing contract service levels and approving timetables. Service design will consider service kilometres and hours, operating requirements and the number of available buses. Submissions for a new bus route or a change to a bus route are covered as part of the contract arrangements.

In addition to the integrated public transport service planning guidelines, specific bus service guidelines for service provision and timetable integration are outlined in Table 18 and Table 19 respectively.

Table 18 Bus Service Planning – Service Provision Guidelines

Bus Service Planning - Service Provision Guidelines	
Guideline	Description
Customers should be taken as close as possible to their destination.	At major centres such as shopping precincts stops will be as close as possible to the assumed destination, however complicated or indirect routings should be avoided. At public facilities, such as hospitals, stops will be as close as possible to the main entrance where appropriate infrastructure and access is provided.
Routes should be designed so that they provide a reasonably direct journey for the majority of customers.	Routes generally to be between 30 – 60 minutes in duration. Diversions from the fastest or shortest route (between termini) to be no more than 20% of the time or distance. Deviations in excess of 20% may be considered if the generators near a route are of sufficient size to warrant deviations.
Each route is to be divided into section points.	The range of section point lengths should be between 1.3 km and 1.9 km and the average length of section points within each route should be 1.6 km. Sections should be logical and common across intersecting routes, acknowledging that this may result in some sections being longer or shorter than the range specified.

Table 19 Bus Service Planning – Timetable Integration Guidelines

Bus Service Planning - Timetable Integration Guidelines	
Guideline	Description
Where multiple bus services connect at an interchange, planning for connections should be based on the most common transfers.	Where a number of buses and trains meet, connections should be based on the most common transfers.
For bus to ferry planned transfers buses should arrive at wharves between six and ten minutes before scheduled ferry departure.	The direction of the transfer is generally determined by the time of day, inbound for the morning peak and outbound for the afternoon peak, as well as the most common transfers.
For ferry to bus planned transfers buses should depart wharves between three and ten minutes after scheduled ferry arrival.	The direction of the transfer is generally determined by the time of day, inbound for the morning peak and outbound for the afternoon peak, as well as the most common transfers.
For bus to train or train to bus transfers the recommended transfer time is between five and ten minutes during peak hours and five and fifteen minutes during base periods.	The direction of the transfer is generally determined by the time of day, inbound for the morning peak and outbound for the afternoon peak, as well as the most common transfers.

Bus service planning is also informed by specific minimum service frequency guidelines that are informed by the role of each route as part of the network. These guidelines are outlined in Table 20.

Table 20 Bus Service Planning – Minimum Service Frequency Guidelines

Bus Service Planning – Minimum Service Frequency Guidelines					
	Inter-regional	Intra-regional	Travel to Major Regional Centres and Towns		
			Frequent	Standard	Tailored
Days of Operation	N/A	Varied	7 days	7 days	As required
Weekday Pre-Peak 05:00 – 07:00	N/A	As required	30 mins	30 - 60 mins	As required
Weekday Peaks 07:00 – 09:00 16:00 – 18:00	N/A	As required	15 – 30 mins	30 mins	As required
Weekday Inter-peak (base) 09:00 - 16:00	N/A	As required	15 – 30 mins	60 mins	As required
Weekday Early Evening (base) 18:00 – 22:00	N/A	As required	15 – 30 mins	60 – 120 mins (if in operation for relevant day and/or time period)	As required
Weekday Late Night 22:00 – 24:00 Weekend / Public Holiday Night 19:00 – 22:00	N/A	As required	30 – 60 mins	As required	As required
Weekday Early AM 24:00 – 05:00 Weekend Early AM 22:00 – 07:00	N/A	As required	As required	As required	As required
Weekend and Public Holidays (base) 07:00 – 18:00	N/A	As required	15 – 30 mins	60 – 120 mins (if in operation for relevant day and/or time period)	As required

Unless exceptional cases exist, bus services should operate at no less than the minimum service frequency. Transport for NSW and operators may choose to operate services at greater than the minimum frequency. In circumstances where services are operating at greater than the minimum frequency consideration of connections between public transport services should be undertaken.

