Integrated Transport Direction
PLANNING, PROTECTION AND MANAGEMENT OF THE SHIRE’S TRANSPORT
The Integrated Transport Direction was adopted by Council on 11 May 2010 Minute No.282.

This document represents the collaboration of information from a number of sources, including Government Plans and Policies, and plans and policies of the Hills Shire Council.

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Executive Summary
INTEGRATED TRANSPORT DIRECTION

The Integrated Transport Direction provides the overall strategic context for planning and management of the transport system throughout the Shire and how residents move about in response to their daily activities.

It focuses on the need to manage and balance urban growth so that residents can get to where they need to go and have a range of integrated travel options under a backdrop of growth to 2031.

Transport, in particular public transport, is considered to be one of the key issues facing the Hills Shire, and the entire North West Region of Sydney. The development of a sensible range of transport options that are efficient, accessible and connected is needed to achieve balanced urban growth in the Shire and improve quality of life.

This document sets out five key directions to give Council and stakeholders a clear strategy to develop and manage the Shire’s transport system that meets the needs of the community.

KEY DIRECTIONS AND OBJECTIVES

T1 Plan and manage the Shire’s transport network to meet community needs
- Ensure that planning and future development supports the provision of an efficient transport network.
- Respond to the transport needs of population and employment growth in the Shire in an effective and timely manner.

T2 Facilitate delivery of a cohesive transport network
- Encourage major transport infrastructure to assist movements at a regional level.
- Provide for transport infrastructure to serve, support and connect local destinations.

T3 Promote and enhance sustainable travel choices
- Enhance the attractiveness of the public transport network as a travel option.
- Promote the availability and accessibility of alternative transport options.
- Guide the supply and management of parking to support sustainable transport use.

T4 Plan for an integrated transport network for new areas
- Guide the planning and delivery of new transport facilities and services to support new areas.

T5 Encourage quality transport outcomes
- Contribute to the development of a transport network that is safe and accessible to all users.
- Ensure the protection of cultural heritage along transport corridors.
This document identifies the range of transport solutions that are required to address transport needs in the Shire. It addresses the various adjustments to land use zones and development controls, and outlines what is required to reinforce the provision of Shire-wide transport infrastructure and improve the functionality of town centres.

Achieving a viable, connected and less car-reliant community requires good planning and investment in reliable transport infrastructure, as well as acceptance and behavioural change within the community. Reliance on car transport alone will limit the growth and potential of the Shire. The absence of the North West heavy rail, integrated bus network and a lack of road improvements is deterring business confidence and is a factor when new businesses choose not to make the Hills their new home.

The Integrated Transport Direction responds to travel demand, the limited public transport options, the ability to influence travel choices and opportunities to improve outcomes in terms of safety and accessibility.

The formulation of the Integrated Transport Direction involved a review of State Government policies, including the Metropolitan Strategy and Draft North West Subregional Strategy in addition to Council’s Community Strategic Direction and local strategy work, in particular that relating to residential and employment lands development. The planning and delivery of an integrated transport framework is important for achieving sustainable population and employment growth, vibrant centres and connected communities.

In order to provide some baseline data around transport infrastructure and behaviour, an Integrated Transport Study was undertaken by consultants SCAPE in August 2009 to inform the development of the Integrated Transport Direction. The findings of this research have lead to the development of a Structure Plan and an Urban Structure Plan to illustrate the findings and key directions of the Integrated Transport Direction.

**CHALLENGES AND TRENDS FOR THE SHIRE**

There are many challenges for the planning and management of transport in the Hills Shire. Transport network planning needs to focus on providing an accessible, reliable, and sustainable service for a growing population and changing community needs.

**Challenges**

Key challenges which can affect Council’s ability to achieve significant change in some areas include:

- The absence of major public transport infrastructure.
- Limited data on demand for trips other than journey to work trips.
- High levels of car dependency and parking provision.
- Limited capacity to influence travel behaviour.
- Constraints such as established road networks, topographic and environmental features.
- Mismatch between characteristics and skill set of the resident labour force compared to jobs available in the area.
- Need for workable collaborations and partnerships with State Government and business.
- Macroeconomic conditions and policies which can impact on travel affordability and demand.
- The changing nature of environmental and planning legislation at all levels of government.

**Trends**

Feedback provided in the preparation of the Hills 2026 Community Strategic Direction indicated the community’s desire for business growth and employment opportunities, better public transport and improvements to traffic congestion.

Trends that influence transport usage and require consideration in determining transport solutions in the Hills Shire include:
- **Environmental awareness**: There is an increasing awareness within the community of the need to reduce greenhouse gas emissions and mitigate the effects of vehicles on air quality.

- **Rising fuel and energy prices**: Rising fuel and energy prices will result in higher costs for goods and services. Car dependent communities such as those in the Hills Shire are particularly vulnerable. This is reflected in the operating results of transport agencies such as City Rail and State Transit that saw an increase in patronage of 5.7% and 3% respectively, during the 2007-2008 period when fuel prices soared.

- **Economic growth and change**: Increased global business opportunities require effective links to Sydney to be available. There is a need to recognise and respond to the Shire’s role in the wider economic region and the changing ways of doing business. The development of business parks along the motor transport corridors of Sydney reflects the emergence of Sydney as a global city. With the M2 Motorway forming the northern spine of the global arc (higher order employment) there are opportunities for the Shire to participate in some of the economic benefits. It is important to ensure that efficient linkages are developed and maintained between the Shire, the Sydney CBD and Sydney Airport and provide for the ongoing demand for suitable commercial/business park space.

- **Changes in travel behaviour**: Consumer preferences are shifting towards public transport as a travel option. This is a result of increased traffic congestion and delays, air and noise pollution, the cost of fuel and tolls that are making public transport, where available, a more attractive option for commuters. The trend is part of a longer term global change in travel behaviour and Council needs to focus on infrastructure priorities that capitalise on changing travel preferences.

- **Lifestyle trends**: The increasing importance of centres as a location for small business and as a recreation, entertainment and social destination have made the Shire’s centres important destinations. Council needs to continue to plan these centres to ensure they support the range of uses needed by the community.

- **Demographic change**: The strong relationship between an area’s travel demand and demographic characteristics means there is a need to focus on alternative modes of travel and ease of access to support an ageing population as mobility declines.

It is also important to respond to the travel habits of the Shire’s youth to ensure that current car based travel habits do not continue to dominate into the future.

**AN INTEGRATED TRANSPORT SOLUTION**

With the Shire expected to experience a significant increase in population and employment opportunities over the next 25 years, considerable strain will be placed on the existing transport network. Managing this growth and achieving a balanced outcome for the community is paramount.

The solution involves elements that can be identified as:

- **Regional**: Such actions that are difficult for Council to achieve alone and require partnership with government or business.

- **Shire Wide**: These actions require Government support but can be initiated and coordinated by Council.

- **Local Area**: These actions can be realised by Council.

These elements cover all modes of transport. Supporting infrastructure for each particular transport mode will require a range of actions by Council.

When combined they provide a package that is vital to the development of not only the Hills
Shire, but also the North West region of Sydney. The package is designed to provide greater connectivity between centres and accessibility to employment, leisure activities and shopping for the residents of the region.

**Air transport**

The development of a modern local economy in the Hills Shire would be assisted by improved accessibility to air travel, particularly for domestic business travel. The Australian Government is developing a national aviation policy to guide the aviation industry’s growth over the next decade and beyond. It includes objectives to meet future aviation needs of the Sydney region through the provision of additional aviation capacity, effectively integrated with future land transport and other infrastructure developments.

Richmond RAAF Base could potentially deliver a significant regional air transport asset, providing for a small scale operation of commercial flights. Investigation of this opportunity will require Council to lobby both State and Federal governments for support and funding.

**Rail Projects**

Whilst Council’s Employment Direction is focused on improving employment opportunities within the Shire, other centres throughout the metropolitan area are likely to remain significant trip attractors to the Hills residents as employment locations. Therefore, rail is the keystone in the Hills Shire package as it provides important links with areas such as the Sydney CBD, Macquarie Park employment area and Parramatta. In addition, it will also provide vital linkages between the Shire’s major centres (Castle Hill and Rouse Hill) and the Norwest Business Park. The delivery of the North West heavy rail must involve enhanced bus networks and provide a convenient alternative to moving around by private car.

To cater for the projected growth in the Hills Shire and in fact the entire North West region, it is important that rail infrastructure projects be completed within the next decade. This timeframe is essential to ensure that Sydney’s growth is sustainable with jobs provided close to where people need them and to see a reduction in congestion across the entire metropolitan area.

The rail links essential to the future development of the Hills Shire are:

- **Construction of the Epping to Rouse Hill rail line**

  It is preferable that this line should be a heavy rail link, rather than a Metro line. The heavy rail option currently has concept approval. Two additional stations should be included at the intersection of Norwest Boulevarde/Lexington Drive to serve the southern precinct of the Norwest Business Park, and Samantha Riley Drive at Old Windsor Road.

- **Extension of the rail line from Rouse Hill to Vineyard**

  Commitment should be given by Government to construct this link, which must extend through the Box Hill Urban Release Area and contain stations to service the future employment precinct and the residential precinct.

  It is vital that decisions on the route of this line be finalised prior to completion of planning for the North West Growth Centre areas, or the opportunity to connect the rail network to areas requiring quality transport options will be lost.

- **Construction of the rail link between Epping and Parramatta.**

  This link should use the planned (and concept approved) line through Carlingford. This is in accordance with Metropolitan Strategy objectives to support high residential densities and the development of centres around transport nodes, such as Carlingford. It also supports the wider region through access to semi-skilled labour for the Macquarie Park employment area.

- **Construction of the Carlingford Line Passing Loop**

  This project will enable a significant improvement to the frequency of rail services for residents in the southern parts of the Shire to the Western line. Council will liaise with Parramatta City Council to develop a joint position on the need for improved services on the Carlingford rail line.

Commitment to these four rail elements will require Council to lobby both State and Federal governments for support and funding. At the local area level Council will need to recognise and commit to the necessary land
use patterns and densities that will support rail infrastructure.

**Bus Projects**

Whilst the rail will provide important links to other parts of the metropolitan area and within the Shire, it will be buses that provide the critical linkages to enable the Shire’s residents to access employment opportunities, leisure and shopping activities.

The Shire is traversed by seven strategic bus corridors out of a total of 43 in the Sydney Metropolitan area as identified in the State Government “Unsworth Report”. These corridors act as carriers of people to and from key employment areas within the region. They must be supported by permeable local routes throughout the Shire that decrease the need for commuter parking stations.

Council is not responsible for regional bus planning and bus operations but it has a role in lobbying for service improvement and the provision of infrastructure such as bus stops and shelters, and bus priority intersections on local roads.

The bus projects essential to the future development of the Hills Shire include:

- **Bus routes and frequency**

Buses need to be able to travel faster than single private cars and at the right frequency. Council will place emphasis on the provision of increased service frequency and an extension of services into residential and employment areas as they develop. This role will involve negotiation and lobbying to ensure the State transport agencies understand the transport needs of the Shire and respond appropriately.

- **Bus priority lanes**

In order to reduce travel times and increase the attractiveness of public transport, bus lane works have been identified for the following locations.

1. Showground Road (RTA) – Old Northern Road to Carrington Road - bus lanes to be implemented simultaneously with carriageway duplication. (Blacktown – Castle Hill Transitway)

2. Norwest Boulevarde full length – widening of the carriageway to 6 lanes incorporating the provision of dedicated bus lanes and the replacement of roundabouts with traffic signals to reduce delays in peak travelling times.

3. Green Road – provision of a bus lane from St Pauls Avenue to the intersection with Showground Road allowing buses to "queue jump" and proceed into Victoria Avenue.

4. Carrington Road and Victoria Avenue full length – review of capacity constraints in the peak periods to assist bus priority, plus replacement of two roundabouts with traffic signals for pedestrian access. (Blacktown – Castle Hill Transitway)

5. Windsor Road (RTA) – Memorial Avenue to Showground Road. Upgrade to 6 lanes incorporating dedicated bus lanes. (Blacktown – Castle Hill Transitway)

6. Memorial Avenue full length (RTA) – Upgrade to 6 lanes incorporating dedicated bus lanes as part of the Balmoral Road Release Area. (Blacktown – Castle Hill Transitway)

7. Windsor Road, Northmead (RTA) – widening of the carriageway to 6 lanes incorporating dedicated bus lanes. An interim solution may involve the extension of southbound am peak tidal flow bus lane treatment from Churchill Drive to the M2 Motorway.

8. Old Northern Road, Castle Hill to Baulkham Hills (RTA) – upgrade to 6 lanes incorporating dedicated bus lanes. An interim solution may involve the creation of new southbound am peak tidal flow treatment.
9. Pennant Hills Road, Carlingford (RTA) – widening to incorporate dedicated bus lanes between Jenkins Road and Carlingford Road.

10. County Drive, Cherrybrook – opportunity to further investigate with Hornsby Shire Council an upgrade to existing bus route from Epping/M2 through to Round Corner via County Drive as a bus priority lane.

11. Strategic Bus Corridor No. 5 – there is a need for timely delivery and a route that is direct and facilitates high speed bus travel.

- **Bus link**

Council will plan for and seek Government support for the bus link from Castle Hill as a major interchange point through the West Pennant Hills Valley from Highs Road to Pennant Hills Road via Taylors Street and Aiken Road to the City, providing better services to the community.

Stage 1 of this project would involve a ‘bus only’ lane for morning peak traffic along the lower section of Highs Road, the full length of Taylor Street and Aiken Road from Taylor Street to Oakes Road. Stage 2 would investigate issues associated with extending the link to Castle Hill with a bus only bridge link over Excelsior Creek. In the longer term, this project will investigate further extensions of the bus priority lane along Oakes Road and Jenkins Road for Parramatta services.

Strategic bus routes should be located on roads that are specifically designed for that purpose, as opposed to local roads.

- **Bus interchanges**

Bus interchanges are targeted for locations where significant numbers of passengers start /finish their travel or change modes of transport. Two short to medium term future interchanges have been identified within the Shire, at Castle Hill and Baulkham Hills town centre, that would operate in similar fashion to the existing interchange facility at Rouse Hill major centre. Council has a role in the construction of these facilities and lobbying for support and funding.

Consideration also needs to be given to easy pedestrian/cycleway access by commuters at these interchanges and/or commuter parking facilities, either within the centres or at appropriate alternative sites.

- **M2 upgrades**

Planning and design of the west facing ramps at the Windsor Road intersection of the M2 Motorway has commenced. Council must maintain dialogue with the State Government and the Hills Motorway (Transurban) to ensure that proposed upgrades to the M2 such as the additional lanes, and west facing ramps at Windsor Road are delivered in a timely manner. In addition, Council will continue to lobby for the provision of a bus priority lane between Windsor Road and Old Windsor Road in the short term.

- **Tidal flow projects**

The free flow of buses in the peak period is vital to encouraging the use of public transport. Dialogue will be undertaken with the Roads and Traffic Authority to achieve road widening as listed earlier or improvements to existing situations along Windsor Road between Baulkham Hills and Northmead and Old Northern Road between Castle Hill and Baulkham Hills.

Road widening for dedicated bus lanes will improve bus flows and travel times during peak periods. Tidal flow arrangements are only a short term measure for improving bus access and patronage, making upfront road widening an appropriate option.

- **New bus depots**

Supporting infrastructure needs to be identified and implemented to ensure buses are able to access routes from the two proposed new bus depots to be located in the Annangrove Road Industrial Area. There are existing bus depots outside of the Council boundary at Northmead and Dural, but the Rouse Hill centre has created a demand for new strategically placed facilities that increase service efficiency. Council will undertake planning in conjunction with local bus operators to identify and implement infrastructure needed to support the operation of buses from this location.

- **Parking**

To support the future transport network it is recognised that parking facilities will be needed at various locations, either to allow commuters to access public transport or to better manage congestion within our centres. The actions for these facilities are at a Shire and local level, with Council taking the lead role in provision.
Commuter parking

Commuter parking has been identified for locations that support the future rail stations and the bus interchanges. Current locations are:

- Samantha Riley Drive Transitway car park
- Memorial Avenue Transitway car park
- Barclay Road (in vicinity of M2 bus stop)
- Torrs Street car park
- Rouse Hill Centre
- Carlingford Station Carlingford

Potential future locations are:

- The Hills Station (Carrington Road)
- Kellyville Station (Balmoral Road Transit Centre)
- Samantha Riley (Potential) Station
- Baulkham Hills bus interchange

In addition to the sites listed above, further investigation will be pursued into commuter parking demand at the Oakes Road/M2 Motorway overpass, and within the Norwest Business Park.

Master planning will be undertaken by Council around these commuter parking locations to ensure that other land uses within the location are compatible and provide security, safety and convenience for commuters. Consideration will be given to planning for small neighbourhood centres that support the daily needs of commuters at these locations.

Destination parking

Parking also needs to be reassessed for developments, particularly within centres such as Castle Hill. This will involve canvassing alternate options/solutions for satisfying the parking needs of the community and business. The current parking rates need to be reviewed to ensure developments are viable but do not add to general traffic congestion within the surrounding road network.

Road Projects

Private vehicles will still have a significant role in transport within the North West of Sydney and improvements to the road network are needed to respond to this role.

Motorway link

Council will lobby for improvements to the Sydney Orbital System. The improvement being pursued is the planning and construction of the motorway between the M7 and F3.

This link is the Council’s preferred option over the Pennant Hills Road tunnel. This link between Kariong and Dean Park would allow consideration of a broad transport corridor, incorporating a Motorway and a high speed rail freight link, between centres to the north (Newcastle and Brisbane) and south (Melbourne) via the heartland of western Sydney’s primary manufacturing district.

Grade separation

In order to improve traffic flows and public transport, Council will plan for and lobby Government for the grade separation of Windsor Road, Seven Hills Road and Old Northern Road intersection. In addition to improving traffic flow along the major roads it will improve the function and amenity of the Baulkham Hills town centre.

Other road projects

Council will plan for the following road projects, either for road capacity or for road safety, and seek the support of Government in implementing these projects:

1. Showground Road - widening from 2 to 4 lanes, plus 2 bus lanes.
2. Windsor Road, Kellyville to Norwest Boulevarde - widening from 4 to 6 lanes, plus 2 bus lanes.
3. Box Hill to Rouse Hill major centre – completion of the regional transport connection along Withers Road, Mile End
Road and the deferred route of Green Hills Drive.

4. Various road upgrades that are within new release areas including Samantha Riley Drive, Withers Road, Commercial Road and Annangrove Road.

5. Various road upgrades that are within urban renewal areas. These roads include Glenhaven Road, Cook Street, Renown Road, Barclay Road, Bettington Road, Statham Avenue, Oakes Road and Jenkins Road.

- **Intersection traffic signal improvements**

Improvements to intersections that have the potential to assist with alternative forms of transport have been identified under other categories. However, Council has a role in planning for these improvements and if necessary lobbying for Government support in implementation. These elements include:

1. General improvements to provide better accessibility for pedestrians and cyclists (mid block pedestrian signals, footpaths and cycleways).

2. Provision of additional bus priority measures at selected intersections that are primarily along the seven strategic bus corridors.

3. Replacement of roundabouts within employment precincts (Victoria Ave and Norwest Boulevarde) to provide signalised intersections.

4. Several new or upgraded traffic signals along State routes such as Old Northern Road (eg at Glenhaven Road), Windsor Road (eg at Windermere Ave) and Seven Hills Road (eg at Baulkham Hills Road).

- **Roundabouts**

To improve road safety and functionality of the local road network, Council has identified numerous locations where roundabouts will be installed to manage traffic safety and congestion at intersections. These facilities are identified in the long term capital works program. Over the next 10 years, 37 new roundabouts will provided. This includes:

- 18 roundabouts in new release areas;
- 12 roundabouts as part of general local area traffic management works; and
- 7 roundabouts as part of accident black spot treatments.

**Cycleways**

Cycleways can be categorised as either commuter or recreational, however, careful planning of the network will allow a combination of needs to be met in the future. Within the Shire the focus has been on the provision of recreational cycleways as a result of current demand and past community consultation programs. However, with changes in economic circumstances and lifestyle trends, Council will plan for all forms of cycling activity. A review of Council’s 2004 Bike Plan currently being undertaken will guide the development of an integrated bicycle network.

- **Commuter**

Council will plan for and seek Government support for the provision of cycle parking at the transit points in Castle Hill and Baulkham Hills centres, and all future commuter parking locations. Council will also lobby State government for a new cycle lane along the M2 Motorway.

Council’s development controls will be reviewed to incorporate end of trip cycle facilities (parking, showers, etc) within new developments.

- **Recreational**

Council will continue to implement and seek Government support for the current cycleway network and its extension to urban release areas under various funding schemes including RTA network development,
Metropolitan Greenspace Program, Harbour Foreshores Program, and The Department of Sport and Recreation Program.

Pedestrian Facilities

To encourage people to change travel behaviour it is essential to provide quality footpath treatments, particularly within centres or areas targeted for higher density residential development.

- **Footpath network**

Council will continue to implement the footpath network identified in the long term capital works program. Opportunities will continue to be implemented where footpaths are constructed as part of adjacent private development in both new release areas and older renewal areas.