3.3.4 Service Performance

In reviewing the performance of bus services, the indicators outlined in Tables 21 and 22 are to be used to ensure the best utilisation of the available capacity. These indicators should be considered in addition to the service performance guidelines across all public transport modes. Reviews are usually conducted at the contract or regional level to ensure integration of services.

Table 21 Bus Service Planning – Service Performance Indicators

Bus Service Planning - Service Performance Indicators			
	Inter-regional	Intra-regional	Travel in Major Regional Centres and Towns
Patronage as a % of legal bus capacity*	N/A	85%	85%
Passengers required to stand**	N/A	N/A	> 20 mins

* At maximum load point and averaged by the number of trips operated during any 20 minute period.

** Averaged over a period of time and taking into account passenger turnover. Where a passenger chooses not to catch a bus due to excessive load or potential excessive standing time they should have a service that gets to their destination no more than 30 minutes earlier or later than the original service.

Table 22 Bus Service Planning – On-Time Running Guidelines

Bus Service Planning - On-Time Running Guidelines	
Key Performance Indicators	Definition
At least 95% of Published Timetable Trips and Headway Trips commence each Trip On Time.	Trip On Time means, for Published Timetable Trips, a Contract Bus departing a Transit Stop no more than 1 minute 59 seconds early and no more than 5 minutes 59 seconds late compared to Timetable or for Headway Trips means commencing each Headway Trip within 5 minutes 59 seconds of published Headway.*
At least 95% of Published Timetable Trips and Headway Trips leave the mid-point Transit Stop on each Trip On Time.	Informed by Sydney Metropolitan Bus Service Contract.
<5% of Published Timetable Trips arrive at the last Transit stop of each Trip Late.	Informed by Sydney Metropolitan Bus Service Contract.

* Definition taken from the Outer Sydney Metropolitan Bus Service Contract.

Source: Transport for NSW, 2014(d)

In instances where public transport service patronage falls below a defined level, bus services may continue to be provided to meet coverage requirements. However service planning would also be used to review the most appropriate mode of transport or the characteristics of a service.

3.4 Guidelines for Modal Service Planning - Government Funded Coach

The role of government funded coaches in the outer metropolitan area is to provide intra-regional public transport services, with the primary focus on travel between centres and transport hubs within the region. Where inter-regional travel is not provided by trains, this role is also undertaken by government funded coaches. The planning for government funded coach services supports this role through the provision of services along former rail corridors, connections with inter-regional train services and being responsive to changing inter-regional and intra-regional needs of customers. Coaches also provide an opportunity to better complement rail services by providing connections from smaller communities to major centres which can be the focus of express services.

The integrated public transport service planning guidelines apply across all modes of public transport. In addition to these tools there are a number of government funded coach specific guidelines that need to be considered as part of the integrated planning process.

3.4.1 Service Capacity

In relation to service capacity for government funded coach services, the following guidance is provided when undertaking service planning:

- Where demand is increasing, preference should be given to increasing frequency rather than increasing vehicle capacity
- Where demand is reducing, preference should be given to reducing vehicle capacity rather than reducing frequency.

3.4.2 Service Coverage

No additional government funded coach service planning guidelines are provided.

3.4.3 Service Provision

Government funded coach service contracts between Transport for NSW and operators outline responsibilities for developing contract service levels and approving timetables. From a contractual perspective service design will consider service kilometres and hours, operating requirements and the number of available coaches. Submissions for a new coach route or a change to a coach route are covered as part of the contract arrangements.

Coach services that are not funded by Transport for NSW are not covered by these service planning guidelines as arrangements are undertaken by the private coach operator.

In addition to the public transport service planning guidelines, specific government funded coach service guidelines on service provision are outlined in Table 23.

Table 23 Government Funded Coach Service Planning – Service Provision Guidelines

Government Funded Coach Service Planning – Service Provision Guidelines	
Guideline	Description
Intra-regional travel allows for a return trip to be made on the same day	Arrival and departure times allow for a return trip to be made on the same day, with sufficient time at the destination. The time allowed at the destination considers the range of activities to be undertaken at major regional centres and time of day where possible.
Customers should be taken as close as possible to their destination	At major centres and interchanges, stops will be as close as possible to the assumed destination/s, however complicated or indirect routings should be avoided.
Routes should be designed so that they provide a reasonably direct journey for the majority of customers	Diversions from the fastest or shortest route (between termini) to be no more than 20% of the time or distance. Deviations in excess of 20% may be considered if the generators near a route are of sufficient size to warrant deviations.

Stopping patterns, days of operation and service frequency will be considered on a case-by-case basis, taking into account intra-regional travel patterns, including connections with rail services and access to services in urban areas.

3.4.4 Service Performance

In reviewing the performance of government funded coach services, the indicators outlined in Table 24 are to be used. These indicators should be considered in addition to the service performance guidelines across all public transport modes. Reviews are generally undertaken at a contract or regional level to ensure integration of services.

Table 24 Government Funded Coach Service Planning – Service Performance Indicators

Government Funded Coach Service Planning – Service Performance Indicators			
	Inter-regional	Intra-regional	Travel in Major Regional Centres and Towns
Patronage as a % of legal coach capacity*	N/A	85%	N/A
On time running	N/A	90% +/- 10 minutes	N/A

* At maximum load point and averaged by the number of trips operated during any 20 minute period.

In instances where patronage exceeds the service performance indicators consideration should be given to increasing service frequency. Preference should be given to increasing frequency rather than increasing vehicle capacity.

3.5 Guidelines for Modal Service Planning - Ferry

The role of ferry services in the outer metropolitan area is to provide commuter and leisure access to targeted locations in the Central Coast and Newcastle regions.

The integrated public transport service planning guidelines apply across all modes of public transport. In addition to these tools, there are a number of ferry specific guidelines that need to be considered as part of the integrated planning process.

3.5.1 Service Capacity

No additional ferry service planning guidelines are provided.

3.5.2 Service Coverage

No additional ferry service planning guidelines are provided.

3.5.3 Service Provision

Contracted ferry services give Transport for NSW the responsibility for developing contract service levels and approving timetables. Service design will consider service hours, operating requirements and fleet availability. Submissions for a new ferry route, extended ferry route or change to a ferry route are covered as part of the contract arrangements.

Deregulated, charter and tourist ferry services are not covered by these service planning guidelines as arrangements are undertaken by the ferry operator.

In addition to the integrated service planning guidelines, specific ferry service guidelines on service provision, timetable integration and service frequency are outlined in Table 25, Table 26 and Table 27 respectively.

Table 25 Ferry Service Planning – Service Provision Guidelines

Ferry Service Planning - Service Provision Guidelines	
Guideline	Description
Routes should be designed so that they provide a reasonably direct journey for the majority of customers.	The journey should be no more than 25% greater than the direct marine path.

Table 26 Ferry Service Planning – Timetable Integration Guidelines

Ferry Service Planning - Timetable Integration Guidelines	
Guideline	Description
For wharves with frequent bus services within walking distance ferries do not need to be timetabled to meet buses.	Where bus services operate at a frequency of 15 mins or more frequently buses and ferries do not need to be timetabled to meet. Walking distance is considered to be distances up to 800 metres.
For planned transfers from bus to ferry, ferry services should depart the wharf between six and ten minutes after scheduled bus arrival.	The direction of the transfer is generally determined by the time of day, inbound for the morning peak and outbound for the afternoon peak, as well as the most common transfers.
For planned transfers from ferry to bus, ferry services should arrive between three and ten minutes before scheduled bus departure.	The direction of the transfer is generally determined by the time of day, inbound for the morning peak and outbound for the afternoon peak, as well as the most common transfers.

Table 27 Ferry Service Planning – Minimum Service Frequency Guidelines

Ferry Service Planning - Minimum Service Frequency Guidelines		
Service Type	Newcastle to Stockton	Other contracted services
Days of Operation	7 days	As required
Weekday Pre-Peak 05:00 – 07:00	30 mins (if in operation for relevant day and/or time period)	As required
Weekday Peaks 07:00 – 09:00, 16:00 – 18:00	30 mins	As required
Weekday Inter-Peak (base) 09:00 – 16:00	30 mins	As required
Weekday Early Evening (base) 18:00 – 22:00	30 mins (if in operation for relevant day and/or time period)	As required
Weekday Late Night 22:00 – 24:00	30 mins (if in operation for relevant day and/or time period)	As required
Weekday Early AM 24:00 – 05:00	As required	As required
Weekend Early AM 22:00 – 07:00		
Weekend and Public Holidays (base) 07:00 – 19:00	30 mins (if in operation for relevant day and/or time period)	As required
Weekend / Public Holiday Night 19:00 – 22:00	30 mins (if in operation for relevant day and/or time period)	As required