- **Centres and precincts**

Council actions include the development of public domain plans for centres that provide for pedestrian facilities and seek improvements to accessibility/connectivity and the amenity of centres. These provisions will be included in controls that guide future development and will be implemented through conditions of consent on all new development.

Travel Management

Council has the opportunity to provide for innovative solutions to meet the transport needs of its community through the development and implementation of policies that require developers and businesses to take responsibility for their employees and customers’ actions. Further investigation will be undertaken into travel management through programs such as:

1. Promotion of smart travel through education and assistance for businesses.
2. Implementation of individual work place travel plans.
3. Greater use of transport access guides.
4. Provision of pool vehicles within large residential developments and/or businesses.

Land Use Planning and Management

It is essential that Council focus on the development of complimentary land uses through the co-location of employment and residential areas, and working to balance residential, employment and retail/service components.

This is being carried out through the Directions set in the Local Strategy, implemented via various precinct planning projects and the development of the new Shire wide Local Environmental Plan 2010.

Council is also partnering with the Department of Planning in the Growth Centres areas located within the Shire to ensure that land use planning achieves the desired outcomes of the Local Strategy.
Introduction
INTEGRATED TRANSPORT DIRECTION

The Integrated Transport Direction gives Council, the community and developers a clear strategy for the future planning and development of the Hills transport system to 2031. Achieving a viable, connected and less car-reliant community requires good planning, investment in reliable transport infrastructure, as well as acceptance and behavioural change within the community.

The Hills 2026 Community Strategic Direction looks towards a future of proactive leadership, vibrant communities, balanced urban growth, a protected natural environment and a modern local economy. The Integrated Transport Direction will be one of a number of Council strategies to assist in achieving this vision.

This Direction considers a range of challenges facing the development of an effective, safe and well-managed integrated transport network that meets existing and future travel demand, as set out in the following section.
Challenges
INTEGRATED TRANSPORT DIRECTION

The unique character, history, location and size of the Hills Shire, together with ever changing economic conditions present many challenges for the planning and management of transport.

Transport networks play a critical role in influencing how the community accesses employment, recreation, social and health needs. Transport networks need to focus on providing an accessible, reliable, and sustainable service to accommodate the growing population and meet the changing needs of the community.

Challenges are also created by external factors which can affect Council's ability to achieve significant change in some areas. Some of these factors include:

(a) Need for more effective public transport and road infrastructure to facilitate connections through and between regions.

(b) Macroeconomic conditions and policies which can impact on travel affordability and demand.

(c) The changing nature of environmental and planning legislation at all levels of government.

To meet these challenges, Council has an important and ongoing role in lobbying for additional funding and changes to State and Federal legislation. An overriding challenge for Council is to create a sustainable, efficient and accessible integrated transport system by balancing the needs of the economy, community, and environment. The Integrated Transport Direction, together with other Council Directions, seeks to respond to this challenge.
Trends

INTEGRATED TRANSPORT DIRECTION

Community beliefs and expectations, travel demand and economic conditions are constantly evolving and form the basis for an integrated transport response.

Community feedback provided in the preparation of the Hills 2026 Community Strategic Direction indicated the community’s desire for business growth and employment opportunities, better public transport and improvements to traffic congestion. The lack of public transport accessibility to areas other than the Sydney CBD and dependence on private vehicles were seen as some of the Shire’s weaknesses. One of the key challenges facing the area was seen to be providing an efficient and accessible transport network that supports residential and employment growth in the Shire.

The community visioning process undertaken during the preparation of Hills 2026 Community Strategic Direction explored the community’s vision for the next 20 years. One such community vision included:

“A vibrant and culturally diverse community enjoying an active lifestyle in an LGA well connected to public transport and well provided, financially, for future generations.”


Each year Council undertakes a Community Survey to provide a reliable basis for gauging community opinion. Of respondents in the 2008/2009 Survey, about 30% indicated that they work in the Hills Shire with 46% working outside the Shire. Of respondents working outside the Shire only 18% can reach their place of work in less than 30 minutes and approximately 8% travel for 2 or more hours each way to work.

In order to gauge the level of interest that existed in the proposed rail system, respondents who did not work in the Hills Shire were asked whether they would have used this train system to travel to work. Approximately 44% indicated that they would and another 8% were undecided.

The demand for, and use of, transport options at the local level is clearly influenced by global and metropolitan trends. Such trends can affect affordability and mode choice and thereby the success of integrated transport policies.

The following section analyses key trends to better understand future influences to transport use in the Hills Shire.

ENVIRONMENTAL AWARENESS

The United Nations Intergovernmental Panel on Climate Change (IPCC) (2007a, p.5) states that “warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice, and rising global average sea level”. The mitigation of greenhouse gas emissions is important to reducing the severity of this climate change phenomenon.

Human activity is contributing to a rise in greenhouse gas emissions, and therefore the warming of the atmosphere, through significant land use changes and activities such as fossil fuel mining, landfill, industry and the use of air conditioners and refrigerators (Garnaut, 2008).

Air quality continues to be one of the most important environmental issues in NSW and worldwide. Within the greater metropolitan region photochemical smog and particle pollution (brown haze) are persistent problems. The IPCC reports that the transport sector is responsible for about 23% of the world related emissions in 2004 (IPCC, 2007b, p. 328). Continued exposure to high levels of common air pollutants can have serious health and environmental impacts.

The 2008/2009 community survey shows over three quarters of residents are satisfied with the air and water quality in the Hills Shire. Particularly, residents of the North ward were more satisfied with air quality than other Shire residents. Compared with 2007/2008 results, resident satisfaction with air quality has significantly improved. Better community awareness of ways to mitigate the effects of climate change, improve air quality and the need to reduce emissions is important.
RISING FUEL AND ENERGY PRICES

The anticipated oil shortage resulting from increased demand, reduced production and the interests of oil controlling nations will see the price of liquid fuels rise considerably. This will increase fuel prices and consequently the cost of transport and production across numerous sectors, resulting in higher costs for goods and services. Car dependent communities such as those in the Hills Shire are particularly vulnerable to rising fuel prices.

ECONOMIC GROWTH AND CHANGE

Over the last 15 years there has been a significant shift in the location of office based activities from within centres towards business park developments along the motor transport corridors of Sydney such as the M2, M4, M5 and M7. Additionally, Sydney has emerged as a global city and valuable links to the world economy have been identified in the ‘global arc’ extending from Macquarie Park through North Sydney to Port Botany.

With the M2 Motorway forming the northern spine of the global arc there are opportunities for the Shire to participate in some of the economic benefits. In developing transport strategies it is important to ensure that efficient linkages are developed and maintained between the Shire, the Sydney CBD and Sydney Airport.

The growth in demand for floor space relating to the services economy is likely to flow through from the global arc and into more suburban locations as smaller businesses seek suitable, affordable floor space. Therefore, whilst there has been a shift towards business park developments, there is likely to be ongoing demand for commercial space within or adjacent to centres.

Due to the advent of the internet in the 1990s, there are improved opportunities to work from home. Within the Hills Shire, home working was found to be at a rate of about 4% of employed persons. Work from home will most likely grow as confidence and experience in telecommuting expands.

A range of transport responses are required to recognise and respond to the Shire’s role in the wider economic region and the changing ways of doing business.

ECONOMIC CLIMATE

The prevailing economic climate has an important influence on the provision of transport infrastructure by governments and on the community’s choice of travel mode. Unsettled world financial markets and poor consumer confidence has had a flow-on effect for the Australian community and all levels of government.

Deferral of major infrastructure projects such as the North West rail illustrate the impacts of the financial crisis on the local area. Additionally, households experiencing mortgage stress are particularly vulnerable to downturns in the economic climate and rising transportation costs.

In responding to the impacts of the financial crisis on the local economy, strategies relating to affordable transport options become more critical. It is important that investment in infrastructure such as public transport and walking and cycle paths continue so as to ensure a range of alternatives are available to residents.
CHANGE IN TRAVEL BEHAVIOUR

Traffic congestion and delays, air and noise pollution and the cost of non-renewable fuels and tolls are all factors making public transport, where available, a more attractive option for commuters. In line with soaring petrol prices in recent years Sydney has seen an increase in bus and rail patronage for trips to work.

The increase in public transport use is part of a long term global trend and shows the strong relationship between travel choice and financial, environmental and health concerns. This is reflected in the operating results of transport agencies such as City Rail and State Transit that saw an increase in patronage of 5.7% and 3% respectively, during the 2007-2008 period.

This increasing awareness represents a major long-term shift in travel behaviour. For Sydney’s North West there is a clear need for reassessment of infrastructure priorities in order to capitalise on changing travel preferences and behaviour.

“Although residents rely heavily on their cars for transport this may be a result of limited transport alternatives rather than a love of their cars”

General Purpose Standing Committee No.4, 2008, p10

LIFESTYLE TRENDS

Changing recreation habits have made centres an important destination for recreation, entertainment and socialising. The major centres within the Shire include Castle Hill and Rouse Hill which each have large cinema complexes, restaurants and a wide variety of shops. The thriving restaurant precinct within Castle Hill is evidence of changed consumer demands and a desire to ‘eat out’ more often. The comparably high household income of residents in the Shire has supported this trend.

The rise of the ‘café culture’, where leisure, lifestyle and recreation are increasingly mixed has changed the way centres are used and how they are valued by the community. Free entertainment and events also attract families and visitors to centres for non-shopping related activities. They provide a central and convenient meeting place for many informal gatherings.

The popularity of centres for recreation and social activities requires a strong focus on convenient and safe access.
DEMOGRAPHIC CHANGE

There is a strong relationship between an area’s travel demand and demographic characteristics. The Hills Shire has an ageing population in common with much of Australia due to declining birth rates and increased life expectancies. Alternative modes of travel will be important to support ageing in place and ease of access to retail, health and recreational and other services as mobility declines.

The Shire has high levels of income and car ownership compared to the Sydney Statistical Division. Combined with a relatively young population this will lead to the development of car based travel habits in children as they move into adulthood. This trend is likely to continue the pattern of recent years in the absence of effective management of travel demand.

KEY TRENDS

- Oil shortage and Rising fuel prices.
- Increasing awareness of air quality and the need to reduce greenhouse gas emissions.
- Increasing global business opportunities requiring effective links to Sydney.
- Development of business parks along motor transport corridors.
- Shifting consumer preferences towards public transport as a travel option, where available.
- Increasing importance of centres as a location for small business and as a recreation, entertainment and social destination.
- Ageing population with specific mobility needs.
Aims and Objectives
INTEGRATED TRANSPORT DIRECTION

To provide an overall strategic context for the planning and management of the Shire’s transport system and its development and growth to 2031.

The objectives of the Integrated Transport Direction are to:

a. Plan for a sustainable, efficient and accessible integrated transport network that balances social, environmental, health, economic and strategic objectives;

b. Respond to, and implement, State Government legislation, policy and plans relating to transport and travel;

c. Complement and guide other programs and projects of Council to deliver an integrated transport system;

d. Inform the drafting of Council’s Local Environmental Plan, Development Control Plan and Contributions Plans with regard to transport planning and traffic generating development; and

e. Integrate land use planning and transport objectives in the Shire so that residents can get where they need to go and have a range of integrated travel options.

This Direction identifies five key direction areas, and strategies and actions to meet the above aims and objectives.
**Context**

INTEGRATED TRANSPORT DIRECTION

It is important to understand the context within which the Integrated Transport Direction operates, as shown in Figure 1.

A summary of relevant State Government programs and Council policies is provided over the page.

![Figure 1 Context of Integrated Transport Direction](image)

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**STATE GOVERNMENT PLANS**

- The State Plan November 2006
- The Metropolitan Strategy December 2005
- Draft North West Subregional Strategy December 2007

**THE HILLS SHIRE COUNCIL PLANS**

- Hills 2025 Community Strategic Direction April 2008
- Draft Local Strategy June 2008
- The Hills LEP 2010
- The Hills DCP 2011
THE NSW STATE PLAN

The New South Wales State Plan was launched by the Premier on 14 November 2006 with the overall purpose being to deliver better results for the NSW community from government services. The State Plan identifies 34 priorities under five broad areas of activity and sets targets, actions and new directions for each priority area.

The State Plan contains six priority targets that relate to the Integrated Transport Direction, which seek to deliver better services, grow prosperity across NSW and improve environment for living. The targets include:

S6 Increasing share of peak hour journeys on a safe and reliable public transport system.

The State Plan target involves increasing public transport share of trips to and from the Sydney CBD to 75%, and journeys to work by public transport to 25% by 2016. Actions involve delivering improved public transport services to increase reliability, safety, frequency and comfort. To date, improvements to the public transport system that have commenced include the operation of 19 (of 43) strategic bus corridors and the purchase of new buses which will service the North West area.

For the Hills Shire, in the order of 60% of journey to work trips to the Sydney CBD were by public transport in 2006. Overall, 11% of the Shire’s journey to work trips were by public transport. There is clearly a strong need to advocate for improved infrastructure and services to enable the Hills Shire to play a role in addressing State Plan targets.

S7 Safer roads

The State Plan target involves reducing road fatalities relative to distance travelled from 0.8 per 100 million vehicle kilometres travelled in 2005 to 0.7 per vehicle kilometres travelled in 2016. Actions relate to the continuation of existing strategies such as red light cameras, restrictions on L and P plate drivers and education.

The development of heavy vehicle initiatives to address overloading, speeding and driver fatigue are a priority. The 2007 State Plan update identified that this target has been achieved with a 9% reduction in road fatalities.

New initiatives targeting speeding in school zones are now a key focus.

P2 Maintain and invest in Infrastructure

The importance of providing and maintaining State Government infrastructure such as roads and railways and their role in supporting economic growth is recognised. The State Plan aims to maintain a 4.6 percent annual growth in capital expenditure over the next decade. The State Plan also seeks to develop and report on measures of maintenance effectiveness. This includes reporting on travel speeds on key road corridors and the condition of the network.

E3 Cleaner air and progress on green house gas reductions

The State Plan targets seek to meet national air quality goals and cut greenhouse gas emissions by 60 per cent by 2050 and return to year 2000 levels by 2025. The realisation of this target will involve actions to reduce carbon emissions produced by energy, transport, industrial processes, and agriculture.

E5 Jobs Closer to Home

The target is to increase the percentage of the population living within 30 minutes by public transport of a city or major centre. In Sydney in 2005, 80% of residents could access a city or major centre within 30 minutes by public transport. However, this varies by subregion with the North West subregion having only 59% of the population meeting the stated criteria.

Government actions to achieve the target include a focus on Parramatta as Sydney’s second centre and Liverpool and Penrith as regional cities. In addition, a range of key major and specialist centres such as Castle Hill, Westmead and Norwest are identified in the Metropolitan Strategy for continued growth as employment centres.

Changes in the measure are likely to be seen as major new public transport infrastructure becomes available and as development occurs in release areas and growth centres. Due to the development of more accurate ways of calculating this target, the baseline measure has been adjusted by the State Government to 75%.

E7 Improve the efficiency of the road network.
This target seeks to maintain current travel speeds on Sydney’s major road corridors despite increases in travel volumes. The State Government recognises the ongoing challenge of traffic congestion as the economy and population of urban centres grow. The RTA measures travel times on seven major routes in Sydney which includes the M2 between Seven Hills and the Eastern Distributor toll gates.

Actions involve creating centres close to home thereby reducing the need for trips to Sydney, reducing freight travelling by road, expenditure on road upgrades and completing strategic and bus corridors in Sydney. The completion of the Lane Cove tunnel in March 2007 and upgrades to the bus corridor along Epping Road have contributed to achieving this target to date.

An integrated transport package as advocated by this Direction will provide greater connectivity between residential and employment opportunities both within and external to the Shire to assist with addressing State Government targets.

THE METROPOLITAN STRATEGY

The Metropolitan Strategy ‘City of Sydney: A Plan for Sydney’s Future’ was launched by the Department of Planning in December 2005. Sydney’s population is expected to grow by about 1.1 million people to a total of 5.3 million people, resulting in a need for an additional 640,000 new dwellings by 2031.

Transport involves the movement of both people and freight and is a critical element in the functioning of a city. Sydney’s transport system is diverse and must meet a range of different travel needs each day.

Councils are required to ensure consistency with the Strategy when preparing future Local Environmental Plans (Ministerial Direction No.7.1: ‘Implementation of the Metropolitan Strategy’ under section 117(2) of the EP&A Act). Therefore it is critical to have an understanding of what the Strategy seeks to achieve in relation to transport.

Part D of the Metropolitan Strategy addresses Transport. Its vision is to improve local transport, major centre connectivity, access to jobs and economic activity with more trips closer to home. It is envisaged that transport investment decisions will be based on sound planning, evaluation and assessment.

LOCAL GOVERNMENT’S ROLE:

- **Work with Government to:**
  - plan connections between regions and economic gateways (D1.3.1 and D7.1.2).
  - improve local and regional walking and cycling infrastructure (D3.1.1, E2.3.2).
  - implement a metropolitan-wide parking policy to encourage use of public transport to centres and improve air quality (D3.2.1, E2.3.2).
  - promote the use of TravelSmart voluntary travel behaviour change programs (D3.3.1, E2.3.2).
  - identify and prioritise infrastructure and servicing needs for employment lands (A1.6.1).

- Concentrate activities near public transport (B4, C2.1) and strengthen the economic role of the Orbital Motorway network (B5.2).

- Apply sustainability criteria, including provision of infrastructure and accessible transport options, to proposed new greenfield releases (G2.3.2).
URBAN TRANSPORT STATEMENT

The Urban Transport Statement “Responding to the Challenges of Travel and Transport” was launched by State Government in November 2006 to address the targets identified in the State Plan. For the Hills Shire relevant initiatives included bringing forward the staging of the North West rail link, improving bus travel times and reliability, and providing additional road capacity at places which experience high levels of congestion.

The Statement also identified the connection of the M2 to the F3 and connection of the F3 to the M7 as projects requiring further studies and discussion. Whilst not all initiatives have proceeded, the need to respond to the challenges of transport remains. Priorities for the Hills Shire will be discussed further in the Findings on Capacity of the Transport Network.

DRAFT NORTH WEST SUBREGIONAL STRATEGY

The Draft North West Subregional Strategy provides for implementation of the Metropolitan Strategy. It was placed on public exhibition in December 2007.

The North West subregion consists of the Hills, Blacktown, Blue Mountains, Hawkesbury and Penrith local government areas. By 2031 this subregion is to accommodate 130,000 new jobs and 140,000 new dwellings.

The Draft Strategy notes that the subregion has the lowest proportion of trips made by public transport by any subregion and recognises that tension will increase between the need to develop new infrastructure and the need to maintain the existing networks. Travel flows from the North West towards Sydney face capacity constraints in peak periods with increased development likely to place significant pressure on the road network around Castle Hill and Norwest.

The four key directions identified in the Draft North West Subregional Strategy are to:

- Increase public transport use
- Improve public transport services
- Improve access to centres
- Connect the North West Growth Centre

A number of actions are identified for the North West subregion consistent with the actions identified under the Metropolitan Strategy.

Council can play a role in the delivery of such actions as set out below, however the deferral or lack of commitment to major projects, has limited Council’s ability to achieve sustainable outcomes. A clear statement of Council’s integrated transport solution will provide a strong basis for ongoing lobbying and achieving change.

Council’s role in addressing the actions in relation to transport includes:

- Assist the Ministry of Transport and bus operators to implement strategic bus corridors and physical bus priority infrastructure i.e. red bus lanes (NW D1.1.3, NW D1.1.4);
- Work with State Government to improve existing interchanges and bus stops (NW D2.3.3);
- Work with State Government to develop and implement coordinated packages of road safety, traffic, intersection, land capacity, local amenity and car parking maintenance, and public transport service improvements for major corridors such as Rouse Hill to Macquarie Park (NW D2.4.2);
- Continue to upgrade walking and cycling facilities and align these with public transport routes (NW D3.1.1, NW D3.1.2);
- Implement the Metropolitan Parking Policy (when complete) and ensure planning instruments are consistent with the policy (NW D3.2.1);
- Assist State Government to implement TravelSmart programs to support the North West Transitway and develop and build on TravelSmart household and school programs ((NW D3.3.1, NW D3.3.2 and D3.3.3);
- Consider guidelines for development along busy roads when planning for future housing near any road with an Annual Average Daily Traffic (AADT) volume of more than 20,000 vehicles. (B7.2.2); and
- Communicate information to the public for sustainable transport to cultural celebrations and include integrated event ticketing to cultural festivals in the North West (F4.1.4).
STATE INFRASTRUCTURE STRATEGY 2008-2018

The State Infrastructure Strategy (first published in 2006 and updated in 2008) has been adopted to meet the growing demand for infrastructure over the next decade as Sydney’s population grows and ages, and as development expands our suburbs. The strategy links long term infrastructure planning strategies with the NSW State Budget.

Major infrastructure and planning initiatives that impact on transport planning for the Hills Shire include:

- North West Growth Centre projects including precinct planning.
- Road link projects such as the M2 to F3 and possibly F3 to M7. The corridor location for the M2 to F3 was confirmed by a review in 2007. The project is jointly funded with the Australian government; therefore timing of construction depends on future Federal funding.

UPPER HOUSE INQUIRY - TRANSPORT FACILITIES IN THE NORTH WEST SECTOR

Through the latter part of 2008 The Legislative Council considered the transport needs of Sydney’s North West Sector. The inquiry was prompted by the State Government’s decision to reconsider the North West Metro following a review of State finances.

The Report on the Inquiry was completed in December 2008 and included 9 recommendations. The responses of the State Government are summarised below:

1. Land acquisition for the North West rail corridor and consideration of extension options are continuing.
2. The CBD Metro will be the backbone or enabler for future metro lines which would extend across Sydney.
3. A strategic level review of the Metropolitan Strategy will focus on changed economic outlook, the mini budget and associated reprioritisation of infrastructure projects, revised population projections and current take up rates.
4. A number of bus priority measures have been implemented and the Government will continue to pursue such initiatives.
5. The network of 43 strategic corridors seeks to improve intra regional connections and 113 new buses will be used on key routes into North West Sydney.
6. The Government is in negotiations with Transurban to ensure the M2 can grow and develop with improved services.
7. The NSW Government is committed to the coordinated planning and delivery of major road infrastructure projects.
8. The establishment of a new super-agency NSW Transport and Infrastructure to control all transport and roads coordination, policy and planning functions.
9. A priority of the new agency will be the development of a transport blueprint which integrates and builds on existing plans and projects to align transport delivery to urban planning and growth.

METROPOLITAN TRANSPORT PLAN: CONNECTING THE CITY OF CITIES

The Metropolitan Transport Plan: Connecting the City of Cities was launched by the Premier on 21 February 2010. The plan delivers a 25 year vision for land use planning for Sydney, and a 10 year fully funded and guaranteed package of transport infrastructure.

The plan focuses on the growth, development and connectivity of major regional cities including Sydney City, Parramatta, Liverpool and Parramatta. For the Hills Shire relevant transport infrastructure proposed over the next 10 years include:-

- Completion of strategic bus corridors
- Share of 1000 new buses
- M2 road upgrades

The Plan reinstates the North West rail link to respond to population and employment growth in the North West growth centre, commencing within the next 10 years with completion by 2024. The integrated transport solution contained within this Direction will assist with responding to State Government policy change and provide a framework for Council to work with government or business to achieve meaningful improvements.
HILLS 2026: COMMUNITY STRATEGIC VISION

Our Vision
Proactive leadership creating vibrant communities balancing urban growth protecting our environment and building a modern local economy

Hills 2026 Community Strategic Direction: Looking Towards the Future identifies the Shire’s direction for the future and demonstrates how Council will align its delivery of services and facilities to support the direction. The preparation of the Hills 2026 Community Strategic Direction involved an extensive community visioning and consultation process.

Hills 2026 documents Council’s commitments in relation to transport and traffic. The Integrated Transport Direction will support these commitments, including:

• Promoting safety awareness and safe behaviours.
• Advocating for the public transport needs of our community.
• Providing integrated transport alternatives.
• Providing traffic management solutions that promote safer roads and minimise traffic congestion.

• Promoting effective, safe and well managed local roads and transport infrastructure.
• Seeking to reduce greenhouse gas emissions.
• Facilitating the provision of infrastructure to support business growth.

Additionally, the formulation of the Integrated Transport Direction seeks to respond to community desire for employment opportunities closer to home, better public transport and improvements to traffic congestion. In this regard, the Hills 2026 Delivery Program 2008-2012 includes the following strategies for Balanced Urban Growth:

BUG 1.2 ‘Provide integrated transport alternatives that link residents to their homes, places of work and services and facilities’

BUG 2.1 ‘Encourage a connected community through coordinated residential developments’.

| Theme 2: Vibrant Communities | “I can feel safe” |
| Theme 3: Balanced Urban Growth | “I can get where I need to go” |
| | “There are a range of housing options” |
| Theme 4: Protected Environment | “Our Shire is green and pollution free” |
| Theme 5: Modern Local Economy | “Our Shire attracts new businesses and visitors” |
| | “I can work Close to home” |

Figure 2: Relevant Hills 2026 Themes and Community Outcomes
THE HILLS SHIRE LOCAL STRATEGY

The Local Strategy has been prepared as the principal document for communicating the future planning of the Shire and to guide future decision making.

The Local Strategy is the key document articulating Council’s response to State plans and strategies, and implementing key outcomes of the Hills 2026 Community Strategic Direction, within the context of land use planning in the Shire.

There are seven individual strategies or ‘Directions’ that support the Local Strategy, including:

- Employment Lands Direction
- Centres Direction
- Residential Direction
- Integrated Transport Direction
- Environment and Leisure Direction
- Rural Lands Strategy
- Waterways Direction

The Integrated Transport Direction, together with other strategy work, will inform the Local Strategy.

It is recognised that many aspects of the Integrated Transport Direction will overlap with other Directions, including the Residential Direction, Employment Lands Direction, Centres Direction and the Environment and Leisure Direction. Elements such as the growth of centres, employment and residential areas all impact upon the future planning, management and provision of transport and supporting infrastructure.

The Integrated Transport Direction will support, but not replicate, the strategies and actions contained in the other Directions.

Figure 3: Context of Integrated Transport Direction
THE HILLS SHIRE LOCAL ENVIRONMENTAL PLAN 2010

Council is required to prepare a new Local Environmental Plan in accordance with the State Government’s Standard Instrument – Principal Local Environmental Plan. The Local Environmental Plan will reflect Council’s desired strategic direction for all land within the Shire. The Integrated Transport Direction will inform drafting of the Local Environmental Plan in a number of ways including:

- Reinforcement of land use planning principles relating to the concentration and proximity of complementary land uses.
- Identification of zone objectives for land in the vicinity of key transport infrastructure to ensure integration of new development with the network.
- Identification of key transport infrastructure for recognition by specific zoning.
- Controls to address the impacts of transport infrastructure on surrounding land uses and the impact of development on the transport network.

The Standard Template prescribes a number of different zones with set objectives, permissible and prohibited uses, standard definitions, and special clauses. The SP2 Infrastructure zone will be relevant to the Shire’s transport lands including some land currently identified for roads and the railway corridor.

BAULKHAM HILLS DEVELOPMENT CONTROL PLAN

Baulkham Hills Development Control Plan (BHDCP) currently provides detailed controls to guide development of land within the Shire.

The Integrated Transport Direction will inform the drafting of the new Hills Shire Development Control Plan by investigation of travel demand, infrastructure provision and consideration of how travel behaviour can be influenced to change to more sustainable options. Issues to be addressed in the Development Control Plan will include car parking, cycle parking provision, end of trip facilities, traffic management and travel demand management for high traffic generating residential and commercial development.
Methodology
INTEGRATED TRANSPORT DIRECTION

The Integrated Transport Direction has been prepared based on a review of State Government policies, including the Metropolitan Strategy and Draft North West Subregional Strategy.

The formulation of the Integrated Transport Direction has also considered other local strategy work, particularly that relating to residential and employment lands development. The planning and delivery of an integrated transport framework is important for achieving sustainable population and employment growth, vibrant centres and connected communities.

Prior to formulation of the Integrated Transport Direction, a detailed study was undertaken by consultants SCAPE to achieve the following objectives:

- Determine key transport and traffic data for the Shire, in order to establish a clear understanding of the transport hierarchy and networks to inform decision making.

- Identify the demand for different types of transport infrastructure in different parts of the Shire over the next twenty five years in association with population growth.

- Identify the key trends and issues to be addressed in planning and managing the future transport needs of the Shire.

KEY DOCUMENTS

- The Hills Shire Council Integrated Transport Study, 2009
- North West Subregional Strategy (Draft), 2007.
- The Hills Shire Employment Lands Direction 2009.
- The Hills Shire Centres Direction 2009.
- Baulkham Hills Development Control Plan.
Structure Plan
INTEGRATED TRANSPORT DIRECTION

Detailed travel demand research, analysis and findings have lead to the development of the Structure Plan and Urban Structure Plan. These plans are critical components of the Integrated Transport Direction to illustrate the key directions to be pursued into the future.

The Structure Plans are intended to be conceptual in nature, and are provided to communicate development that currently exists in the Shire and future development that is anticipated. The Structure Plans are not zoning maps.

In order to provide the strategic planning context for transport, the Structure Plan shows:

- The location of current and planned employment lands, major centres and town centres.

- Existing and planned residential areas, including the North West Growth Centre, Balmoral Road Release Area and Rouse Hill.

- Existing and planned public transport such as strategic bus corridors, the North West Transitway, and planned and potential rail corridors.

- Potential orbital motorway link connecting the F3 at Kariong to the M7 at Dean Park.

The more detailed Urban Structure Plan shows key destinations within the Shire, transport interchanges, commuter parking and taxi rank locations. Priority transport projects and key link improvements are identified as well as locations where Council will need to undertake more detailed planning in the future.
INTEGRATED TRANSPORT URBAN STRUCTURE PLAN

KEY

LGA Boundary
Rural Land
Urban Land
Higher Density Residential
Planned Residential Growth
Employment Lands
Growth Centre Precinct
Major Roads
Local Roads
Rail Line
Proposed Rail Line
Potential Rail Line

CENTRES

Specialised Centre
Major Centre
Proposed Major Centre
Town Centre
Planned/Potential Town Centre

 Strategic Bus Corridor

1. ROUSE HILL TO PARRAMATTA (T-WAY)
2. BLACKTOWN TO CASTLE HILL (T-WAY)
3. CASTLE HILL TO HORNSBY
4. CASTLE HILL TO CITY (VIA MAQUARIE)
5. PARRAMATTA TO CASTLE HILL
6. PARRAMATTA TO HORNSBY
7. PARRAMATTA TO CITY (VIA MAQUARIE)

Transport Interchange
Train Station
Bus Depot
T-way Station
M2 Bus Stop

Commuter Parking
Established Taxi Rank
Existing on-road commuter cycle path
Existing off-road commuter cycle path

STRATEGIC PLANNING

1. Link Castle Hill to Norwest
2. Complete T-way Castle Hill to Parklea
3. M2 upgrades & bus priority
4. Public Transport Corridor
5. Bus Link Castle Hill to West Pennant Hills
6. Additional train station options
Findings
INTEGRATED TRANSPORT DIRECTION

The literature review and analysis work has highlighted a range of issues associated with transport that require a strategic response. This section of the Direction sets out the findings of the analysis which underpin the formulation of strategies for transport in the Shire.

With the Shire expected to experience a significant increase in population and employment opportunities over the next 25 years, considerable strain will be placed on the existing transport network. Managing this growth and achieving a balanced outcome for the community is paramount.

The findings examine a number of factors in order to determine key directions for achieving desired outcomes for the transport network and the community. The factors examined include:

- the existing transport situation
- current and future travel demand
- role of the land use planning framework
- the capacity of the transport network
- options to influence travel choice
- specific needs of new areas
- quality of outcomes including safety and protection of heritage.
EXISTING SITUATION

SNAPSHOT

- Limited rail connectivity with only Carlingford station within the Shire.
- Bus network, with services by Hillsbus and Sydney Buses, is the main form of public transport.
- Seven strategic bus routes and commuter parking provide connection to centres and transport hubs.
- There has been steady growth in patronage on the North West Transitway bus services since commencement.
- Private vehicle travel will continue to be significant and focus is needed on capacity and road safety.
- Major commuter cycleways exist alongside the M7 and M2 motorways and along Windsor Road and Old Windsor Road.

In order to respond to the range of transport needs, a clear picture is needed of the existing transport network within the Shire.

Rail

The Shire has only one railway station, Carlingford, within its boundary. The Carlingford line consists of a single track corridor approximately 6km in length, extending from Carlingford to Clyde where it provides connections to the Western Line with access to Sydney's CBD, Penrith, the Blue Mountains, Parramatta and the North Shore.

Bus Network

The bus network is the main form of public transport in the Shire given the absence of an extensive rail network. It is generally oriented around providing access to major centres and transport hubs such as Castle Hill, Rouse Hill, Baulkham Hills, Parramatta CBD, Pennant Hills Station, Hornsby, Macquarie Park, North Sydney and Sydney CBD. Services are generally provided by privately operated Hillsbus or Busways with some services in the southern part of the Shire provided by Sydney Buses.

Carlingford Railway Station

Bus-only lanes can improve bus travelling times.
The Sydney Strategic Bus Corridor Network is a State Government initiative designed to connect major centres and the Sydney CBD. It comprises 43 strategic bus corridors which include the North West Transitway and seven bus routes within the Hills Shire as shown on the Urban Structure Plan.

The North West Transitway was completed in March 2006 to provide a direct, high frequency bus only link between Parramatta and Rouse Hill. A 7km section from Blacktown to Parklea was completed in November 2007, however an extension from Parklea to Castle Hill has not been undertaken.

![Figure 4: Transitway Passenger Journeys](image)

The Transitway has seen a good growth in patronage since commencing operations as shown by the increase in monthly passenger numbers over the past two years (refer Figure 4).

In the morning peak period local bus services connect to Pennant Hills Station, Macquarie Park and Sydney CBD with a minimum 15 minute frequency. Other connections that operate on lower service frequencies (minimum of 30 minutes) connect Rouse Hill and Castle Hill to Parramatta and intermediate locations such as the Westmead Health Campus.

There is also a service that operates between Windsor Railway Station and Castle Hill via Rouse Hill. Other routes provide for services into the Shire including Blacktown to Castle Hill, Parramatta to Rouse Hill, Seven Hills to Bella Vista, Parramatta to Winston Hills and Pennant Hills to rural locations.

### Parking

Commuter parking is integral to the use of the bus network. Within the Shire such parking is available adjacent to the Transitway stops at Samantha Riley Drive and Memorial Avenue and in the vicinity of M2 bus stops at Barclay Road, North Rocks and Torrs Street, Baulkham Hills.

The Integrated Transport Study (Scape, 2009) examined bus services and highlighted issues relating to capacity constraints, access to services, frequency of services and quality of bus stop facilities. These issues are discussed further in the Findings on Capacity of the Transport Network.

### Taxi Services

A local taxi service is important to supplement the public transport system and provide an alternative mode of transport for those such as the elderly or disabled who might otherwise find travelling difficult.

Taxi coverage within the Shire is limited with taxi ranks located within or close to the centres of Castle Hill, Rouse Hill, Baulkham Hills and Winston Hills with a new rank located outside Woolworths at Bella Vista. The location of taxi ranks is highlighted on the Structure Plan.
Roads

The Shire currently has 929 kilometres of road that services the urban and rural areas of the Shire, including 25 kilometres of unsealed roads. The settlement of the Shire followed its two main road systems constructed along ridge lines being the road to Windsor and the road to Wisemans Ferry. Over the past 30 years the Shire has experienced sustained urban growth with transport primarily based on the road system and travel by private vehicle.

Private vehicles will continue to have a significant role in transport within the North West of Sydney and improvements to the road network will be required to respond to this role. An understanding of the functional and funding classification of roads assists with planning for road capacity and safety and seeking the support of Government.

There are three main systems for classifying roads in NSW, the functional classification, the administrative classification and the legal classification system.

The functional classification traditionally used by the RTA classifies roads as arterial, sub-arterial, collector or local according to their role and the volume of traffic they should convey as shown in Figure 5. This classification is used for planning purposes and assessment of development impacts. A draft functional roads hierarchy for the Shire is illustrated in Figure 6.

The administrative classification adopted by the RTA defines state, regional and local roads and provides a framework for the allocation of State Government road funds, and the allocation of road management between government jurisdictions. Grant funding is provided by the RTA to Council for regional roads on a pro rata basis based on the length of the roads. Figure 7 illustrates the funding classification of roads within the Hills Shire.

The administrative classifications have been reviewed over recent years to identify additions to and deletions from the state and regional road networks. It takes into account changes in the importance and function of roads that arise from changes in population, landuse, economic activity and construction of new roads. For the Hills Shire this has resulted in the addition of Terminus Street, Pennant Street and Norwest Boulevarde as State roads and a change in the classification of Seven Hills Road from a State road to a Regional road.

<table>
<thead>
<tr>
<th>Classification (functional)</th>
<th>Vehicles per day</th>
<th>Vehicles per hour in peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arterial</td>
<td>Generally over 15,000</td>
<td>Generally over 1,500</td>
</tr>
<tr>
<td>Sub-arterial</td>
<td>Between 5,000 and 20,000</td>
<td>Between 500 and 2,000</td>
</tr>
<tr>
<td>Collector</td>
<td>Between 2,000 and 10,000</td>
<td>Between 250 and 1,000</td>
</tr>
<tr>
<td>Local</td>
<td>Less than 2,000</td>
<td>Less than 250</td>
</tr>
</tbody>
</table>

Figure 5: Functional classification of roads

Source
Figure 6: Council Draft Road Hierarchy
<table>
<thead>
<tr>
<th>Classification Administrative (funding)</th>
<th>Hills Shire</th>
</tr>
</thead>
</table>
| **State** *(classified under Roads Act)* | M2 and M7 Motorways  
North West Transitway  
Castle Hill Road  
Cecil Avenue  
James Ruse Drive  
McMullen Avenue  
Memorial Avenue  
Norwest Boulevard  
Old Northern Road  
Old Windsor Road  
Pennant Street  
Pennant Hills Road  
Showground Road  
Terminus Street  
Windsor Road  
Wisemans Ferry Road |
| **Regional** *(classified under Roads Act)* | River Road  
Sackville Ferry Road  
Seven Hills Road |
| **Regional** *(designated under agreement with Council)* | Aiken Road (Part)  
Annangrove Road  
Barclay Road  
Bettington Road  
Boundary Road  
Carrington Road  
Cattai Ridge Road  
Cook Street  
Gilbert Road  
Glenhaven Road  
Green Road  
Jenkins Road  
Kenthurst Road (part)  
North Rocks Road  
Oakes Road  
Park Road  
Renown Road  
Samantha Riley Drive  
Victoria Avenue |
| **Local** | Council are responsible for the management and maintenance of collector and local access roads.  
*Examples:*  
Acres Road  
President Road  
Wrights Road  
Crane Road |

Figure 7: Administrative (funding) classification of roads in the Hills Shire at 15 January 2010
A legal classification of roads is provided under the Roads Act 1993. The term is defined as follows:

classified road means any of the following:

(a) a main road,
(b) a highway,
(c) a freeway,
(d) a controlled access road,
(e) a secondary road,
(f) a tourist road,
(g) a tollway,
(h) a transitway,
(i) a State work.

This level of classification is important for transport planning in the Hills Shire. It identifies locations where development requires particular consideration in terms of the efficient functioning of the network and the likely noise, safety and amenity impacts from classified roads. Classified roads are currently identified by definition and a blue line on Local Environmental Plan 2005 maps, however, they will be identified by definition in the new Local Environmental Plan. The classified roads in the Shire at January 2010 are set out in Figure 8.

At the local level, there is a need to fund traffic management schemes along collector and local roads that are subject to excessive volumes of through traffic. These roads are identified through Local Traffic Committee processes and considered as part of Council’s annual works programming.

**M2 and M7 Motorways**

The Hills M2 is a 21 kilometre, four lane toll motorway owned and managed by Transurban that links the lower North Shore and the North West regions of Sydney. The M2 opened to traffic in May 1997 and is now a key part of Sydney’s orbital motorway network. The West Link M7 Motorway is a 40 kilometre toll road linking western Sydney with the M5, M4 and M2 Motorways. Opened in December 2005, it is accessed directly from Norwest Boulevard and Old Windsor Road, making it a crucial piece of infrastructure for the long term viability and attractiveness of the Norwest Business Park.
Cycleways and Pedestrian Networks

Consideration of regional and local recreation links has been undertaken as part of the Hills Shire Bike Plan review and the Environment and Leisure Direction. The Integrated Transport Direction will focus upon commuter links and the accessibility and use of such links.

Major commuter cycleways within or close to the Shire are shown on the Urban Structure Plan and include:

- A 30 km off road link from Rouse Hill major centre to Parramatta. Secure bicycle parking is provided at the bus station at Rouse Hill.
- A 40 kilometre off road link alongside the Westlink M7 from Baulkham Hills to Prestons. This link has more than 60 connections to local roads and other parts of the Western Sydney cycleway network.
- A 15 km on road link on the M2 Motorway, providing a connection between Seven Hills and Macquarie Park.
- An off road link on most of Windsor Road including from Old Windsor Road intersection to Acres Road and Showground Road to Roxborough Park Road.
- An on road link (parking lane or wide kerbside lane) along Victoria Avenue and Green Road connecting Windsor Road to Samantha Riley Drive.
- An on road link along most of Glenhaven Road from Old Northern Road to Samantha Riley Drive with a length of off road pathway servicing the Glenhaven neighbourhood centre from Old Northern Road.

The following section includes a more detailed examination of forecast population and employment growth to better understand how demand for travel will grow and change.
TRAVEL DEMAND

SNAPSHOT

- Significant population growth of 100,000 more people is expected for the Shire to 2031.
- An additional 47,000 more jobs are targeted for the Shire with demonstrated capacity for over 50,000 more jobs.
- Demand for travel is estimated to increase by over 60% across the Shire with the largest increase of 126% by 2031 in the release areas extending from Kellyville to Box Hill.
- Without a mode shift, main roads and intersections will be placed under considerable strain well into the future.
- Proactive approach needed to address the high economic, social and environmental impacts of existing travel patterns.