Unless exceptional cases exist, ferry services should operate at no less than the minimum service frequency. Transport for NSW and the operator may choose to operate services at greater than the minimum frequency. In circumstances where services are operating at greater than the minimum frequency, these need to consider the impact on connecting services.

3.5.4 Service Performance

In reviewing the performance of ferry services, the indicators outlined in Table 28 and Table 29 should be used to ensure the best utilisation of the available capacity. These indicators should be considered in addition to the service performance guidelines across all public transport modes. Reviews are generally undertaken at a contract or regional level to ensure integration of services.

Table 28 Ferry Service Planning – Service Performance Indicators

Ferry Service Planning - Service Performance Indicators	
Peak patronage as a % of vessel capacity*	80%
Base patronage as a % of vessel capacity	40%
Passengers required to stand**	> 20 mins

* At maximum load point and averaged by the number of trips operated during any 20 minute period.

** Averaged over a period of time and taking into account passenger turnover.

Table 29 Ferry Service Planning – On-Time Running Guidelines

Ferry Service Planning - On-Time Running Guidelines	
Key Performance Indicators	Definition
95% of services run on time	On time means actual services departing within 5 minutes of the scheduled departure, measured at all points of departure. Transport for Newcastle services are exempt where intermodal journeys are delayed waiting for a connecting service.

3.6 Guidelines for Modal Service Planning - Light Rail

The role of light rail is to provide access through the Newcastle CBD between Wickham transport interchange and Pacific Park, with the potential for future extensions over time.

The integrated public transport service planning guidelines apply across all modes of public transport. In addition to these tools, there are a number of light rail specific guidelines that need to be considered as part of the integrated planning process.

3.6.1 Service Capacity

No additional light rail service planning guidelines are provided.

3.6.2 Service Coverage

No additional light rail service planning guidelines are provided.

3.6.3 Service Provision

The light rail contract for Newcastle is part of the Integrated Service Operator. Service design will consider service hours, operating requirements and the number of light rail vehicles available.

In addition to the integrated public transport service planning guidelines, specific light rail service guidelines for service frequency is outlined in Table 30.

Table 30 Light Rail Service Planning – Minimum Service Frequency Guidelines

Light Rail Service Planning - Minimum Service Frequency Guidelines				
Service Type	Newcastle Light Rail			
Days of Operation	7 days			
Average Stop Spacing	400 – 800 m			
Time Period	Monday to Friday	Saturday	Sunday	Public Holiday
05:00-07:00	15 minutes	30 minutes	30 minutes	30 minutes
07:00-19:00	10 minutes	15 minutes	15 minutes	15 minutes
19:00-24:00	15 minutes	15 minutes	30 minutes	30 minutes
00:00-01:00	30 minutes	30 minutes	30 minutes	30 minutes
01:00-05:00	Nil	Nil	Nil	Nil

Unless exceptional cases exist, light rail services should operate at no less than the minimum service frequency. Transport for NSW and the operator may choose to operate services at greater than the minimum frequency. In circumstances where services are operating at greater than the minimum frequency, these need to consider the impact on connecting services.

3.6.4 Service Performance

In reviewing the performance of light rail services the indicators outlined in Table 31 and 32 should be used to ensure the best utilisation of the available capacity. These indicators should be considered in addition to the service performance guidelines across the public transport modes. Reviews are generally undertaken at a contract or regional level to ensure integration of services.

Table 31 – Light Rail Service Planning – Service Performance Indicators

Light Rail Service Planning - Service Performance Indicators	
Capacity	6 people standing per square metre
Indicator for review	4 people standing per square metre

Table 32 – Light Rail Service Planning – On-Time Running Guidelines

Light Rail Service Planning - On-Time Running Guidelines	
Key Performance Indicators	Definition
Punctual for $\geq 97\%$ of revenue services.	Punctual means a Contract Vehicle arriving within 60 seconds of the defined end to end journey time. A trip which is cancelled or skips stops does not count as punctual.