Transport planning is about identifying and planning for the movement of people and goods. In order to create liveable and sustainable environments, now and into the future, it is critical to understand, identify and respond to demand for transport.

Prior to analysing travel demand and evaluating the capacity to accommodate such demand, consideration is required of projected population and employment growth and existing travel patterns.

Population Growth

The Hills Shire is expected to experience a significant increase in population to 2031. The Draft North West Subregional Strategy sets a target for the Hills Shire to contribute an additional 36,000 dwellings by 2031, equating to approximately 100,000 more people.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>ESTIMATE</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Established and Release Areas</td>
<td>21,425</td>
<td>21,500</td>
</tr>
<tr>
<td>Established Areas</td>
<td>11,100</td>
<td></td>
</tr>
<tr>
<td>Carlingford</td>
<td>3,476</td>
<td></td>
</tr>
<tr>
<td>North Rocks</td>
<td>283</td>
<td></td>
</tr>
<tr>
<td>Northmead</td>
<td>770</td>
<td></td>
</tr>
<tr>
<td>Baulkham Hills</td>
<td>3,338</td>
<td></td>
</tr>
<tr>
<td>Castle Hill</td>
<td>2,755</td>
<td></td>
</tr>
<tr>
<td>Bella Vista, Glenhaven, West Pennant Hills</td>
<td>478</td>
<td></td>
</tr>
<tr>
<td>Release Areas</td>
<td>10,325</td>
<td></td>
</tr>
<tr>
<td>Kellyville/Rouse Hill Release Area</td>
<td>4,700</td>
<td></td>
</tr>
<tr>
<td>Balmoral Road Release Area</td>
<td>5,625</td>
<td></td>
</tr>
<tr>
<td>North West Growth Centre</td>
<td>14,500</td>
<td>14,500</td>
</tr>
<tr>
<td>North Kellyville</td>
<td>4,500</td>
<td></td>
</tr>
<tr>
<td>Box Hill</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>35,925</td>
<td>36,000</td>
</tr>
</tbody>
</table>

Note:
Under the North West Subregional Strategy any new dwelling from June 2004 will contribute to meeting the target dwellings.
Of this target, 14,500 dwellings are to be located in the North West Growth Centre precincts of North Kellyville and Box Hill. A further 21,500 dwellings are to be located in the existing urban area and other release areas such as Kellyville/Rouse Hill and Balmoral Road release areas (refer Figure 9). Further details on dwelling and population growth are provided in the Residential Employment Growth.

### Employment Growth

The Draft North West Subregional Strategy establishes an employment capacity target of 47,000 additional jobs for the Hills Shire from 2001 to 2031. The Employment Lands Direction demonstrates there is sufficient capacity to accommodate this employment capacity target, with the Shire having an employment capacity of 55,574 jobs between 2006-2031.

Of this capacity, 17,233 additional jobs are anticipated for Norwest Business Park and 14,700 are anticipated for the future Box Hill Industrial precinct. A further 8,904 jobs are anticipated in retail trade across both existing areas and new areas, particularly Rouse Hill and Castle Hill major centres (refer Figure 10). Further details on employment growth are provided in the Employment Lands Direction.

<table>
<thead>
<tr>
<th>Employment Precinct</th>
<th>Forecast Employment Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norwest Business Park</td>
<td>17,233</td>
</tr>
<tr>
<td>Balmoral Road Release Area</td>
<td>2,505</td>
</tr>
<tr>
<td>Box Hill Industrial Precinct</td>
<td>14,700</td>
</tr>
<tr>
<td><strong>Total Business Park</strong></td>
<td><strong>34,438</strong></td>
</tr>
<tr>
<td>Castle Hill Light Industrial Area</td>
<td>496</td>
</tr>
<tr>
<td>Annangrove Road Light Industrial Area</td>
<td>6,175</td>
</tr>
<tr>
<td>Winston Hills Light Industrial Area</td>
<td>749</td>
</tr>
<tr>
<td><strong>Total Light Industry</strong></td>
<td><strong>7,420</strong></td>
</tr>
<tr>
<td>Castle Hill Major Centre</td>
<td>1,060</td>
</tr>
<tr>
<td>Rouse Hill Major Centre</td>
<td>3,752</td>
</tr>
<tr>
<td><strong>Total Commercial</strong></td>
<td><strong>4,812</strong></td>
</tr>
<tr>
<td>Central Sector</td>
<td>4,696</td>
</tr>
<tr>
<td>Release Area Sector</td>
<td>3,506</td>
</tr>
<tr>
<td>North Sector</td>
<td>250</td>
</tr>
<tr>
<td>South Sector</td>
<td>452</td>
</tr>
<tr>
<td><strong>Total Retail</strong></td>
<td><strong>8,904</strong></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>55,574</strong></td>
</tr>
</tbody>
</table>

Figure 10: Forecast Employment Capacity to 2031

### Key Transport Indicators

Comparing key transport indicators for the Hills Shire with those for the North West Subregion and the Sydney Statistical Division provides some insight into the factors that influence the demand for travel (refer to Figure 11).

Within the Hills Shire, 3.7 trips per person are made on an average weekday with each trip averaging 11.7 km in length. Of these trips over 80% are undertaken in a private vehicle either as a driver or a passenger. Compared with Sydney Statistical Division, the Hills Shire residents on average drive at least 7km more daily. As shown in Figure 11, the use of public transport (6%) and walking, cycling and other modes (11%) of all trips by Hills Shire residents is particularly low when compared against the metropolitan area, which has a mode share of 10.7% and 19.8% respectively.
The key indicators clearly show that the private vehicle is the dominant transport mode for Hills Shire residents. A range of strategies related to land use planning, infrastructure provision and travel choices are required to redress the imbalance and increase mode share for public transport and walking and cycling.

As seen in Figure 12, journey to work trips for commuting and work related business purposes account for 24% of the average daily travel. However, trips for social/recreation purposes and shopping also account for a significant proportion of daily trips.

A relatively high proportion of trips are made for the purpose of serving passengers which include giving lifts to household or family members such as dropping a partner at a bus stop or rail station, taking an elderly relative to the doctor or a teenage child to a part time job.

Consideration of trip purpose by mode share can enable transport strategies to be specifically targeted. As seen in Figure 10 public transport use across all trip purposes is minimal. Education and childcare trips demonstrate the highest use of public transport (27%), which may reflect the dedicated bus services for school children.

Whilst private vehicles are the primary transport mode for all trip purposes, some types of trips are more conducive to walking or cycling. Almost one third of trips for social/recreation purposes and 27% of trips for shopping are undertaken in this manner, possibly reflecting the appeal of local shops and neighbourhood parks as a walkable destination.
Determining Travel Demand

To assist with determining the future demand for travel, four geographic sectors have been identified based upon natural and man made barriers to movement and the existence of local facilities and centres in each sector. A focus has been given to those parts of the Shire that are expected to experience significant growth or change in the period to 2031. These include:

Rouse Hill/Kellyville – This area contains recently developed areas including the Rouse Hill major centre and key release areas including the northern part of Balmoral Road Release Area and the North Kellyville and Box Hill precincts. While the Rouse Hill major centre and the immediately surrounding residential area is currently being developed, residential areas to the north and south are characterised by subdivisions developed since the mid 1990s.

Norwest/Castle Hill – This area contains the Castle Hill major centre, Castle Hill trading zone and Norwest Business Park. Together these centres represent a significant concentration of employment containing around 45% of jobs within the Shire. These employment areas are surrounded by established residential areas and the southern part of the Balmoral Road release area.

North M2 – This locality includes Baulkham Hills town centre and the IBM site in West Pennant Hills. This is a largely residential area with significant open space largely focused on creek corridors and the Bidjigal Reserve. This creates barriers to movement and as a result residential areas are difficult to serve effectively with public transport. This area is bounded to the south by the M2. It is likely that local residents orientate towards the retail and services provided in Castle Hill.

South M2 – This area is focussed on North Rocks town centre and encompasses Carlingford and Carlingford Rail Station. The area is characterised by a mix of retail, industrial, residential and educational land uses with barriers to local movement including the M2, Pennant Hills Road, James Ruse Drive, Lake Parramatta Reserve and local creeks and associated open space. Many residents of this area would orientate towards the retail, services and employment in Parramatta.

The boundaries of the sectors is shown in Figure 13.

Rural North - This area is the predominantly rural area of the Shire and is characterised by a mix of rural residential living, agriculture, and tourist locations. Residents in this area have a strong reliance on private transport given the areas distance to the Shire’s urban areas. This area is excluded from determining future demand for travel as the area is not expected

---

Figure 12: Hills Shire Trips by Purpose and Mode
Source: Adapted from SCAPE, p.110, 2009
Data: HTS 2004-05

<table>
<thead>
<tr>
<th>Serve passenger</th>
<th>Social/recreation</th>
<th>Personal Business</th>
<th>Shopping</th>
<th>Education/childcare</th>
<th>Work related business</th>
<th>Commute</th>
</tr>
</thead>
<tbody>
<tr>
<td>17%</td>
<td>24%</td>
<td>7%</td>
<td>16%</td>
<td>9%</td>
<td>9%</td>
<td>15%</td>
</tr>
<tr>
<td>89%</td>
<td>62%</td>
<td>70%</td>
<td>96%</td>
<td>57%</td>
<td>85%</td>
<td>78%</td>
</tr>
<tr>
<td>1%</td>
<td>6%</td>
<td>8%</td>
<td>7%</td>
<td>27%</td>
<td>27%</td>
<td>11%</td>
</tr>
<tr>
<td>% of all trips</td>
<td>Vehicle driver</td>
<td>Public transport</td>
<td>Walking, cycling &amp; other modes</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
to experience significant growth or change. However, opportunity to improve public transport access and frequency is warranted to improve resident and visitor connectivity to key destinations and improve sustainable travel choices.

Figure 13: Boundaries of the sectors
Source: SCAPE, 2009

Figure 14: Estimated residential development to 2031.
The extent of residential development and the rate at which such development will occur are key factors that influence the demand for transport and the timing of delivery of infrastructure to support this demand.

The estimated rate of residential development for the identified sectors and the Shire is shown in Figure 14. This has been based upon a number of assumptions including the planned rollout for the North Kellyville precinct, Metropolitan Development Program estimates, current planning proposals and future infrastructure proposals such as a rail line.

Figure 15 provides an outline of anticipated travel demand to 2031 based upon forecast population and key transport indicators (Figure 11).

The largest increase in demand of 126% will be seen in the Rouse/Hill Kellyville area which includes the future Box Hill precinct. The Castle Hill/Norwest area which contains a significant part of the Balmoral Road Release area will also experience a considerable increase in travel demand and vehicular traffic to 2031 (64%).

The area south of the M2 will generate a reasonable level of additional trips (47%), particularly as a result of redevelopment in the Carlingford area. Residential growth for the precinct north of the M2 will be centred around Baulkham Hills town centre with a consequent increase in travel demand in the order of 22%.

Overall, as a result of population growth alone, the Shire will continue to experience a substantial demand for travel. Based on current trip purposes and mode splits, by 2016, the vehicle kilometres travelled in the Shire will increase by 20%. For the release areas, the increase over the same period is likely to be in the order of 27%.

<table>
<thead>
<tr>
<th>Daily travel demand based upon current travel patterns</th>
<th>2006</th>
<th>2016</th>
<th>2021</th>
<th>2031</th>
<th>% change 2006-2031</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rouse Hill/Kellyville</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total trips</td>
<td>162,397</td>
<td>206,782</td>
<td>257,942</td>
<td>367,482</td>
<td></td>
</tr>
<tr>
<td>Car Driver trips</td>
<td>113,576</td>
<td>144,644</td>
<td>180,430</td>
<td>257,055</td>
<td>126%</td>
</tr>
<tr>
<td>Vehicle kilometres travelled</td>
<td>1,328,837</td>
<td>1,692,334</td>
<td>2,111,034</td>
<td>3,007,544</td>
<td></td>
</tr>
<tr>
<td><strong>Castle Hill/Norwest</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total trips</td>
<td>119,133</td>
<td>166,670</td>
<td>189,018</td>
<td>195,626</td>
<td>64%</td>
</tr>
<tr>
<td>Car Driver trips</td>
<td>83,333</td>
<td>116,586</td>
<td>132,218</td>
<td>136,841</td>
<td></td>
</tr>
<tr>
<td>Vehicle kilometres travelled</td>
<td>974,999</td>
<td>1,364,054</td>
<td>1,546,953</td>
<td>1,601,036</td>
<td></td>
</tr>
<tr>
<td><strong>North M2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total trips</td>
<td>159,226</td>
<td>166,015</td>
<td>175,018</td>
<td>193,488</td>
<td>22%</td>
</tr>
<tr>
<td>Car Driver trips</td>
<td>111,378</td>
<td>116,128</td>
<td>122,533</td>
<td>135,345</td>
<td></td>
</tr>
<tr>
<td>Vehicle kilometres travelled</td>
<td>1,303,128</td>
<td>1,358,694</td>
<td>1,433,640</td>
<td>1,583,533</td>
<td></td>
</tr>
<tr>
<td><strong>South M2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total trips</td>
<td>98,716</td>
<td>121,216</td>
<td>129,874</td>
<td>144,951</td>
<td>47%</td>
</tr>
<tr>
<td>Car Driver trips</td>
<td>69,052</td>
<td>84,790</td>
<td>90,847</td>
<td>101,393</td>
<td></td>
</tr>
<tr>
<td>Vehicle kilometres travelled</td>
<td>807,907</td>
<td>992,047</td>
<td>1,062,906</td>
<td>1,186,302</td>
<td></td>
</tr>
<tr>
<td><strong>Shire</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total trips</td>
<td>592,167</td>
<td>713,408</td>
<td>804,732</td>
<td>954,274</td>
<td>61%</td>
</tr>
<tr>
<td>Car Driver trips</td>
<td>414,220</td>
<td>499,029</td>
<td>562,910</td>
<td>667,515</td>
<td></td>
</tr>
<tr>
<td>Vehicle kilometres travelled</td>
<td>4,846,379</td>
<td>5,838,639</td>
<td>6,586,043</td>
<td>7,809,925</td>
<td></td>
</tr>
</tbody>
</table>

Figure 15: Forecast Travel Demand to 2031.
Source: Adapted from SCAPE Appendix C
When combined with travel demand resulting from forecast employment growth in the Shire, the transport challenges facing the Shire are clearly evident. The estimated rate of employment growth for the identified sectors and the Shire is shown in Figure 16.

This has been based upon a number of assumptions including continuing demand for business park development which will see Norwest Business Park complete by 2016, longer term planning for Box Hill industrial precinct, current planning proposals such as Castle Towers development and future infrastructure proposals such as a rail line.

Whilst the employment growth in the southern parts of the Shire will be minimal, substantial growth is anticipated in the Castle Hill/Norwest and Kellyville/Rouse Hill precincts. Therefore the effects of additional residential traffic in these locations will be intensified by workplace traffic.

![Figure 16: Rate of Employment Growth The Hills Shire Council](image-url)
Impacts of Travel Demand

Without a mode shift, main roads and intersections in the Shire will be placed under considerable strain well into the future, particularly during the morning peak.

The combination of high population, housing and economic growth, dependency on cars and limited public transport options has resulted in congestion and long travel times particularly during peak periods.

General Purpose Standing Committee No.4, 2008, p12

The RTA undertakes travel time survey data to depict average travel speeds for road segments for the peak period. The travel time survey data mapping for the Hills urban areas is shown over the page (Figure 17) and illustrates the extent of the transport challenge facing the Shire. This mapping will be further discussed in the Findings on The Capacity of the Transport Network.

Demand for travel needs to be planned and managed to encourage more sustainable travel, reduce vehicle kilometres travelled and respond to changing trends. In this regard, demand for travel is not just about population and employment growth. Other factors that will influence demand include an ageing population, more active lifestyles, increasing health/environmental consciousness and higher fuel costs (Refer to Trends section).

A proactive approach is needed to address the high economic, social and environmental impacts of existing and possibly future travel patterns.

HIGH CAR DEPENDENCE

Economic impacts:
- Vulnerability to rising fuel or other vehicle related costs.
- Increased pressure on household income.
- Local businesses can experience difficulties in attracting staff where traffic congestion is known to be a problem.
- Business confidence to invest in the area can be undermined.

Environmental/ Health Impacts:
- Exhaust gases add to pollution.
- Poor air quality and consequent health impacts.
- Reduced opportunities for improving health and fitness.

Social Impacts:
- Individual frustration and stress due to increased travel times.
- Lost family/leisure time and thereby poor work/life balance.
- Lack of viable travel options for the aged or mobility impaired.

Source: General Purpose Standing Committee No.4, 2008
Figure 17A: Travel time survey during morning peak
RTA, 2007

Figure 17B: Travel time survey during afternoon peak
RTA, 2007

Legend

<table>
<thead>
<tr>
<th>Speed Range</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 15 km/hr</td>
<td>Red</td>
</tr>
<tr>
<td>16 - 25 km/hr</td>
<td>Orange</td>
</tr>
<tr>
<td>26 - 35 km/hr</td>
<td>Yellow</td>
</tr>
<tr>
<td>36 - 50 km/hr</td>
<td>Green</td>
</tr>
<tr>
<td>51 - 80 km/hr</td>
<td>Cyan</td>
</tr>
<tr>
<td>81 + km/hr</td>
<td>Blue</td>
</tr>
</tbody>
</table>
The land use planning framework can play a key role in achieving improvements in travel. The level and type of mobility in an area is influenced by the density of development, the location of jobs, housing and services, and development layout and design. The following sections describe the opportunities available under the strategic, local environmental plan and development control plan framework to support the provision of an efficient transport network.

**Strategic Framework**

**Principles**

There is a strong focus at the metropolitan, subregional and local level on integrating land use and transport. Critical to such integration is the concentration of activities in centres which has been a feature of urban planning strategies for decades. Enabling a range of activities to be carried out at one location has many benefits including improving access to services, encouraging positive competition between businesses, making better use of infrastructure, allowing more multi-purpose journeys and reducing car usage.

Given such benefits, it is important that centres are well supported by transport infrastructure and services to encourage accessibility by walking, cycling and public transport. This reinforces the role of centres and also promotes healthier communities. It is also important that activities are concentrated near public transport. Living close to public transport reduces the need for multiple car ownership within households and the need for large amounts of car parking to be provided at key destinations.

Opportunities for residents to work close to home are directly influenced by land use planning. The location of employment areas, retail centres, schools and higher density residential can positively influence travel patterns towards less trips and more sustainable modes of transport.

“People living within one kilometre of strategic centres are more than twice as likely to travel by public transport than those living outside centres” (Metropolitan Strategy, p.104).

**Approach**

The foregoing principles are reflected in the development and strategic work that has been undertaken in the Shire.

The Shire currently has 32 centres ranging from the major centres of Castle Hill and Rouse Hill to small local neighbourhood shops. Retail development will continue to be concentrated in centres. The Centres Direction establishes a hierarchy of neighbourhood centres, villages, town centres and major centres. This approach provides for a distribution of centres to meet community needs that are appropriate in scale and design.
for their location. It allows for large major centres and town centres where accessibility by a variety of transport modes is important as well as smaller walkable village or neighbourhood centres.

As shown on the Urban Structure Plan, high density residential development is located at Rouse Hill, Castle Hill, Baulkham Hills and Northmead. A hierarchical approach has been taken for residential densities. This approach provides for a gradual change in density of residential development, from high density close to centres to a middle ring of medium density then more peripheral lower density development. Through the Residential Direction, Council will continue this hierarchical approach. Apart from providing housing near jobs, transport and services, it also allows for a suitable transition between intensity of uses.

Employment opportunities in the Shire are spread across a range of industries and locations. The most popular industry sectors in which Shire residents worked at the 2006 Census included retail, health care and social assistance and professional, scientific and technical services. As much as possible employment development is concentrated in identified precincts which have differing roles and functions.

The Employment Lands Direction describes these precincts and seeks to encourage new business to establish, existing local businesses to grow and tailor jobs to the resident workforce in order to improve levels of job containment in the Shire. Specifically. Strategies seek to provide opportunities for residents to work close to home, including home working.

**Future Opportunities**

The potential for considerable residential and employment growth in the Shire presents an opportunity to establish a more sustainable, efficient and accessible integrated transport network.

Prime opportunity exists for planning an integrated system surrounding potential new rail stations at Kellyville and the Hills Centre. Master planning and the coordination of stakeholders is needed to achieve a suitable density of residential development and a design that addresses factors such as accessibility, functionality and enjoyment of use.

Consistent with the principle of providing residential development close to shops, services and public transport, areas have been identified for longer term investigation for higher density development. These areas include locations within a one kilometre radius of Castle Hill major centre and parts of Oaklands, Northmead and Winston Hills that are accessible to strategic bus corridors and/or centres. Further details are contained in the Residential Direction.

**Objective R1.2:**

“Provide for well located housing close to services, supported by appropriate infrastructure”

Residential Direction 2008 p41

Opportunities have also been identified to improve the accessibility of centres particularly from residential and employment areas. Actions include the preparation of a Tracks and Trails Strategy and continuing the program of footpath and cycleway provision. Further details are contained in the Centres Direction.

**Objective C3.1:**

“Encourage appropriate transport infrastructure to serve, support and connect centres.”

Centres Direction 2009 p63

In line with the principle of concentrating activities near public transport, opportunities have been identified for urban renewal along parts of the Windsor Road / Old Windsor Road Transitway corridor. Further details of the particular locations identified for further investigation are contained in the Employment Lands Direction.

**“In the longer term consideration is required of the intensity of uses along this route to maximise the use of this public transport infrastructure.”**

Employment Lands Direction 2009 p 76

A significant opportunity is provided by future employment lands in the Box Hill Industrial Precinct to build upon existing and proposed transport infrastructure. This is discussed further in the Findings on Planning for New Areas.

**Local Environmental Plan Framework**

One of the primary roles of the zoning framework in relation to transport is to identify land required for existing or proposed roads (including road widening) and rail corridors and to make provision for the acquisition of such land.
Approximately 1.5% of the Shire’s land area is identified by a specific roads zoning which comprises all classified roads and some sub arterial roads. The Shire’s local roads are generally zoned to match surrounding zones. The Carlingford railway line is currently specifically zoned for such purposes as is the route of the future north west rail line through the Balmoral Road Release Area.

The Standard Instrument – Principal Local Environmental Plan includes a SP2 Infrastructure zone which is intended to cover a wide range of physical and human infrastructure uses such as roads and railways, utility undertakings and works, community uses, educational establishments and hospitals.

Sydney Regional Environmental Plan No. 18 (SREP 18) was gazetted in 1989 to reserve a corridor of land from Hoxton Park to Baulkham Hills via the Parramatta City Centre. The extension of the corridor to the release areas has been identified in studies and previous Local Environmental Plans.

This planning reflected the anticipated public transport initiatives that would be needed to improve accessibility and connectivity in the area. Public transport corridor reservations are to be retained and appropriately zoned under the Template Local Environmental Plan for public transport use.

It is recommended that the North West rail corridor, Carlingford railway, the M2 and M7 motorway, the public transport corridor and any road widening, be zoned to communicate the role, function and current or intended use. Land to be acquired will need to be clearly identified, subject to the relevant acquisition authority providing consent to the listing.

Relevant authorities include the Transport Infrastructure Development Corporation (for the rail corridor), Roads and Traffic Authority (for classified roads), Department of Planning (for the public transport corridor) and Council (for any local road widening).

The current Local Environmental Plan LEP 2005 addresses the impacts of transport infrastructure on surrounding land uses, and the safe and efficient functioning of the network. This is by way of special clauses that relate to development along classified roads, access, noise attenuation, and development in the vicinity of the North West Rail Corridor.

State Environmental Planning Policy (Infrastructure) applies across NSW and contains a number of provisions relating to roads, traffic and railways including:

- development adjacent to rail corridors;
- impact of noise or vibration on non rail development;
• development with frontage to classified roads; and
• impact of road noise or vibration on non-road development.

The formulation of Council's new Local Environmental Plan will consider whether the provisions of the state policy adequately address the local circumstances or whether additional local clauses are needed. It is important to note that Council Local Environmental Plans should not duplicate or be inconsistent with provisions that are contained in the state policy.

A primary concern is to ensure that the classified road network can function as efficiently and safely as possible. Consideration will be given to the following principles in formulating future plans:

• Avoiding site access via classified roads.
• Restricting unsuitable development types along some classified roads.
• Additional assessment criteria for development on land in rural zones that have access to a classified road.

The requirements of Section 117 Direction 3.4 *Integrating Land Use and Transport* must be considered in the preparation of local environmental plans. This Direction aims to reduce car dependence and travel demand and to support the efficient and viable operation of public transport services.

### Development Control Framework

The Integrated Transport Direction will play a key role in the drafting of the new Hills Shire Development Control Plan, particularly for issues relating to the impacts of transport infrastructure on surrounding land uses or the impacts of high traffic generating development on the transport network.

Some matters that may require review and supplementation of local development controls, that are not covered by state policy or a local environmental plan include:

• Description of classified roads within the Shire as defined under the Standard Instrument Local Environmental Plan.
• Provide for a range of uses for transit centre development at Hills Centre and Kellyville stations.
• Specific provisions controls for child care centres along main roads such as design and materials for fencing, building setbacks, play spaces away from roads, and crash barriers on road verges.
• Specific controls for high traffic generating developments on classified roads in rural zones.
Responsiveness of the Framework

Ongoing monitoring is important for the continued improvement of the Shire's transport system and to meet the changing travel needs of the community. As outlined in the Centres, Employment Lands and Residential Directions, development monitors will be used to ensure that retail services, employment lands and residential development opportunities are provided in a timely manner to meet the needs of the population. The provision of appropriate transport infrastructure is paramount to the sustainable functioning of these land uses and should be provided in line with new population and employment growth.

Data on the community's road and bus-based travel patterns could be obtained from a range of sources, including:

- The NSW Ministry of Transport's annual Household Travel Survey.
- The RTA's Traffic Volume Data (released every 3 years).
- Australian Bureau of Statistics Journey to Work data.
- Bus operators – Transitway patronage, M2 Express Bus journeys, Hills Bus, Sydney Buses.
- Council counters on key local roads.
- Taxi companies.
- Surveys or interviews conducted in centres and businesses.

Information from these sources will assist in targeting where greater resources are needed and identify programs that prove successful. It will also assist in demonstrating to the State Government travel and transport demand in the Shire and existing and future infrastructure needs.
SNAPSHOT

- 72% of Shire residents work outside the Shire with Parramatta, Sydney, Blacktown, Ryde and Hornsby key destinations. Penrith, as an emerging regional city, is expected to grow as a destination for Hills residents.

- Despite the strong concentration of people living and working within the Castle Hill/Norwest area, there are no direct public transport services connecting the two areas.

- High car use, limited public transport connectivity and freight movements place a number on intersections and roads under considerable strain.

- An integrated transport solution is proposed to cover all modes of transport and actions from regional level, involving lobbying and partnership with government, down to local level actions that can be realised by Council.

Transport is an essential part of achieving quality of life. Having the right type of transport in the right location allows ease of movement between places such as employment, recreation, shopping, entertainment, friends, families and other daily activities. A focus of the Integrated Transport Direction is to ensure that there is infrastructure to support an efficient and effective transport network that meets the needs of the community.

The findings in this section identify and examine where residents are travelling and for what purpose. There is often a tendency to focus on journey to work data due to the impact of commuter trips on the transport network during morning and evening peak times. However, there are a range of other trips made by residents for a variety of purposes. This section will recognise the diversity of trips made outside and within the Shire to ensure the transport network at a local, shire wide and regional level responds to the travel demands of all users.

<table>
<thead>
<tr>
<th>Area</th>
<th>LGA</th>
<th>Reuse Hill/Kellyville</th>
<th>Trip Origin</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Percent of LGA total</td>
<td></td>
<td>Norwest/Castle Hill</td>
</tr>
<tr>
<td>Employed Residents</td>
<td>93,922</td>
<td>10,471</td>
<td>19,366</td>
</tr>
<tr>
<td>Blackham Hills</td>
<td>28%</td>
<td>29%</td>
<td>32%</td>
</tr>
<tr>
<td>Parramatta</td>
<td>11%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td>Ryde</td>
<td>5%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Hornsby</td>
<td>5%</td>
<td>4%</td>
<td>4%</td>
</tr>
<tr>
<td>Blacktown</td>
<td>7%</td>
<td>12%</td>
<td>7%</td>
</tr>
<tr>
<td>Sydney</td>
<td>10%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Other LGA</td>
<td>33%</td>
<td>34%</td>
<td>31%</td>
</tr>
</tbody>
</table>

Figure 18: Employed residents showing employment location
Source: SCAPE, 2009
Key Destinations outside the Shire

Locations outside the Shire can attract trips for a variety of purposes including access to higher order centres, employment, cultural and entertainment activities, health, education and special events.

Regional Cities: Penrith and Parramatta have been identified as regional cities in the Metropolitan Strategy due to the full range of business, government, retail, cultural, entertainment and recreational activities that are available.

The Metropolitan Strategy reinforces the nomination of Parramatta as the second CBD for Sydney. With a projected job potential of around 60,000 by 2021, Parramatta will continue to grow as a significant employment destination. A significant proportion (11%) of Hills Shire residents work in this LGA (Figure 18).

The Parramatta CBD is also home to one of the largest Westfield shopping complexes in Australia. It provides high-order shopping goods and services, and entertainment which contributes to its attraction as a place to work, live and experience.

Employment Destinations: A large number (72%) of the Shire’s employed population currently travel outside the Shire to work. Key employment destinations outside the Shire include Sydney CBD, Macquarie Park, Westmead, Parramatta and Hornsby. Figure 17 indicates the top employment destinations for Shire residents.

Tertiary Education: Overall, a large proportion of the Hills Shire population over 15 years of age (51.5%) hold formal qualifications compared to the Sydney Statistical Division (47.1%). Of these 24.1% held bachelor or higher degrees at Census 2006. The Universities of New South Wales, Sydney, Macquarie and Western Sydney are popular tertiary education destinations outside the Shire.

Health: Westmead Hospital is the main provider of higher-order healthcare to Hills Shire residents. The State Health Plan places an emphasis on equitable access to health care.

Special Events: Special events outside the Hills Shire that are popular to residents include The Royal Easter Show, the Festival of Sydney, sporting events and one-off events such as the Sydney Olympics and World Youth Day. Locations such as Olympic Park, Sydney CBD, Sydney Cricket Ground and Manly Beach are popular destinations that require increased availability of public transport services and traffic management.

Key Destinations within the Shire

Some of the key destinations within and close to the Hills Shire are outlined below and illustrated in the Urban Structure Plan.

Employment: Analysis shows that 28% of employed residents work within the Hills Shire. Figure 18 provides a breakdown of journey to work trips for the sectors identified for analysis. For trips originating in the Norwest/Castle Hill sector, there is a relatively high proportion (32%) of residents working within the Shire. In comparison, for trips originating in areas south of the M2 only 19% of the residents work in the Shire.

Norwest Business Park is a widely recognised employment precinct within the Shire which performs a vital economic and employment role across the metropolitan area. The park currently caters for 20% of Shire-based employment and is forecast to provide an additional 17,200 jobs by 2031.

Around 44% of jobs within the Hills Shire are located within the central urban areas of Norwest and Castle Hill. These employment areas are surrounded by residential development and data analysis suggests that some 5,000 people live and work in this area (Scape 2009).

Shopping: Centres are more than just places to shop or work. They are also the venue for civic functions, social interaction and recreation, and are an ideal location for community facilities and public transport hubs.

Major centres and town centres are significant destinations for residents, workers and visitors as they provide a range of retail, business and commercial uses.
JOBS CLOSER TO HOME

Over 60,000 people within the Shire’s labour force currently travel outside of the Shire for work. Assuming that the proportion of the labour force to local jobs remains the same, by 2031 around 102,000 people will need to travel outside of the Shire for employment purposes.

The Employment Lands Direction recognises that the employment destination of the Shire’s residents is likely to become an increasingly important issue. Particularly as fuel prices and tolls rise, commuting to work by private car becomes increasingly unaffordable. As the population grows, congestion on existing infrastructure and services such as roads and buses will increase.

Strategies that target increased job opportunities closer to home will encourage a change in this trend.

**Education:** There are 60 primary schools and 26 secondary schools located throughout the Shire or within close proximity to the Shire. Additionally TAFE facilities are located at Windsor Road, Baulkham Hills and Green Road, Castle Hill. The location of education facilities is shown on the Structure Plan map.

Driving children to and from child care, primary and secondary school is a significant component of daily travel for Hills Shire residents.

**Entertainment:** There are a number of entertainment venues located within the Shire that draw customers from within the Shire and also surrounding areas. The Hills Centre for the Performing Arts, located in Castle Hill is one such key destination. The Shire’s pubs and clubs, including the Castle Hill RSL, the Mean Fiddler in Rouse Hill and the Hillside Hotel in Castle Hill are large venues that can generate significant travel demand.

**Recreation:** The Hills Shire has 325 parks and reserves under the control and management of Council. The Waves Fitness and Aquatic Centre located within the Alfred Henry Whaling Memorial Reserve Baulkham Hills, Fred Caterson Reserve Castle Hill, Bernie Mullane Sports Complex Kellyville and the competition-standard AFL and cricket field at Bruce Purser Reserve in Rouse Hill are just a few of the major active sport reserves that attract a broad cross section of the community including children, teenagers and older persons.
Capacity of the network for journey to work

An analysis has been undertaken of the journey to work by mode share as shown in Figure 19. In terms of employment based trips originating within the Hills Shire, there is a consistently high number of people (80-90%) who choose to drive their cars to destination LGAs, with the exception of trips to Sydney CBD. Bus use to destinations other than Sydney CBD remains very low, with the next highest level of bus use being to Parramatta.

Given its identification as a regional city, Penrith is expected to play a key role as an employment hub and service centre for Western and North Western Sydney. The main mode of travel from the Shire to Penrith is via the M7 Motorway or other lower order roads. However there is no clear and direct link between the city and the North West Growth Centre, particularly via public transport.

The Draft North West Subregional Strategy (Action D1.2.2) identifies a need for the Growth Centre to be connected into both the subregion and metropolitan area including links to Penrith and Blacktown. The need for such links has been reinforced by Penrith City Council in a submission to Infrastructure Australia (Penrith City Council, 2008).

Within the Shire, the major employment destination of Norwest Business Park is accessed by road with direct connection to the M7 Motorway via Norwest Boulevard. Norwest is poorly served by buses, including through the morning peak period in which a 15 minute service frequency is not available.

Despite the strong concentration of people living and working within the Castle Hill/Norwest sector, there are no direct public transport services connecting the two areas and walking and cycling accounts for less than 10% of trips. As a result the road network is particularly congested at peak times.

The following sections examine the capacity of the different transport modes within the Hills Shire in order to develop an integrated transport solution.

![Figure 19: Journey to work mode share by destination](source: SCAPE, 2009)
<table>
<thead>
<tr>
<th>STATE INFRASTRUCTURE PROJECTS</th>
<th>STATUS AT DECEMBER 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rail Projects</strong></td>
<td></td>
</tr>
<tr>
<td>North West Rail Link</td>
<td>Concept approval May 2008, land acquisition for corridor undertaken. Funding allocated as per Metropolitan Transport Plan.</td>
</tr>
<tr>
<td>Epping to Parramatta Extension</td>
<td>Project deferred in 2003. Identified as a priority future transport project in the Metropolitan Transport Plan subject to funding availability.</td>
</tr>
<tr>
<td>Carlingford Line Passing Loop</td>
<td>Project deferred in 2008</td>
</tr>
<tr>
<td>Extension of North West Metro to Vineyard</td>
<td>Preliminary planning undertaken by Ministry of Transport. No report published.</td>
</tr>
<tr>
<td><strong>Road Projects</strong></td>
<td></td>
</tr>
<tr>
<td>F3 Freeway to M2 Motorway link</td>
<td>Construction under Pennant Hills Road confirmed in 2007 in review of the F3 to M7 Corridor Selection report. Identified as a priority future transport project in the Metropolitan Transport Plan subject to funding availability. As below, the construction of the motorway between the M7 and F3 is Council’s preferred option.</td>
</tr>
<tr>
<td>Future link between the F3 and M7 from Kariong to Dean Park</td>
<td>The Potential F3 to Sydney Orbital Link Study undertaken 2004 by Federal Government. The State Infrastructure Strategy 2008-2018 includes a future project to reserve corridors to secure a link between the F3 and M7.</td>
</tr>
<tr>
<td>Castle Hill Eastern Ring Road</td>
<td>Construction underway and scheduled for completion December 2009.</td>
</tr>
<tr>
<td>Connection of west facing M2 ramps at the Windsor Road interchange at Baulkham Hills</td>
<td>Expected that the environmental assessment documents will be placed on public display in late April 2010 with construction expected to commence in late 2010 and will take about 2 years to complete.</td>
</tr>
<tr>
<td>Underpass at the junction of Old Northern Road, Windsor Road and Seven Hills Road Baulkham Hills</td>
<td>Road concept developed by Council. Funds unallocated.</td>
</tr>
<tr>
<td>Upgrade and widening of Memorial Avenue Kellyville and Showground Road Castle Hill.</td>
<td>Incorporates the Transitway from Parklea to Castle Hill. Funds unallocated.</td>
</tr>
<tr>
<td>Upgrade of major intersections along Seven Hills Road, Baulkham Hills</td>
<td>Unfunded.</td>
</tr>
<tr>
<td><strong>Bus Projects</strong></td>
<td></td>
</tr>
<tr>
<td>North West Transitway - Parklea to Castle Hill</td>
<td>To be undertaken as part of road upgrades along Memorial Avenue Kellyville and Showground Road Castle Hill.</td>
</tr>
<tr>
<td>Strategic Bus Corridors No. 3, 5, 6, 9, 40, 41 and 42</td>
<td>Minor intersection works commenced. Funding allocated as per Metropolitan Transport Plan. Strategic Bus Corridor network to be completed by 2014.</td>
</tr>
<tr>
<td>Dedicated bus lane on the M2 between Windsor Road and Old Windsor Road</td>
<td>Unfunded.</td>
</tr>
<tr>
<td>An additional 113 new buses to be made available to Hillsbus</td>
<td>Thirty buses delivered with additional buses to be rolled out across 2010</td>
</tr>
<tr>
<td>Bus Interchange at Castle Hill</td>
<td>Design concept and operational detail completed January 2008. Funds unallocated. Interchange area will begin accommodating buses from February 2010</td>
</tr>
<tr>
<td>Bus Interchange at Baulkham Hills</td>
<td>Funds unallocated. Matter under negotiation with State Government.</td>
</tr>
</tbody>
</table>
**Rail:** As set out previously, there is expected to be a significant increase in demand for travel to 2031 particularly in the release areas extending from Kellyville to Box Hill. Centres throughout the metropolitan area will be likely to remain significant attractors for employment. Without a shift to viable public transport options, roads will be placed under further considerable strain with consequent impacts on commuters.

The imperative need for a rail service to the North West was reinforced by the 2008 Upper House Inquiry into The Transport Needs of Sydney’s North West Sector.

Figure 20 provides an outline of major State transport infrastructure implemented or proposed over the last decade. Commitment to a rail transport option has been reinstated by the allocation of funding as highlighted in the Metropolitan Transport Plan. This will provide vital linkages to the metropolitan area as well as between the Shire’s major centres and the Norwest Business Park.

**Bus:** Services operating in the Hills Shire are generally well used in the peak periods. However, commuters travelling outside the Shire using the North West Transitway and M2 Motorway routes suffer from a lack of capacity to meet demand. These issues were clearly articulated through the recent Legislative Council Inquiry.

Submissions made to the Inquiry indicated that passenger numbers on city express buses have grown by more than 20% per year (Richardson, 2008). Despite the delivery of some additional buses, many commuters experience extended delays before they can board a bus. As heard throughout the Inquiry, buses are the only transport project likely to provide general relief to congestion problems in the short term. However in the longer term it is clear that a rail option is needed given that buses cannot carry as many people and journeys can be lengthy and impacted by congestion on major roads.

An additional 113 buses were identified for the North West at the time the North West Metro was deferred and 30 of these buses have been delivered to date. There is a critical need to maximise the level of service given they will be the primary means of public transport for some time.

“However, the buses will only provide limited relief if they become mired in the current traffic congestion choking the North West”

General Purpose Standing Committee No.4, 2008, p53

**Roads:** RTA travel time survey data undertaken in March 2007 (Figure 17) provides an understanding of the sections of road and intersections which are under considerable strain during peak periods.

Much of the road network in the Hills Shire is characterised by peak period congestion which leads to considerable delays at intersections. In defining critical intersections, reference is also made to the impact on bus services.

Commuters waiting for M2 Bus
Some of the critical locations include:

- Old Northern Road, Windsor Road, and Seven Hills Road at Baulkham Hills.
- Castle Hill Road and Pennant Hills Road at West Pennant Hills.
- Old Northern Road and Showground Road, Castle Hill.
- Norwest Boulevard and Old Windsor Road, Bella Vista.
- Showground Road and Windsor Road, Castle Hill (afternoon peak).
- Norwest Boulevard roundabouts - delays of around 10 minutes in the morning peak are experienced on the Blacktown to Castle Hill bus route (T70) and the Seven Hills to Bella Vista route (714 and 715).
- Green Road – from St Pauls Avenue to Showground Road which impacts upon bus routes to the city (610 and 612).
- Carrington Road / Victoria Avenue – Peak time capacity and the geometry of the intersection cause delays.
- Length of Showground Road between Carrington Road and Old Northern Road.
- New Line Road from Hastings Road to County Drive on the periphery of the Shire affecting Shire residents.

Cycleway links: Consideration is required of the availability and adequacy of cycleway links. The location of links throughout the Shire is shown on the Urban Structure Plan.