3.7 Guidelines for Modal Service Planning - Train

The role of train services is to provide inter-regional access to Sydney and intra-regional access within each outer metropolitan area. Figure 6 shows the train network design hierarchy, with Tier 3 Intercity representing train service for the outer metropolitan area. Regional trains also operate in some areas, such as the Lower Hunter.

Figure 6 Train Network Design Hierarchy

TIER 1: Rapid Transit	TIER 2: Suburban	TIER 3: Intercity
<ul style="list-style-type: none"> Frequent 'turn up and go' services without the need for consulting a timetable Fast single deck trains, with plenty of seats, more doors, designed for easy boarding and alighting. 	<ul style="list-style-type: none"> Timetabled services Double deck trains with more seats per train. 	<ul style="list-style-type: none"> Timetabled services Double deck trains for Central Coast, Newcastle, Wollongong and Blue Mountains services Comfortable services for long distance commute and leisure travel with on-board facilities for improved customer convenience.

Source: Transport for NSW 2012(e)

The integrated public transport service planning guidelines apply across all modes of public transport. In addition to these tools, there are a number of train specific guidelines that need to be considered as part of the integrated planning process.

3.7.1 Service Capacity

No additional train service planning guidelines are provided.

3.7.2 Service Coverage

No additional train service planning guidelines are provided.

3.7.3 Service Provision

Train contracts for services for the outer metropolitan area give Transport for NSW the responsibility for developing contract service levels and developing master timetables. Service design will consider service hours, operating requirements and the number of trains available. Submissions for a new train service or change to a train service are covered as part of the contract arrangements.

In addition to the integrated public transport service guidelines, specific train guidelines on service provision, timetable integration and service frequency are outlined in Tables 33, 34 and 35 respectively.

Table 33 Train Service Planning – Service Provision Guidelines

Train Service Planning - Service Provision Guidelines	
Guideline	Description
All first trains will stop all stations.	Informed by current and planned transfer arrangements.
All last trains will stop all stations.	Informed by current and planned transfer arrangements.

Table 34 Train Service Planning – Timetable Integration Guidelines

Train Service Planning - Timetable Integration Guidelines	
Guideline	Description
For bus to train or train to bus the recommended transfer time is between five and ten minutes during peak hours and five and fifteen minute during base periods.	Informed by current and planned transfer arrangements.
For train to train the recommended transfer time is between five and ten minutes during peak hours and five and fifteen minute during base periods.	Informed by current and planned transfer arrangements.

Table 35 Train Service Planning – Minimum Service Frequency Guidelines

Train Service Planning – Minimum Service Frequency Guidelines			
Tier and Service Type	Suburban*	Intercity	Regional
Stopping pattern	Mixed stopping patterns	Mixed stopping patterns	Mixed stopping patterns
Days of operation	7 days	7 days	7 days
Weekday Pre-Peak 05:00 – 06:00	As required	As required**	As required
Weekday Peaks 06:00 – 09:00 15:00 – 18:00	15 - 30 mins	15 – 30 mins**	As required
Weekday Inter-Peak (base) 09:00 – 15:00	30 – 60 mins	30 – 60 mins	As required
Weekday Early Evening (base) 18:00 – 22:00	60 mins	60 mins	As required
Weekday Late Night 22:00 – 24:00	As required	As required	As required
Weekend / Public Holiday Night 19:00 – 22:00			
Weekday Early AM 24:00 – 05:00	As required	As required	As required
Weekend Early AM 22:00 – 07:00			
Weekend and Public Holiday (Base) 07:00 – 19:00	30 - 60 mins	60 mins	As required

* Refers to Suburban train services that may operate in the outer metropolitan area

** Consideration is to be given to arrival time

Unless exceptional cases exist, train services should operate at no less than the minimum service frequency. Transport for NSW and the operator may choose to operate services at greater than the minimum frequency. In circumstances where services are operating at greater than the minimum frequency, these need to consider the impact on connecting services.