Upgrades of Windsor Road and Old Windsor Road have improved the commuter cycleway network, with the provision of a dedicated shared path adjacent to the North West Transitway, extending to Westmead then via Parramatta Park to Parramatta. There are also connections to the M2 cycleway which provides access to Macquarie Park and beyond. The cycleway link along the M2 is located in the breakdown lane which gives rise to safety concerns.

The current network of local cycle commuter links is limited to servicing mainly the new residential areas of Kellyville and Rouse Hill. Access to Castle Hill trading zone is provided via an on road cycleway, however, the network lacks connectivity. There is a need to complete links along Windsor Road and plan for links between Castle Hill and Norwest Business Park.

Capacity of the network for other trip purposes

Education: Travelling by public transport to key education destinations outside the Shire currently takes an excessive length of time. This is inconvenient to users and discourages public transport use, and is a consequence of poor access to rail and limited bus services to these destinations.

Within or close to the Shire, the local bus network currently provides adequate coverage for students to access schools. However, regular traffic congestion around schools and along major routes during school travel time suggests that a large amount of trips are made by parents dropping off children to school. It can be assumed that the majority of these trips occur on the way to work as serve passenger trips. In this regard it is recognised that private vehicles play a significant role in multi purpose trips.

School zone traffic on Kenthurst Road, Kenthurst

Health: Good public transport access to healthcare is critical and should be provided regardless of access to private transport. The North West Transitway provides access to Westmead station which is in the vicinity of the hospital. Bus frequencies are 20-30 minutes during peak hours, and hourly at other times.

Shopping: The two major centres of Castle Hill and Rouse Hill attract a wide catchment of users due to their provision of mixed business, retail, residential, entertainment and community uses. Strategic bus corridors provide access to these major centres and the town centres of Baulkham Hills and Carlingford.

Bus services to other town centres do not receive the same level of focus, however accessibility is important both in terms of meeting the needs of different members of the
community and assisting the viability and attractiveness of these areas. Bus routes service the town centres of Round Corner, Wrights Road, North Rocks and Carlingford, however the frequency of services can be limited. This issue is addressed further in the Findings on Making Sustainable Travel Choices.

**Recreation:** The travel demand for recreation facilities is often outside peak times, with organised sporting competitions generally being held on the weekend. The nature of such activities, which involves transport of equipment as well as family members, means there is a greater reliance on private transport. However, focus is required on pedestrian and cycleway access to facilitate increased connectivity to environment and leisure spaces.

**Entertainment and special events:** In recent years, bus and rail operators have been working together to improve services to regional and metropolitan special events in order to make access easier and reduce the congestion and parking associated with such events. These services generally provide an affordable, stress free transport option.

Travel demand for entertainment venues within the Shire is often outside peak times, being mainly at night on Fridays and Saturdays when the availability of public transport is generally limited, placing a greater reliance on private transport. Many venues provide a pick up and drop off service operating hourly until closing time.

Special local events such as Orange Blossom Festival, Castle Hill Show and Hillsong celebrations require a special focus on accessibility.

**Freight Movements**

Freight plays a major role in supporting employment and continued economic growth. Activities that generate freight movements include deliveries for supermarkets and large shops in centres such as Castle Hill, light industrial uses and car dealers, bulky goods premises, warehouse uses, agriculture and sand mining. Uses such as small businesses and restaurants also require regular deliveries, although on a smaller scale.

Whilst land uses within the Shire are not generally associated with heavy industry, freight movements within and through the region must be accommodated by the transport network. The F3 Freeway, Pennant Hills Road, and the M2 and M7 Motorways carry heavy freight daily and links to and from these roads must be considered in the overall functioning of the network and road design. The NSW Metropolitan Transport Plan identifies the development of NSW Freight Strategy to be released in 2010. Council will monitor and respond to the NSW Freight Strategy (when released) as it applies to the Shire.
According to the NSW Government the majority of Sydney’s freight is moved by road (86%) due to limited rail freight services that restrict frequency and reliability. As a result road freight operators are experiencing heavier levels of congestion and a decline in efficiency. A focus of the NSW Metropolitan Strategy is to encourage greater use of rail and promote greater road freight movements. The F3 to Sydney Orbital is one major project identified to alleviate traffic congestion along Pennant Hills Road. The purple option which aligns with Pennant Hills Road and connects the F3 to the M2 has been identified in the Metropolitan Transport Plan as an infrastructure project beyond the 10 year government funding proposal, however it could be brought forward if additional funds become available.

The F3 to Sydney Orbital Study (2002) also identified a longer term Type C corridor option linking the M7 from Dean Park with the F3 north of the Hawkesbury River. Council’s preference is for this option. The State Infrastructure Strategy 2008-2018 includes a future project to reserve corridors to secure a link between the F3 and M7. Additionally, a Review of the Corridor Selection in 2007 also recommended a Type C corridor be planned. It is clear that further investigation is required by the Federal Government. Council will continue to respond to further planning as it proceeds and consider the implications for economic development and employment growth in the Shire.
Towards an Integrated Transport Solution

There is an imperative need to address the considerable strain that will be placed on the existing transport network over the next 25 years as a result of population and employment growth. The review of the capacity of the network for trips to work and other purposes highlights the need for the following:

- Improve public transport connectivity to the wider metropolitan network.
- Improve public transport connectivity between Shire centres, particularly Castle Hill and Norwest.
- Reduce vehicle driver and serve passenger trips.
- Facilitate easy access to Shire centres, particularly town centres.
- Address congestion during special events.
- Accommodate freight movements within and through the region.

The delivery of transport improvements to meet demand for travel is influenced by Federal and State Government agenda. An integrated transport solution covers all modes of transport and involves elements that can be identified as:

- Regional: Actions that are difficult for Council to achieve alone and require partnership with government or business.
- Shire Wide: Actions that require Government support but can be initiated and coordinated by Council.
- Local Area: These actions can be realised by Council.

It is emphasised that whilst an integrated transport solution relies heavily upon improvements to infrastructure, the package would not be complete without effective land use planning and management and innovative solutions to influencing travel choice.

For example to ease congestion during special events, organisers could provide information on a variety of transport options. Transport Access Guides which provide customised information for people travelling to locations via sustainable forms of transport would also be beneficial for large community events.

These components of the solution are discussed in Key Directions 1 and 3 respectively.

Major infrastructure projects that can improve connectivity and serve the travel patterns of residents are set out below:

Air transport

The development of a modern local economy in the Hills Shire would be assisted by improved accessibility to air travel, particularly for domestic business travel. The Australian Government is developing a national aviation policy to guide the aviation industry’s growth over the next decade and beyond. It includes objectives to meet future aviation needs of the Sydney region through the provision of additional aviation capacity, effectively integrated with future land transport and other infrastructure developments.

Richmond RAAF Base could potentially deliver a significant regional air transport asset, providing for a small scale operation of commercial flights. Investigation of this opportunity will require Council to lobby both State and Federal governments for support and funding.

Rail Projects

Rail is the keystone in the Hills Shire package as it provides important links with areas such as the Sydney CBD, Macquarie Park employment area and Parramatta. In addition, it will also provide vital linkages between the Shire’s major centres (Castle Hill and Rouse Hill) and the Norwest Business Park. The delivery of the North West heavy rail must involve enhanced bus networks and provide a convenient alternative to moving around by private car.

To cater for the projected growth in the Hills Shire it is important that rail infrastructure projects be completed within the next decade. This timeframe is essential to ensure that Sydney’s growth is sustainable with jobs...
provided close to where people need them and to see a reduction in congestion across the entire metropolitan area.

The rail links essential to the future development of the Hills Shire are:

**Construction of the Epping to Rouse Hill rail line**

It is preferable that this line should be a heavy rail link, rather than a Metro line. The heavy rail option currently has concept approval. Two additional stations should be included at the intersection of Norwest Boulevard/Lexington Drive to serve the southern precinct of the Norwest Business Park and Samantha Riley Drive at Old Windsor Road.

The additional station at Lexington drive would be within 1.4km of the Norwest Marketown station. Lexington Drive has a significant employment base with Woolworths, Resmed and several other major office complexes, justifying a station at this location. The additional station at Samantha Riley Drive would be within 1.5km of the Kellyville Station and its primary purpose would be to serve the adjacent population in the Kellyville and Beaumont Hills area as well as the proposed North Kellyville population.

**Extension of the rail line from Rouse Hill to Vineyard**

Commitment should be given by Government to construct this link, which must extend through the Box Hill Urban Release Area and contain stations to service the future employment precinct and the residential precinct.

It is vital that decisions on the route of this line be finalised prior to completion of planning for the North West Growth Centre areas, or the opportunity to connect the rail network to areas requiring quality transport options will be lost.

**Construction of the rail link between Epping and Parramatta.**

This link should use the planned (and concept approved) line through Carlingford. This is in accordance with Metropolitan Strategy objectives to support high residential densities and the development of centres around transport nodes, such as Carlingford. It also supports the wider region through access to semi-skilled labour for the Macquarie Park employment area.

**Construction of the Carlingford Line Passing Loop**

This project will enable a significant improvement to the frequency of rail services for residents in the southern parts of the Shire to the Western line. Council will liaise with Parramatta City Council to develop a joint position on the need for improved services on the Carlingford rail line.

Commitment to these four rail elements will require Council to lobby both State and Federal governments for support and funding. At the local area level Council will need to recognise and commit to the necessary land use patterns and densities that will support rail infrastructure.
Bus Projects

Whilst the rail will provide important links to other parts of the metropolitan area and within the Shire, it will be buses that provide the critical linkages to enable the Shire’s residents to access employment opportunities, leisure and shopping activities.

The Shire is traversed by seven strategic bus corridors that must be supported by permeable local routes throughout the Shire to decrease the need for commuter parking stations.

Council is not responsible for regional bus planning and bus operations but it has a role in lobbying for service improvement and the provision of infrastructure such as bus stops and shelters, and bus priority intersections on local roads.

The bus projects essential to the future development of the Hills Shire include:

Bus routes and frequency

Buses need to be able to travel faster than single private cars and at the right frequency. Council will place emphasis on the provision of increased service frequency and an extension of services into residential and employment areas as they develop. This role will involve negotiation and lobbying to ensure the State transport agencies understand the transport needs of the Shire and respond appropriately.

Additionally, Council can work together with Penrith and Blacktown City Councils to secure the delivery of strategic public transport links to support the employment and population growth in Western Sydney. This could include expansion of the strategic bus corridors, and road and rail connections.

Bus priority lanes

In order to reduce travel times and increase attractiveness of public transport, bus lane works have been identified for the following locations.

1. Showground Road (RTA) – Old Northern Road to Carrington Road - bus lanes to be implemented simultaneously with carriageway duplication. (Blacktown – Castle Hill Transitway)

2. Norwest Boulevarde full length – widening of the carriageway to 6 lanes incorporating the provision of dedicated bus lanes and the replacement of roundabouts with traffic signals to reduce delays in peak travelling times.

3. Green Road – provision of a bus lane from St Pauls Avenue to the intersection with Showground Road to allow buses to “queue jump” and proceed into Victoria Avenue.

4. Carrington Road and Victoria Avenue full length – review of capacity constraints in the peak periods to assist bus priority, plus replacement of two roundabouts with traffic signals for pedestrian access. (Blacktown – Castle Hill Transitway)

5. Windsor Road (RTA) – Memorial Avenue to Showground Road. Upgrade to 8 lanes incorporating dedicated bus lanes. (Blacktown – Castle Hill Transitway)

6. Memorial Avenue full length (RTA) – Upgrade to 6 lanes incorporating dedicated bus lanes as part of the Balmoral Road Release Area. (Blacktown – Castle Hill Transitway)

7. Windsor Road, Northmead (RTA) – widening of the carriageway to 6 lanes incorporating dedicated bus lanes. An interim solution may involve the extension of southbound am peak tidal flow bus lane treatment from Churchill Drive to the M2 Motorway.

8. Old Northern Road, Castle Hill to Baulkham Hills (RTA) – upgrade to 6 lanes incorporating dedicated bus lanes. An interim solution may involve the creation of new southbound am peak tidal flow treatment.

9. Pennant Hills Road, Carlingford (RTA) – widening to incorporate dedicated bus lanes between Jenkins Road and Carlingford Road.

10. County Drive, Cherrybrook – opportunity to further investigate with Hornsby Shire Council an upgrade to existing bus route from Epping/M2 through to Round Corner via County Drive as a bus priority lane.

11. Strategic Bus Corridor No. 5 – there is a need for timely delivery and a route that is direct and facilitates high speed bus travel.
**Bus link**

Council will plan for and seek Government support for the bus link from Castle Hill as a major interchange point through the West Pennant Hills Valley from Highs Road to Pennant Hills Road via Taylors Street and Aiken Road to the City, providing better services to the community.

Stage 1 of this project would involve a ‘bus only’ lane for morning peak traffic along the lower section of Highs Road, the full length of Taylor Street and Aiken Road from Taylor Street to Oakes Road. Stage 2 would investigate issues associated with extending the link to Castle Hill with a bus only bridge link over Excelsior Creek. In the longer term, this project will investigate further extensions of the bus priority lane along Oakes Road and Jenkins Road for Parramatta services.

Strategic bus routes should be located on roads that are specifically designed for that purpose, as opposed to local roads.

**Bus interchanges**

Bus interchanges are targeted for locations where significant numbers of passengers start/finish their travel or change modes of transport. Two short to medium term future interchanges have been identified within the Shire, at Castle Hill and Baulkham Hills town centre, that would operate in similar fashion to the existing interchange facility at Rouse Hill centre. Council has a role in the construction of these facilities and lobbying for support and funding.

Consideration also needs to be given to easy pedestrian/cycleway access by commuters at these interchanges and/or commuter parking facilities, either within the centres or at appropriate alternative sites.

**M2 upgrades**

Planning and design of the west facing ramps at the Windsor Road intersection of the M2 Motorway has commenced. This proposal will assist in alleviating congestion at Old Windsor Road and Norwest Boulevard by providing an alternative exit from the motorway. These upgrades are supported in principle, and Council will have involvement where possible. Council must maintain dialogue with the State Government and the Hills Motorway (Transurban) to ensure that proposed upgrades to the M2 such as the additional lanes and west facing ramps at Windsor Road are delivered in a timely manner. In addition, Council will continue to lobby for the provision of a bus priority lane between Windsor Road and Old Windsor Road in the short term.

**Tidal flow projects**

The free flow of buses in the peak period is vital to encouraging the use of public transport. Dialogue will be undertaken with the Roads and Traffic Authority to achieve road widening as listed earlier or improvements to existing situations along Windsor Road between Baulkham Hills and Northmead and Old Northern Road between Castle Hill and Baulkham Hills.

Road widening for dedicated bus lanes will improve bus flows and travel times during peak periods. Tidal flow arrangements are only a short term measure for improving bus access and patronage, making upfront road widening an appropriate option.

**New bus depots**

Supporting infrastructure needs to be identified and implemented to ensure buses are able to access routes from the two proposed new bus depots to be located in the Annangrove Road Industrial Area. There are existing bus depots outside of the Council boundary at Northmead and Dural, but the Rouse Hill centre has created a demand for new strategically placed facilities that increase service efficiency.

Council will undertake planning in conjunction with local bus operators to identify and implement infrastructure needed to support the operation of buses from this location.

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![Castle Hill bus interchange](image-url)
Parking

To support the future transport network it is recognised that parking facilities will be needed at various locations, either to allow commuters to access public transport or to better manage congestion within our centres. The actions for these facilities are at a Shire and local level, with Council taking the lead role in provision.

Commuter parking

Commuter parking has been identified for locations that support the future rail stations and the bus interchanges. Current locations are:
- Samantha Riley Drive Transitway car park
- Memorial Avenue Transitway car park
- Barclay Road (in vicinity of M2 bus stop)
- Torrs Street car park
- Rouse Hill Centre
- Carlingford Station Carlingford

Potential future locations are:
- The Hills Station (Carrington Road)
- Kellyville Station (Balmoral Road Transit Centre)
- Samantha Riley (Potential) Station
- Baulkham Hills bus interchange

In addition to the sites listed above, further investigation will be pursued into commuter parking demand at the Oakes Road / M2 Motorway overpass, and within the Norwest Business Park. Master planning will be undertaken by Council around these commuter parking locations to ensure that other land uses within the location are compatible and provide security, safety and convenience for commuters. Consideration will be given to planning for small neighbourhood centres that support the daily needs of commuters at these locations.

The funding and delivery of commuter parking is dependant on liaising with State Government and establishing the demand for such a facility, identification of suitable locations, and land acquisition. Council will continue to investigate potential locations and lobby State Government for inclusion as an infrastructure priority, particularly in relation to the M2.

The State Environmental Planning Policy (Infrastructure) 2007 allows for the construction of commuter car parks by a public authority without the need for council consent, which should streamline the delivery of this essential infrastructure.

Destination parking

Parking also needs to be reassessed for developments, particularly within centres such as Castle Hill. This will involve canvassing alternate options/solutions for satisfying the parking needs of the community and business. The current parking rates need to be reviewed to ensure developments are viable but do not add to general traffic congestion within the surrounding road network.

Road Projects

Private vehicles will still have a significant role in transport within the North West of Sydney and improvements to the road network are needed to respond to this role.

Motorway link

Council will lobby for improvements to the Sydney Orbital System. The improvements being pursued is the planning and construction of the motorway between the M7 and F3.

This link is the Council’s preferred option over the Pennant Hills Road tunnel. This link between Kariong and Dean Park would allow consideration of a broad transport corridor, incorporating a Motorway and a high speed rail freight link, between centres to the north (Newcastle and Brisbane) and south (Melbourne) via the heartland of western Sydney’s primary manufacturing district.

Grade separation

In order to improve traffic flows and public transport, Council will plan for and lobby Government for the grade separation of Windsor Road, Seven Hills Road and Old Northern Road intersection. In addition to improving traffic flow along the major roads it will improve the function and amenity of the Baulkham Hills town centre.

Other road projects

Council will plan for the following road projects, either for road capacity or for road safety, and seek the support of Government in implementing these projects:

1. Showground Road - widening from 2 to 4 lanes, plus 2 bus lanes.
2. Windsor Road, Kellyville to Norwest Boulevard - widening from 4 to 6 lanes, plus 2 bus lanes.

3. Box Hill to Rouse Hill major centre – completion of the regional transport connection along Withers Road, Mile End Road and the deferred route of Green Hills Drive.

4. Various road upgrades that are within new release areas including Samantha Riley Drive, Withers Road, Commercial Road and Annangrove Road.

5. Various road upgrades that are within urban renewal areas. These roads include Glenhaven Road, Cook Street, Renown Road, Barclay Road, Bettington Road, Statham Avenue, Oakes Road and Jenkins Road.

**Intersection traffic signal improvements**

Improvements to intersections that have the potential to assist with alternative forms of transport and have been identified under other categories. However, Council has a role in planning for these improvements and, if necessary, lobbying for Government support in implementation. These elements include:

1. General improvements to provide better accessibility for pedestrians and cyclists (Mid block pedestrian signals, footpaths and cycleways).

2. Provision of additional bus priority measures at selected intersections that are primarily along the seven strategic bus corridors.

3. Replacement of roundabouts within employment precincts (Victoria Ave and Norwest Boulevard) to provide signalised intersections.

4. Several new or upgraded traffic signals along State routes such as Old Northern Road (eg at Glenhaven Road), Windsor Road (eg at Windermere Ave) and Seven Hills Road (eg at Baulkham Hills Road).

**Roundabouts**

To improve road safety and functionality of the local road network, Council has identified numerous locations where roundabouts will be installed to manage traffic safety and congestion at intersections. These facilities are identified in the long term capital works program. Over the next 10 years, 37 new roundabouts will provided. This includes:

- 18 roundabouts in new release areas;
- 12 roundabouts as part of general local area traffic management works; and
- 7 roundabouts as part of accident blackspot treatments.

**Cycleways**

Cycleways can be categorised as either commuter or recreational, however, careful planning of the network will allow a combination of needs to be met in the future. Within the Shire the focus has been on the provision of recreational cycleways as a result of current demand and past community consultation programs. However, with changes in economic circumstances and lifestyle trends, Council will plan for all forms of cycling activity.

A review of Council’s 2004 Bike Plan was undertaken in 2009 to incorporate new release areas. Various links have been analysed to prioritise missing sections and identify costs for maximising grant funding opportunities. In general terms, the RTA is responsible for on-road and off-road cycleway facilities along State routes, while Council is responsible for all other links. Council can play a role in lobbying for cycle lanes along such routes. In this regard in order to address safety and accessibility concerns, Council will lobby for a new cycle lane along the M2 Motorway corridor.

**Bannerman Road Roundabout**

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Council will continue to provide commuter and recreational cycleways in the Shire, with the aim of making bicycle transport more attractive and safe for recreational and commuter users.

A new Bike Plan is being prepared for the State by the Premier’s Council for Active Living (PCAL) to replace the NSW Government’s 1999 strategy *Action for Bikes: Bike Plan 2010*. Aimed at encouraging more people to use bikes as a clean and healthy transport choice, the new Bike Plan is expected to be ready for release in 2010. Council will monitor and respond to the new Bike Plan (when released) as it applies to the Shire to ensure cycleways service the North West region.

**Commuter**

Council will plan for and seek Government support for the provision of cycle parking at the transit points in Castle Hill and Baulkham Hills centres, and at all future commuter parking locations. Council’s development controls will be reviewed to incorporate end of trip cycle facilities (parking, showers, etc) within new developments.

**Recreational**

Council will continue to implement and seek Government support for the current cycleway network and its extension to urban release areas under various funding schemes including RTA network development, Metropolitan Greenspace Program, Harbour Foreshores Program, and The Department of Sport and Recreation Program.

**Pedestrian Facilities**

To encourage people to change travel behaviour it is essential to provide quality footpath treatments, particularly within centres or areas targeted for higher density residential development.

**Footpath network**

Council will continue to implement the footpath network identified in the long term capital works program. Opportunities will continue to be implemented where footpaths are constructed as part of adjacent private development in both new release areas and older renewal areas.

**Centres and precincts**

Council actions include the development of public domain plans for centres that provide for pedestrian facilities and seek improvements to accessibility/connectivity and the amenity of centres. These provisions will be included in controls that guide future development and will be implemented through conditions of consent on all new development.
MAKING SUSTAINABLE TRAVEL CHOICES

SNAPSHOT

• Improving travel options can significantly reduce private vehicle trips.
• The high costs associated with providing parking spaces has implications for dwelling affordability and viability of new developments.
• To encourage the use of public transport, parking availability in centres will be reviewed.
• To increase the appeal of public transport a range of options can be pursued such as integrated ticketing, access guides and Walking School Bus programs.

Society's reliance on cars, particularly for single person journeys, has become a recognised problem worldwide. At the State and Federal level in Australia and elsewhere around the world, governments are working to change travel behaviour away from single occupant car travel. Achieving a change in travel behaviour will benefit our environment and health, and the quality of life for current and future generations.

Influencing travel choice will require a combination of both regulatory and non-regulatory measures. Overseas evidence suggests that improving travel choice, by better walking and cycling infrastructure and public transport services, may reduce car travel by 10 – 20% (Littman, T. 2009).

The provision of convenient and readily available parking at destinations encourages travel by private vehicles, contributes to traffic congestion and can make alternative travel modes such as walking, cycling or public transport less attractive.

The Hills Shire has relatively high parking rates when compared to those for nearby LGAs such as Penrith. Between 2001 and 2006, there was a 12% increase in vehicle ownership in the Shire. The number of cars owned per household is also comparatively high as shown in the following table.

It is acknowledged that car ownership in the Hills Shire is greatly influenced by the dispersed nature of development that has occurred over time and the lack of a rail line.

<table>
<thead>
<tr>
<th>Car Ownership</th>
<th>Shire Statistical Division</th>
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</table>

Reducing the appeal of private vehicle trips

Given the high level of car ownership in the Shire and the entrenched nature of car usage, fostering a change in the community's travel habits will be a challenge. Strategies such as managing the availability of parking throughout the Shire can encourage people to consider alternatives such as walking, cycling and public transport.

“Prominent, plentiful, cheap and unrestricted parking encourages people to drive.”


The following sections outline potential measures to improve the appeal of public transport to the community. Other initiatives such as the Walking School Bus program are also examined, along with opportunities to better promote sustainable travel choices to residents, employees and visitors to the Shire.

Walking to school
Photo courtesy of TravelSmart Australia
<table>
<thead>
<tr>
<th></th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Car</td>
<td>23.3%</td>
</tr>
<tr>
<td></td>
<td>36.4%</td>
</tr>
<tr>
<td>Two Cars</td>
<td>46.6%</td>
</tr>
<tr>
<td></td>
<td>30.2%</td>
</tr>
<tr>
<td>Three + Cars</td>
<td>23.1%</td>
</tr>
<tr>
<td></td>
<td>11.5%</td>
</tr>
</tbody>
</table>

2006 Census: Car ownership per household.

The Integrating Land Use and Transport package was released by the State Government in 2001. It identifies the key concepts for transport planning as being convenience, information, proximity, destination choice, directness and security. It also outlines a number of 'best practice' principles for parking, including:

- The importance of considering parking in conjunction with broader land use plans and strategies.
- Applying variable parking requirements and charges, depending on accessibility to public transport.
- Reducing parking requirements in concentrated centres that have good public transport access.
- Allowing shared parking for land uses that have staggered operating times.

The Draft North West Subregional Strategy (NW D3.2.1) indicates that the State Government is developing a Metropolitan Parking Policy that will guide the supply and management of parking to support the use of sustainable transport to strategic centres such as Norwest, Castle Hill and Rouse Hill. When released, Council will review the Policy to maintain consistency as appropriate.

A closer examination is required of Council’s parking controls and opportunities to achieve change.

Parking for Centres

Within major centres it is vital that sufficient short-stay parking facilities are available to maintain economic vitality and viability and to recognise the competing needs of different users. However, an increasing supply of car parking spaces that serve long stay commuter demand in major centres can act as barrier to economic growth by contributing to increased traffic and impacts on the attractiveness of the centre. Car parking policies for centres should support a greater proportion of sustainable transport options including walking, cycling and public transport.

Parking management measures that could be suitable for the Hills Shire include:

- Reducing parking requirements in areas where there is good public transport access. Consideration could be given to lowering parking rates in areas that are served by frequent bus services such as the Castle major centre and Baulkham Hills town centre. In the longer term, lower parking rates may also be suitable for areas surrounding rail stations to discourage use of the private car.
- Contributions in lieu of parking to provide well located, concentrated parking facilities.
- Restricting on street parking via measures such as time limits, paid ticketed spaces and/or windscreen permits.

To ensure equity within the community, the use of such measures is only suitable for locations that are well serviced by public transport. Disabled parking spaces should continue to be provided.

Case Study: City of Ryde Parking Provisions

The parking requirements in the City of Ryde Council’s Development Control Plan recognise the varying levels of accessibility to public transport within the Council area.

The Development Control Plan contains a lower parking rate for residential flats where they are within 400 metres of Victoria Road, Epping Road or a railway station.

Source: City of Ryde Development Control Plan (Section 9.3 Car Parking), (2006).

Free off-street car parking is available in most of the Shire’s centres, generally with no time restrictions. New technology such as the Park Assist signage system at the Rouse Hill Major Centre can improve the efficiency of parking areas by advising drivers of the location of vacant parking spaces. Electronic car park signage systems can also reduce the need to over-provide parking based on an assumed level of unoccupied spaces or design inefficiencies.
On-street parking in many areas of the Shire is unrestricted. In some centres parking is subject to time restrictions, however Council does not currently charge for on-street parking. The availability of on street parking in close proximity to centres such as Castle Hill can impact on future parking restraint initiatives that seek to encourage mode shift to public transport.

On-street parking in Oatlands

Car parking requirements for higher density residential development in the vicinity of centres can reinforce high car ownership. By making parking easily available, the private vehicle becomes an easy and convenient first choice for many in the community.

However, analysis of actual car ownership by unit residents in Castle Hill, Baulkham Hills and Carlingford (based on 2006 Census data) indicates that Council’s Development Control Plan provisions are in excess of those required to meet vehicle ownership needs.

The following table indicates that in some parts of the Shire, Development Control Plan parking provisions may be higher than is necessary. High car parking requirements can impact on the financial viability of a development.

<table>
<thead>
<tr>
<th>Unit Size in Bedrooms</th>
<th>Average Car Ownership</th>
<th>Development Control Plan Car Parking Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.4</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>1.1</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>1.4</td>
<td>2</td>
</tr>
</tbody>
</table>


The high costs associated with providing parking spaces, particularly basement parking, has implications for dwelling affordability and the financial viability of developments in general.

Council will develop a parking policy and review Development Control Plan provisions, with a particular focus given to on and off-street parking in centres and high density residential development close to centres.

Increasing the appeal of active transport

‘Active transport’ refers to walking, cycling and use of public transport instead of private cars. Initiatives by the Roads and Traffic Authority, in conjunction with other government policies, are focusing on promoting active transport based on its physical, social, and environmental benefits.

Travel demand management encourages reduced car usage through the promotion of alternative travel modes. This requires balancing the road and travel requirements for a broad range of users who utilise private cars, buses, bicycles, commercial vehicles, public transport, and motorcycles to get where they need to go. Achieving a change in the community’s transport habits will require ongoing commitment from all levels of government.

“Time spent on public transport can be used productively - for reading, work, relaxation etc, but time in a car can be stressful.”

The following sections examine a range of initiatives available to promote sustainable travel choices.

**Travel Plans**

Travel plans contain a range of site-specific actions to encourage the use of more sustainable travel modes. Travel plans can be suitable for single sites such as workplaces, TAFEs and universities as well as larger areas that encompass numerous businesses and trip generators. Local Governments in Victoria (Nillumbik Shire Council) and Western Australia (City of Stirling) have also developed school travel plans to improve the use of alternative transport.

The preparation of travel plans for workplaces can have a range of benefits such as better health and fitness of staff, reduced traffic congestion in the vicinity of an organisation, improving the corporate image as an environmentally conscious business, reduced greenhouse gas emissions and potential cost savings for travel and parking provision.

A typical travel plan might address public transport, walking, cycling, carpooling, incentives, opportunities for flexible working, for example working from home, and company fleet car options, for example a choice of vehicles.

When preparing a travel plan, some activities to encourage and generate interest in changing workplace travel behaviour could include:

- Providing information on green travel options and public transport timetables on staff noticeboards.
- Preparing fact sheets on walking, cycling and car pooling and holding information sessions.
- Distributing maps of local cycleways and walking tracks to staff.
- Providing financial assistance to staff for the purchase of bicycles.
- Establishing a workplace bike pool.
- Offering free bus tickets for a designated period.
- Providing designated parking spaces for carpool vehicles and establishing a register of interested staff.

(Adapted from ‘The Green Travel Plan Guide’ prepared by the Australian Greenhouse Office and Noosa, Thuringowa and Rockhampton Councils, no date).

A Workplace Travel Plan is yet to be developed for the Hills Shire Council. Some actions that could stem from such a plan include participation in bicycle loan schemes for staff to commute to and from work and encouraging car pooling among staff. The Council fleet has already moved towards smaller four-cylinder vehicles and encourages participation in the National Ride to Work Day and Walk to Work Day.

**Walking and Cycling Facilities**

The provision of appropriate and well-located infrastructure and end of trip facilities for walking and cycling is important for encouraging use by the community.

Transport Data Centre (2006) identify that around 27% of trips made in the North West subregion are vehicle driver trips under 5km in length. There is a clear opportunity to encourage localised trips generally associated with education, shopping, and journey to work to use walking and cycling as the main form of transport.

Field investigations have revealed a number of issues facing cyclists on some of the commuter links within or close to the Shire:

- Rolled kerbs or similar are needed at key points to ensure that cyclists do not need to dismount to gain access to bicycle tracks.
- More signage is required on bike lockers where provided to enable enquiries to be made in relation to hire charges, space available. This was particularly evident at Rouse Hill.
- Signage throughout the cycleway network needs improvement to show in map form where cyclists are on the cycleway network, where other tracks are located, and to provide directional signage where tracks follow local roads.
• Maintenance is needed at some locations to ensure path is not obstructed by vegetation. For example, Windsor Road corridor between Merrivale Road and Norwest Boulevard.

The Baulkham Hills Development Control Plan currently requires bicycle parking and change / shower facilities to be provided for larger commercial premises, gyms and sports centres, large warehousing, factory and bulky goods developments, shops, schools and tertiary education facilities. The Development Control Plan will be reviewed in relation to requirements for end of trip facilities such as bicycle parking, change / shower facilities and storage lockers. The review will also examine the effectiveness of current bicycle parking rates and opportunities for improvement.

**Integrated Ticketing**

The ability to travel throughout the Shire and the wider Sydney metropolitan region on a single ticket would greatly simplify the use of public transport by the community.

Action NW D2.3.1 in the Draft North West Subregional Strategy indicates that the Public Transport Ticketing Corporation and the Ministry of Transport will be working to introduce an integrated ticketing system for all public transport in Sydney.

From 18 April 2010 the NSW Government will introduce MyZone. A simpler fare structure that will make travelling in and around Sydney. For the first time one ticket can be purchased to use on either government or private buses.

In addition, the Metropolitan Transport Plan seeks deliver an electronic ticketing system for greater Sydney. A smartcard with automatic top-up will be introduced and will operate on all public transport services. The roll out of this system is set to commence from 2012.

Such systems help to encourage public transport use by making it simpler and user friendly.

**Pedestrian Access and Mobility Plans**

Pedestrian Access and Mobility Plans (PAMPs) are developed as a partnership between the Roads and Traffic Authority and local councils and can improve walkability and connectivity within a local area. They provide a basis for the development of pedestrian routes that are important for safety, convenience and mobility. The Roads and Traffic Authority provides funding for successful PAMP applications on a 50:50 basis with local councils.

Council submits PAMP applications on an annual basis for centres which have identified access issues. To improve the attractiveness of walking and cycling, Council will continue to apply for PAMP funding for local pedestrian facilities. A particular focus will be given to the Norwest and Castle Hill areas which will involve identifying a coordinated program of improvements.

**Service Improvements**

The availability of regular, direct and easily accessible public transport services throughout the Shire and into surrounding regions is imperative for encouraging patronage and providing a more sustainable transport choice for the community.

Figure 12 in the Findings on Travel Demand indicate that 24% of trips are made for social and recreation purposes in the Shire. There is a lack of evening and weekend bus services in the Shire, which has implications particularly for people in the youth and elderly age groups, with the younger age groups being over represented in vehicle accidents in the Shire.

Improving the coverage and frequency of the bus network is vital for making bus travel more appealing to the community. Council can play a role by working with bus operators to identify gaps in services and improve the frequency and connectivity with the wider transport network. In addition, the investigation of opportunities for the establishment of a bus hub in the Glenorie area can assist in
improving travel choice, access and frequency to bus services in the rural area. Glenorie is a supported locality due to its central location to the rural north area along Old Northern Road and its range of services and facilities that will provide access to daily needs.

It has been identified that bus services on the following routes are in need of improvement:

- Extension of the Transitway service T60 to Norwest and Castle Hill.
- Route 610 to the city, between Rouse Hill and Castle Hill.
- Route 639 from Pennant Hills to rural areas (initial focus on the southern part of the route as well as improved bus priority and bus stops on Showground Road).

While Council is not directly responsible for bus service planning or operation, there is an opportunity to be involved via:

- Planning for bus stops/ bays in new release areas.
- Provision of footpaths that provide access to bus stops.

- General improvement of bus stops, for example lighting, signage and amenity.
- Lobbying the State Government for increased Transitway frequencies.

**Transport Access Guides**

Within the Hills Shire, some key destinations include the Castle Hill major centre, Rouse Hill major centre, Baulkham Hills town centre, Norwest Business Park, and larger sporting venues. The development of Transport Access Guides (TAGs) for these and other locations could help reduce congestion on roads and encourage access by public transport, walking or cycling.

A Transport Access Guide provides customised information for people accessing locations via sustainable forms of transport. TAGs are a good way to inform employees, visitors and tourists of the various ways that a site can be accessed using alternatives to the private car.

TAGs can be presented in many forms, for example on business stationery (business cards, envelopes etc), invitations, websites, brochures, or newspaper advertising. They allow visitors to make a fast and easy assessment of the location of nearby train stations, bus stops, taxi ranks, and walking and cycle routes.
TAGs make it easier to plan a non car-based journey and may include a range of information, such as:

- a map.
- bus routes and train stations.
- walking and cycle paths, including secure bicycle lockers.
- access points for people with disabilities.
- major visual landmarks.
- estimated travel times from major centres.
- contact details for public transport providers.

Parramatta City Council have produced a pocket TAG for the city centre to support Parramatta in its role as Sydney's second major employment and commercial centre. The TAG promotes the centre's variety of transport choices with the goal of reducing car dependency and greenhouse gas emissions.

Residents, visitors and employees in the Hills Shire would benefit from the preparation of a TAG for the Council chambers and other key destinations in the Shire. During revision of the Baulkham Hills Development Control Plan consideration will be given to requiring the preparation of Transport Access Guides by businesses.

Council will work with relevant stakeholders to prepare TAGs for Castle Hill, Winston Hills, Baulkham Hills and Carlingford. To encourage the widespread availability of sustainable transport information, Council can support to operators of key destination sites such as Norwest Business Park and major sporting venues in the Shire who wish to prepare TAGs for their venues.

Other Initiatives

There are many other opportunities to influence the community’s travel choices and make local trips more sustainable.

**Local Government Initiatives**

A number of councils in NSW support innovative programs which provide an affordable and convenient transport service for the community. Operating within a designated area, schemes such as Council cabs and shuttle buses are particularly beneficial for the elderly or mobility impaired and people who do not own a car. They can also help reduce the need for people to drive when they work relatively close to a bus stop or train station.

**Local Government Initiatives**

- **City of Ryde**: Provides the free ‘Top Ryder’ shuttle bus service on 2 routes while a major shopping centre and the Ryde Town Centre are being revitalised.
- **Parramatta City Council**: Launched in 2008, the free ‘Loop’ bus service provides the community with access to the commercial, retail and recreational landmarks of the city.
- **Willoughby City Council**: Operates a Council Cab scheme for a small fee, providing travel to any destination within the Willoughby City Council area. The Council also runs a free shuttle bus service through the Artarmon industrial area.
- **Manly Council**: The free Hop, Skip and Jump shuttle bus service operates on 4 routes around Manly, seven days a week.

Funding can be assisted from sources such as sponsorship or income from parking meters.

The benefits of such initiatives warrants further investigation of the feasibility, demand and funding options for Council-supported travel initiatives (e.g. shuttle bus, Council Cab etc).

**Walking School Bus**

The Walking School Bus program involves primary-aged school children walking to and from school along a safe, set route, with supervision by volunteer parents.

Benefits of the Walking School Bus program include:

- Daily exercise for children, which is a key part of active and healthy lifestyles.
• Making walking an accepted mode of travel within the community.
• Reducing car trips and easing traffic and congestion around schools.
• Developing social networks for children and parents.
• Teaching children about road safety.

Within the Hills Shire, the Walking School Bus Program has been successfully implemented at a number of schools including Baulkham Hills North Public School and Matthew Pearce Public School.

Run by a community based organisation (North West Community Care), over 125 children are enrolled in the program, which provides a range of ‘bus routes’ for these schools. This project is funded by Council and Landcom for a three year period. It is intended that the Walking School Bus initiative will be expanded to cover additional schools in the Shire in the future, where funding can be secured.

Promotion of Sustainable Travel Choices

It is important that the community are aware of the variety of transport services that are available to them. This requires a process of ongoing promotion to raise community awareness and encourage the use of alternative travel modes.

Some initiatives to raise the profile of non car-based travel include the Pedestrian Council of Australia’s annual ‘Walk to Work Day’, and ‘Walk Safely to School Day’.

TravelSmart Australia is a government initiative that aims to reduce car usage. It brings together the many community and government programs associated with promoting alternatives to the car, as well as the benefits of more sustainable travel choices. The TravelSmart website contains resource kits to assist employers, schools, special event planners and universities to implement travel demand management strategies.

There are opportunities for Council to increase community awareness of sustainable travel options via promotional measures such as:

• Including bus timetable and route information in Resident Information Kits.
• Improving public transport information on Council’s website such as links or contact details for buses, rail, car pooling and car sharing schemes, taxis.
• Liaising with transport providers to improve signage of bus stops and taxi ranks.

Council will continue to be involved in the promotion of sustainable travel initiatives throughout the Shire.
PLANNING FOR NEW AREAS

SNAPSHOT

- Strong focus needed on completion of the Blacktown to Castle Hill Transitway through the Balmoral Road Release Area.
- Early commencement of bus services in the release areas is important for developing sustainable travel habits.
- Need to work cooperatively with State government to achieve outcomes that integrate transport nodes with planned centres.
- Need for delivery of key State infrastructure to support employment growth as well as residential development.

The Hills Shire is a growth area, containing major greenfield sites which will accommodate a significant amount of Sydney’s residential growth in the next twenty five years. Growth will be focused in three main precincts: the Balmoral Road Release Area and two North West Growth Centre Precincts being North Kellyville and Box Hill. In addition, employment growth in the Annangrove Industrial Area and Box Hill Industrial Area will bring about transport challenges as the developed area of the Shire extends.

This section of the Findings outlines the status of the various residential and employment areas in the Shire and provides an overview of the transport requirements for these developing areas.

Balmoral Road Release Area

Zoned for urban development in 2006, land in the Balmoral Road Release Area allows for a mix of low, medium and high density housing, as well as centres, employment land and a rail corridor. When fully developed, it is anticipated that this area will accommodate around 13,100 residents. There is also potential for the business land to accommodate around 2,505 jobs.

The planning undertaken for the release area has had considerable regard to accessibility and connectivity to the transport network. This includes planning for higher density development close to the proposed rail line, provision for a transit centre, provision of a cycleway network that continues the Greenway link from Rouse Hill to Bella Vista, and connects key destinations such as centres and recreation areas.

Prior to the construction of the rail network, the Transitway from the Rouse Hill major centre which runs along the Old Windsor Road boundary of the release area will facilitate connection to the regional area in the short term. A strong focus is required to complete the Blacktown to Castle Hill Transitway as shown on the Urban Structure Plan to facilitate easier access to Castle Hill.