3.7.4 Service Performance

In reviewing the performance of train services, the indicators outlined in Tables 36 and 37 should be used to ensure the best utilisation of the available capacity. These indicators should be considered in addition to the service performance guidelines across all public transport modes. Reviews are generally undertaken at a sector level or across the network to ensure integration of services.

Table 36 Train Service Planning – Service Performance Indicators

Train Service Planning - Service Performance Indicators			
Indicator	Tier and Service Type		
	Suburban*	Intercity	Regional
Capacity	70% seated 30% standing	70% seated 30% standing	70% seated 30% standing
Passengers required to stand	> 20 minutes**	> 20 minutes**	> 20 minutes**

* Refers to Suburban train services that may operate in the outer metropolitan area

** Where a passenger chooses not to catch a train due to excessive load or potential excessive standing time, they should have a service that gets to their destination no more than 15 minutes earlier or later than the original service

Table 37 Train Service Planning – On-Time Running Guidelines

Train Service Planning - On-Time Running Guidelines	
Key Performance Indicators	Definition
Punctual for ≥ 92% of Suburban train services	On-time tolerance means 5:00 minutes.
Punctual for ≥ 92% of Intercity train services	On-time tolerance means 6:00 minutes.
Punctual for ≥ 78% of Regional train services	On-time tolerance means 10:00 minutes.

Source: Transport for NSW, 2012(d)

3.8 Transport for Newcastle

A new approach to transport delivery in Newcastle is underway, with an integrated operator to plan and operate buses, ferries and light rail services, and Wickham transport interchange. The focus of having a single operator is to work closely with the community to improve services and increase patronage by making public transport a more attractive option.

At a strategic level, public transport in Newcastle will aim to:

- Integrate with the urban renewal initiatives by Urban Growth NSW to improve the city centre to become an attractive place for residents, workers and visitors
- Encourage urban renewal including higher density, mixed use offices, residential and commercial projects within the city centre and along the route of the light rail
- Promote a higher mode share for public transport with commuters to the city centre using the bus or train services to connect to the light rail services to Wickham
- Enhance the liveability of Newcastle by improving the accessibility and amenity along the route of the light rail
- Reduce traffic congestion and improve pedestrian and cyclist amenity by discouraging car parking demand within the city centre

At a service design and implementation level, the Integrated Public Transport Service Planning Guidelines for the outer metropolitan area will complement the work of the Transport for Newcastle by providing guidance on areas not covered under their contract.

3.9 Service Planning Interfaces

Public transport services operate in a broad environment and directly and indirectly interface with other services. These services need to be taken into consideration as part of the integrated planning process.

3.9.1 Interchanges

Interchanges are places where people join or leave the public transport system, or transfer between train, bus, ferry, light rail or other transport services. Effective transfer is essential as there will not be direct transport for every journey. Transferring between services will be taken into consideration in service planning. Interchanges should offer seamless transfer opportunities.

Customers required to transfer between services perceive transfers as being inconvenient. This is often referred to as a transfer penalty or may be known as a time cost penalty or travel time value. Reed (1995) found that travellers perceive one minute of wait time as equivalent to 1 ½ to 2 minutes of transit time. The customer's experience of a transfer has a direct impact on the perceived extra travelling time that the change costs. Fare penalties, delay-inducing features such as fare gates, vertical transfers (involving escalators or stairs), road crossings and the quality of the waiting environment all add to the perceived penalty.

In order to reduce the perceived transfer penalty, configuration of the connection needs to be considered. For example where a high volume of people transfer from one bus service to another the bus stops should be located as conveniently as possible.

3.9.2 Active Transport

Active transport includes walking and cycling. An integrated approach to public transport service planning will be aware of these needs when planning normal route services.

3.9.3 Community Transport

Community transport provides a range of supplementary and specialised services across the outer metropolitan area that respond to the specific needs of the community. These services are provided by a range of transport operators.

An integrated approach to public transport service planning will be aware of these needs when planning normal route services.

3.9.4 School Services

The School Student Transport Scheme (SSTS) provides subsidised travel for eligible school students on train, bus and ferry services in the outer metropolitan area. Subsidised travel is available between home and school on school days.

As a general principle, dedicated school services should be kept to a minimum in order to maximise the frequency and availability of normal route services. School locations and the number of students travelling by public transport are to be considered in determining the need for dedicated school services. Dedicated school services may be justified when:

- Placing students in large numbers on regular passenger services would exceed the maximum passenger loading criteria
- Schools are located at a distance that precludes students walking from the regular route drop off point to the school
- The opportunity exists to hub students of a school or set of schools into a regional or urban centre and transfer to dedicated school specials
- Placing students on another transport mode would significantly adversely affect that mode

An integrated approach to public transport service planning will consider the needs of school students as part of normal route services.

3.9.5 Security and Emergency Management

Transport for NSW is the lead agency for the development and coordination of security and emergency plans and strategies for transport agencies. Security and emergency management contributes to the overall customer experience by ensuring cross modal security standards, guidelines and procedures that are operationalised by transport agencies.

In the event of an emergency or security incident transport operators will aim to maintain route services, with the public being directed to use these where possible. Operators may need to provide route services that operate around exclusion zones or provide disrupted services. Safety of staff and customers should be an operator's first consideration in determining service provision during an incident.

Customer personal safety and security, both actual and perceived, is addressed in the Transport for NSW document 'TCS200 Customer Standards: Personal Safety and Security on Public Transport'. Customer standards refer to the standards of service that customers should expect from all public transport modes. The document is aimed at stakeholders and transport operators and highlights what is required to be delivered for the customer. The document is intended to be the first 'standards' document read by any stakeholder planning an operational or infrastructure change and will complement other relevant technical standards.

Table 38 outlines relevant integrated public transport service planning considerations that relate to security and emergency management.

Table 38 Security and Emergency Management Planning

Security and Emergency Management Planning	
Task	Outcome
Review major hazard facilities in NSW.	Identify major hazard facilities in the operating area.
Review Emergency Risk Management Study produced by Local Emergency Management Committee.	Identify local hazards and risks in the operating area, particularly those on major transport corridors.
Consider identified local hazards and risks during route planning.	Where appropriate transport routes avoid known potential hazards. Where transport routes traverse potential hazardous areas, operators plan and test alternative route options for use during an incident.
Review TCS200 Customer Standards: Personal Safety and Security on Public Transport.	The Customer Outcomes of the Standards are delivered.

3.9.6 Other Transport Services

The public transport network, consisting of bus, ferry, light rail and train services, is complemented by other privately operated transport services. These additional services complement the network and provide targeted services for specific groups in the community. Privately operated services include:

- Point to point services
- Council run services (eg shopper shuttles)
- Long distance coach services
- Commercial ferry services
- Employer funded services
- Self funded services (eg school owned buses)
- Taxis and hire cars
- Tourist services
- Courtesy services
- Regional air services

These services may complement existing public transport services or may be operating to fill a service gap. The impact on these transport services when introducing or changing service provision in a region should be considered as part of the integrated public transport service planning approach.

3.9.7 Car Parking

A range of on-street and off-street car parking arrangements are in place to access the public transport network. The availability of car parking to access the public transport network can influence the level of customer demand for services. An integrated approach to service planning will consider the role of car parking as part of normal route services.

3.9.8 Major Events

A number of major events are held in the outer metropolitan area each year, with the movement of large numbers of people by public transport. Special arrangements are in place for the development of traffic and transport management strategies for major

events. These event specific arrangements are separate to integrated public transport service planning for normal route services.

3.9.9 Disability Standards for Accessible Public Transport

The Disability Standards for Accessible Public Transport are prescribed under section 31 of the Disability Discrimination Act (DDA). The purpose of the Transport Standards is to provide a structure for planning and achievement over time of accessibility of all public transport services. Transport for NSW is committed to compliance with the Standards.

The Transport for NSW Disability Inclusion Action Plan sets out a process of continuous improvement to deliver high quality services to all customers including those with disability or limited mobility. The actions of the plan are to be considered when undertaking integrated public transport service planning.

3.9.10 Land Use Considerations

The outer metropolitan area is constantly changing. There are regular upgrades and additions to the existing infrastructure, including changes in land use in urban areas as well as increases in residential density along transport corridors in the regional cities and some urban areas. These changes need to be taken into account when considering changes to the public transport network.

In existing areas, public transport service planning needs to identify opportunities for improved public transport services to key centres in line with the strategic directions within the NSW Long Term Transport Master Plan. These opportunities should reflect the level of public transport services provided and the ability to increase the number of people located within 30 minutes of a major centre by public transport.

In new growth areas, public transport services should be available to residents as early as possible after they move in. The early introduction of services provides residents with an alternative to car use and helps to establish public transport use in the area.

3.10 Application of Service Planning Framework

The guiding principles and guidelines outlined in these integrated public transport service planning guidelines are to be used by Transport for NSW to inform the development and implementation of public transport service improvements. These include network reviews, route changes and the introduction of new services to the network.

4. REFERENCES

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5. GLOSSARY

GLOSSARY	
Term	Definition
Clock-face timetable	A service pattern where services depart at regular intervals, and thus at the same number of minutes past each hour.
Community transport	Programs and services that provide essential transport to allow disadvantaged groups to access essential services and social contact where conventional public transport systems are not generally viable or appropriate.
Connecting service	Where two or more services are timetabled to meet. The time taken to transfer between services is taken into consideration and may be directed at either boarding or alighting customers or resting time may be timetabled to allow the transfer of customers between services.
Framework	A structure for supporting or enclosing something. A fundamental structure as for written work. A structural plan or basis of a project.
Guidelines	A statement or other indication of policy or procedures by which to determine a course of action. A detailed plan or explanation to guide you in determining a course of action.
Hire car	A hire car is a motor vehicle, other than a bus or taxi, that provides a public passenger service, other than a regular passenger service, a long-distance service, a charter service or a tourist service.
Integration / transport integration	All modes of public transport operate as one seamless entity for the benefit of the fare paying customer. A seamless journey that is as door to door as possible.
Interchange	A facility to transfer from one mode of transport, or one transport service, to another. This can include a major train station or bus facility. See transfer.
Long distance coaches	A deregulated public passenger service conducted according to regular routes. Each passenger is carried for at least 40 km.
LTTMP	NSW Long Term Transport Master Plan.
Memory timetable	A timetable that is easy to remember as departure times are consistent across some or all of the transport periods.
Mode	The type of vehicle or method used for a trip (e.g. train, bus, car, motorbike, cycle, ferry, walking).
Non-urban area	Areas outside of the Regional Cities and Urban Areas identified by Department of Planning and Environment.
Point to point transport	'Point to point transport' is a broad term that includes all the flexible transport services that can take customers on the route they choose, at the time that suits them. Types of point to point transport include taxis, hire cars, tourist services, rideshare services and community transport.
Principles	A rule or standard. A fixed or predetermined policy or mode of action.
Public passenger service	A public passenger service is the carriage of customers for a fare or other consideration by motor vehicle along a road or by vessel.
Public transport leg	A single trip within a journey taken on public transport.

GLOSSARY	
Term	Definition
Pulse timetabling	Services are scheduled to meet together. Generally all services dwell, allowing passengers to transfer between services. Pulse timetabling is particularly effective where services operate at a low frequency and traffic congestion does not affect running times.
RTP	Regional Transport Plan.
Regional air services	Regional air services provide passenger air services to communities without sufficient demand to attract mainline services. Provide links to rural and regional centres across NSW. The NSW Government regulates intrastate air routes by limiting competition on low volume routes and licensing these routes on a one-route one-licence basis. Higher volume routes are deregulated.
Regional cities	The cities of Newcastle, Gosford and Wollongong identified by Department of Planning and Environment.
School service	A service that operates to transport primary or secondary students to or from school or for other school purposes.
Transfer	Moving from one public transport trip to another as part of an overall journey. See Interchange.
Transport for Newcastle	An integrated operator for bus, ferry and light rail services, and interchanges in the Newcastle area.
Turn-up-and-go	High frequency public transport services, where the timetable is less significant and customers can simply turn up and go. Services with a frequency of 15 minutes or better are considered to be turn up and go in these guidelines.
Urban area	Existing and planned urban development areas identified by Department of Planning and Environment.