Land in the Balmoral Road Release Area is subject to a State Government Interim Land Release Contribution (ILRC) that is intended to assist with the provision of regional transport infrastructure such as:

- Rail, busway or road links to district centres.
- Rail, busway or road links to regional transport road and rail networks (e.g. track and station upgrades).
- Regional cycleways and pedestrian footpaths to facilitate access to regional and sub-regional public transport.
- Promotion of public transport and walking and cycling in the area.
- Acquisition of land for transport infrastructure purposes.

There is a need to continue to lobby for delivery of key State level infrastructure within the precinct.
As the release area develops, there will be a need to focus upon:

- The provision of regular public transport to the release area’s four centres.
- The future Kellyville Station, including an efficient, well functioning and attractive to use transport interchange.
- Walking/ cycling links throughout to provide access between residential areas, centres, the future rail station, the Transitway stop and new employment land.
- Commuter parking where required.

Opportunities to improve linkages to centres, employment land and public transport nodes will be examined during preparation of the Tracks and Trails Strategy. This will include monitoring funding opportunities.

**North Kellyville Precinct**

Planning for the North Kellyville Precinct was undertaken by the Growth Centres Commission with input from Council. This included a traffic and transport assessment.

An amendment to State Environmental Planning Policy (Sydney Region Growth Centres) 2006 to zone the precinct was gazetted in December 2008. The North Kellyville Development Control Plan road layout provides for interconnected streets that allow direct and convenient access throughout the precinct. This layout facilitates the movement of pedestrians and cyclists by providing clear and easy access between spaces.

The North Kellyville Development Control Plan aims for the majority of residential lots to be within 400 metres radius from an existing or proposed bus stop. Public transport routes are shown on Figure 21 and given the linear road layout, should contribute to services that are well patronised. The commencement of these routes early in the life of the release area is a priority.

Public transport for the North Kellyville Precinct should provide flexible services that:

- Connect new communities in the release area to existing facilities at Castle Hill and Rouse Hill Major Centre and also to the Northwest Transitway, in the short term;

- Provide connectivity for new areas to the Parramatta / Macquarie centres and the Box Hill Release Area (in the longer term).

An important part of the public transport framework will be the provision of a northern connection between Annangrove Road and Ross Place to improve network coverage throughout the precinct.

In conjunction with the provision of access to public transport, a convenient, safe and efficient network of pedestrian and cycle paths is also planned to encourage walking and cycling as a means of accessing schools, shops and local community and recreation facilities. Cycle paths will provide access from residential areas to the precinct’s three centres and beyond the precinct.

**Factors Influencing use of the Public Transport Network**

- Population density and patronage potential.
- The diversity and mix of land uses present in an area.
- The design and quality of the urban form.
- The presence of deterrents to driving and the availability of efficient public transport.
- Building orientation, pedestrian access and availability of free parking between road frontages and building entrances.
- The location of bus stops and road crossing points.
- The quality of infrastructure such as bus stop facilities.
- Streetscapes that discourage walking or make accessing facilities difficult.

Source: Adapted from Maunsell / Aecom Traffic and Transport Assessment, prepared for the Growth Centres Commission, (January 2008), p.17
Box Hill Precinct

The Minister for Planning announced in July 2009 that planning for future residential and employment land in the Box Hill Precinct has commenced. The Department of Planning is responsible for the planning and implementation of a regulatory framework for the Box Hill precinct. When completed, this area has the potential to accommodate 10,000 dwellings and provide 14,700 jobs.

The Structure Plan for the North West Growth Centre identifies a town centre and seven neighbourhood centres to provide for the needs of the new community. These centres will become the focus of activity and the provision of pedestrian, cycle and public transport must facilitate connection and access locally and to the wider Shire.

Council will lobby the Department of Planning for the provision of suitable transport infrastructure for this precinct. This includes planning for transport nodes around centres, street networks that facilitate walking and cycling, development of a comprehensive network of walking/cycling paths and the early commencement of bus routes to connect residents within this area locally but also extend to other key destinations.
“Bus networks and services must be developed in line with residential growth to enable sustainable transport habits to be developed by new residents from the outset.”


The North West Sector Bus Servicing Plan (BSP) was released by NSW Transport and Infrastructure in October 2009. The Plan defines a long term bus network for the North West Sector and recommends a network of regional and district routes to connect town centres to regional centres. Within the Hills Shire the connection of Box Hill town centre, Castle Hill Town Centre and Rouse Hill major centre are a focus.

It is important that transport services and infrastructure are available in release areas from the time the first residents move in. This will help shape travel behaviour towards the use of more sustainable modes. Council will lobby the State Government and bus operators to subsidise and commence bus routes in release areas before patronage reaches the normally required levels.

Special Infrastructure Contributions

A Special Infrastructure Contribution (SIC) also applies to land in the North West Growth Centre. Administered by the Growth Centres Commission, the SIC will provide for services such as heavy rail and regional road infrastructure, bus services, and education, health and emergency services. In The Hills Shire, SIC funds will be used to upgrade the following roads:

- Withers Road from Mile End Road to Annangrove Road
- The Water Lane from Nelson Road to Annangrove Road
- Annangrove Road from Windsor Road to The Water Lane
- Nelson Road from Windsor Road to The Water Lane.

Box Hill Light Industrial Precinct

The Employment Lands Direction identifies the opportunity for Box Hill Light Industrial Precinct to become a business park that supports existing centres and builds on knowledge based activities. Due to the development of this land extending beyond the developed areas of the Shire there is a need to focus on extending the current transport network, particularly:-

- Extension of North West Transitway along Windsor Road beyond Rouse Hill major centre.
- Realisation of public transport corridor connecting Annangrove Road to Commercial Road.
- Delivery of the North West rail and extension of this rail link to Vineyard.
- Development of the F3 to M7 link.

Close collaboration between Council and the State Government will improve understanding of local and regional transport needs to service this area.

Annangrove Road Light Industrial Area

Zoned for industrial purposes in 1991, there remain substantial areas of vacant land in this precinct. Due to the outlying location, the provision of suitable transport infrastructure is important. This will include planning for public transport, road access that is suitable for trucks, and walking and cycling paths that connect the light industrial area with nearby dwellings.

As set out in the Findings of Planning for Demand land has been identified for a public transport corridor which includes a connection between Commercial Road and Annangrove Road which would facilitate direct public transport access for employees of the light industrial area to Rouse Hill major centre. There is a need to continue to lobby State Government for delivery of the bus corridor.

The Employment Direction recommends the preparation of a master plan and development controls for this industrial area. The master plan should consider accessibility to the area by buses, taxis, walking and cycling.
The quality of transport infrastructure plays a key role in encouraging use by the community and improving perceptions of public transport. There are a number of aspects involved in achieving quality transport outcomes, including:

- Safety of the transport network.
- Accessibility to transport for all users.
- Protecting cultural heritage along transport corridors.

These are addressed in further detail below:

**Safety of the Transport Network**

**Road Safety**

The Hills Shire has a high vulnerability to vehicle accidents. This is partly due to the dispersed nature of land uses, the lack of public transport and the levels of vehicle usage and ownership.

However, statistics in Council’s Crash Analysis Report show that between 2003 and 2007 there was an 18% reduction in total crashes in the Shire. The number of casualties has also decreased. Speeding, alcohol and fatigue are major contributing factors for accidents in the Hills Shire.

Pedestrian accidents represent only a small percentage (7%) of total crashes but account for 24% of fatalities. The provision of footpaths, pedestrian crossings and road signage play an important role in improving pedestrian safety and encouraging walking by all members of the community.

For the 2009/10 financial year, Council will be involved in the following road safety initiatives:

- The Hills Accord Responsible Service of Alcohol Training for Year 12 students in the LGA.
- A drink drive project targeting local businesses with a Transport Guide to be updated (this gives local bus, courtesy bus at venues and taxi info).
- Free child restraint checking days.
- Walking School Bus programs.

Funding for these projects is provided by Council, the Roads and Traffic Authority, and local clubs as part of the Community Development Support and Expenditure (CDSE) program. Continuation of these initiatives is recommended given the important outcomes they can achieve.

**Cyclist Safety**

In the period between 1996 and 2007 a total of 131 cyclist accidents have been reported with no fatalities. On average, 11 cyclist accidents
occur each year. The most dangerous cycling locations in the Shire are perceived to be the state owned roads that are characterised by high traffic volumes and speeds, limited crossing points and poor road surfaces. Such roads include Old Northern Road, Windsor Road, Pennant Hills Road, Seven Hills Road, Showground Road and Castle Hill Road.

As outlined earlier in the Findings on Travel Demand, cycling accounts for a small percentage of overall trips. In order to achieve an increase in cycling as a preferred mode of travel, it is important to provide infrastructure along key routes to support cyclists.

There are several ways to accommodate commuter cyclists including:-
- Designated bicycle on-road lane
- Bicycle shoulder lanes
- Combined bus lane and cycle lane

Best practice (as recommended by the RTA’s NSW Bicycle Guidelines) is via physical separation. This involves the development of designated bicycle lanes on one side of a road carriageway, and is similar to the purpose built off-road cycleway/pedestrian footpath located alongside the bus Transitway from Rouse Hill to Parramatta.

Accessibility to Transport

It is important that all sectors of the community are able to access transport services. This includes people with a disability, older persons, children, students and people who do not own cars.

Pathways

The Shire has an extensive network of cycle / pedestrian paths, particularly in the newer residential areas of Kellyville and Rouse Hill. Parts of Castle Hill and other older suburbs lack footpaths which can discourage people from walking due to uneven surfaces, access difficulties and safety concerns.

Key measures for improving pedestrian accessibility to support multiple users, involves improving directional signage; installing pedestrian crossings / islands where required, such as near bus stops; providing physical separation between footpaths and high speed roads; and ensuring that footpaths have even surfaces, continuous links and ramps as appropriate.

Bus Timetables

All sectors of the community should be able to understand bus timetables and the location of bus routes. This could involve working with bus operators to make service and timetable information clearer and available in other languages to make travelling by public transport easier.

Bus Stop Improvements

A review of bus stops along key routes such as Windsor Road, Old Windsor Road, Showground Road and Old Northern Road identified opportunities to improve bus stop facilities throughout the Shire.

Bus shelter design, appearance and location should encourage widespread bus travel by the community. As centres redevelop, there may be opportunities to incorporate more modern bus shelter designs that reflect the character of a place and its heritage.

Bus shelters should:
- Be easily identifiable and visible from a distance.
- Allow clear views of oncoming buses.
- Be comfortable and accessible for all, with footpaths, pedestrian crossings, adequate seating and provision for the mobility impaired.
- Provide protection from the elements and be in keeping with the surrounding built environment.
- Be safe, secure, well-lit, clean and graffiti-free.
- Include maps and information on bus routes and frequency.
The incorporation of new technology into bus stops would also be of benefit. Options include the installation of features such as electronic timetables and continuously updated bus arrival schedules, to better meet the needs of both commuters and local travellers.

As detailed in the Findings on Making Sustainable Travel Choices, the provision of commuter parking at bus and rail facilities plays an important role in the decision to use public transport for the journey to work.

Community Services

Through Hills Community Care organisation and a network of volunteers, Council supports a specialised community transport service for any person who has a transport disadvantage including frail aged people, people with a disability of any age and also cares. Transport is provided in modern buses and assists with door to door access to shopping, medical appointments, nursing home and hospital visits, library and social outings.

The continuation of this service is essential to help people stay independent with easy access to transport assistance. Services are made available through funding provided by the NSW Department of Ageing, Disability and Home Care (HACC), the Australian Government – Department of Health and Ageing, NSW Ministry of Transport, and the Hills Shire Council. Strategies and actions to ensure ongoing funding of this service will be a benefit to the Hills Shire community.

Cultural Heritage

The settlement of the Shire followed its two main road systems, the road to Windsor, and the road to Wisemans Ferry. Many of these roads were constructed by convict labour with some based on Aboriginal trails used for trade and visiting ceremonies. The Great North Road (which today generally follows the line of Old Northern Road to Wisemans Ferry) to Newcastle remains one of the most impressive engineering feats of Australia’s convict era.

Heritage items are located throughout the Shire and can include houses, road culverts and bridges, sheds, barns, cemeteries, churches, gate posts and trees and are listed in Council’s Local Environmental Plan. The potential impact of road works and transport infrastructure on the setting, curtilage and views to heritage items requires consideration during the planning, construction and landscaping phases.

The Local Environmental Plan also identifies a number of archaeological sites that consist of former sections of road. Many of these are located along Old Northern Road in Maroota and Wisemans Ferry. For development along transport corridors, it is important that heritage impact studies be prepared prior to work being undertaken in the vicinity of locations that may have historic value.

The retention of heritage items and their setting provides important evidence of development in the Shire and should be kept for future generations. The Shire’s heritage items will continue to be identified in Local Environmental Plan 2010.

Some opportunities to ensure the protection of cultural heritage from transport related impacts include:

- Continuing to educate the development industry.
- Maintaining dialogue with Roads and Traffic Authority to ensure heritage items are considered in transport planning for major projects.
- Ongoing training for Council staff in identifying heritage items and understanding of relevant heritage legislation when undertaking road projects.
- Maintain Council’s heritage inventory to ensure that all heritage items are identified and protected in the transport planning process.
**Key Directions**

INTEGRATED TRANSPORT DIRECTION

In developing objectives, strategies and actions to respond to the identified issues, five key directions emerged:

T1: Plan and manage the Shire’s transport network to meet community needs.

T2: Facilitate delivery of a cohesive transport network.

T3: Promote and enhance sustainable travel choices.

T4: Plan for an integrated transport network for new areas.

T5: Encourage quality transport outcomes.

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**FOCUS**

- Responsiveness to population and employment growth.
- Efficient management of existing resources.
- Accessible and well connected key destinations.
- Reliable, safe and appealing travel options.
- Amenity, safety and sustainability.
Key Directions
INTEGRATED TRANSPORT DIRECTION

T1 PLAN AND MANAGE THE SHIRE’S TRANSPORT NETWORK TO MEET COMMUNITY NEEDS

Council has a responsibility to ensure that the community’s travel demands are met and to implement land use planning that supports movement within the Shire and the wider region.

Over recent years the focus of transport planning has moved away from concern with vehicle mobility, the expansion of road and parking capacity to a greater focus on accessibility, the use of a variety of transport modes and creating a compact urban environment.

The Shire’s projected growth to 2031 by an additional 36,000 dwellings and 100,000 people will increase travel demand and vehicular traffic by around 60%. When combined with employment capacity for an additional 55,000 jobs, there is a clear and imperative need to undertake an integrated approach to managing travel demand. Land use planning has a key role to play in facilitating travel via public transport for local, regional and commuter journeys and for improving accessibility by walking and cycling.

By concentrating complementary land uses such as shops, employment areas, entertainment facilities, dwellings and schools in proximity to public transport, Council can play a role in reducing reliance on the private vehicle.

As set out in the findings on Planning for Travel Demand Council’s strategic planning framework for residential development, centres and employment lands reflect objectives relating to concentration and proximity of complementary land uses. This includes:

- Provision for higher residential densities close to jobs, transport and services.
- Employment areas and centres linked to the public transport and cycleway network.
- Renewal of urban land along key transport routes.
- Providing for employment opportunities close to home.

Continuation of this approach is recommended.

REDUCING CAR DEPENDANCE

- less air pollution and greenhouse gas emissions.
- reduce vehicle operating costs for households and businesses.
- improve fitness through walking and cycling.
- greater opportunities for social interaction by taking people out of cars.
- alleviate pressure on congested road networks.
- improve safety for vehicle occupants and pedestrians.
- Greater mobility for the elderly and other members of the community, by alternative modes.
In order to ensure that future opportunities are realised, clear identification of desired transport outcomes, and key transport lands through the land use planning framework is paramount.

Relevant Local Environmental Plan objectives for land in the vicinity of key public transport infrastructure should relate to ensuring that new development integrates with the public transport network, encouraging mixed forms of development (residential, commercial etc) that facilitate the ongoing viability of public transport, and promoting development that encourages public transport use whilst minimising private traffic generation.

The requirements of Section 117 Direction 3.4 ‘Integrating Land Use and Transport’ which aims to improve accessibility by walking, cycling and public transport, to reduce car dependence and travel demand and to support the efficient and viable operation of public transport services will be considered in the preparation of Council’s Local Environmental Plan.

Zoning for an integrated transport network should have regard to the following principles:

1. Continue to plan for a concentration of retail, entertainment, employment and high density residential development in the vicinity of public transport nodes, centres and the rail corridor.

   Section 117 Direction 3.1 ‘Residential zones’ will be relevant.

2. Continuation of zoned classified roads (refer Figure 17) to communicate the role, land use and existing or intended State ownership and management.

3. Zone regional and local roads (refer Figure 6) consistent with the surrounding zone unless land acquisition is required. In such cases land should be zoned to communicate its local road widening role and acquisition liability.

4. Identify and retain the ‘Public Transport Corridor’ in Rouse Hill through a zoning that allows for public transport use to communicate its role and existing or intended public ownership.

5. Continuation of zoned railways and rail corridor land to communicate the role, intended use and existing or intended public ownership.

   Section 117 Direction 6.2 ‘Reserving Land for Public Purposes’ will be relevant to items 2-5 above. Mapping will also be needed to clearly identify land acquisition reservations.

The function and management of different transport modes in the network is set out in Figure 23.

The Local Environmental Plan and Development Control Plan framework will support and complement each other to minimise the impacts of transport infrastructure on surrounding land uses and conversely the impacts of high traffic generating development on the transport network. The provisions of State Environmental Planning Policy (Infrastructure) 2007 will be relevant and address arrange of impacts. Some matters that will be supplemented by local development controls include:

- Providing for a range and integration of land use elements for future transit centre development at Hills Centre and Kellyville station.
- The location and design of child care centre development that has frontage to a classified road.
- Additional considerations for other development on land that has access to a classified road.

"Land use factors such as density, mix, connectivity and walkability affect how people travel in a community.”

(Litman, T., ‘Land Use Impacts on Transport’, 2008, p.1)

In order to effectively respond to growth and change in travel demand and lobby State Government for improvements, ongoing monitoring of development and changes in travel patterns will be undertaken.
<table>
<thead>
<tr>
<th>Transport Mode</th>
<th>Management</th>
<th>Function/ Intended Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carlingford rail line</td>
<td>Railcorp.</td>
<td>Provide connection for residents in the south east part of the Shire to the Western Line via Clyde with access to Sydney’s CBD, Penrith, the Blue Mountains, Parramatta and the North Shore.</td>
</tr>
<tr>
<td>Proposed North West rail link</td>
<td>Transport Infrastructure Design Group.</td>
<td>Provide efficient and regular public transport access to key destinations including metropolitan and regional centres.</td>
</tr>
<tr>
<td>Public transport corridor</td>
<td>Department of Planning.</td>
<td>Provide public transport access between Rouse Hill and Parramatta.</td>
</tr>
<tr>
<td>Strategic bus corridor network (Region 4)</td>
<td>RTA, Hillsbus, Busways and Council.</td>
<td>Provide access to metropolitan, regional and major centres and transport hubs. Includes the North West Transitway to provide a direct, high frequency bus only link between Parramatta and Rouse Hill.</td>
</tr>
<tr>
<td>Local bus network</td>
<td>Hillsbus and Busways</td>
<td>Supplementing connection between key local destinations including schools.</td>
</tr>
<tr>
<td>Classified roads</td>
<td>RTA.</td>
<td>Main road forming principal avenues for metropolitan traffic movements.</td>
</tr>
<tr>
<td>Regional roads</td>
<td>Council with RTA funding.</td>
<td>A secondary road carrying traffic from one sub-region to another.</td>
</tr>
<tr>
<td>Collector roads</td>
<td>Council.</td>
<td>A minor road linking local areas and sub-arterial roads.</td>
</tr>
<tr>
<td>Local roads</td>
<td>Council.</td>
<td>Provide immediate access to individual houses.</td>
</tr>
<tr>
<td>Commuter cycleways</td>
<td>RTA and Council.</td>
<td>Connecting key employment destinations to residential area.</td>
</tr>
<tr>
<td>Other pedestrian &amp; cycleways</td>
<td>Council.</td>
<td>Connecting local open space and local services to residents in the locality.</td>
</tr>
</tbody>
</table>

Figure 22: Function and Management of the Shires Transport network.
### Objective:
Ensure that planning and future development supports the provision of an efficient transport network.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1.1</td>
<td>Draft appropriate zonings, objectives and provisions for transport infrastructure and surrounding lands in Council’s Local Environmental Plan.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Apply a relevant Local Environmental Plan Template infrastructure zone to identify the role of public transport corridor, railways, railway corridor and local road widening.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Zone regional and local roads consistent with the surrounding zone.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(c) Ensure zone objectives for employment lands, centres and high density residential encourage use of public transport, walking and cycling.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(d) Continue planning for a concentration and/or intensity of land use activities around major public transport nodes and higher order centres.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td>1.1.2</td>
<td>Reinforce the protection of the transport network in decision making.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Clearly identify the intended function of different transport modes in the Local Strategy.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Review development controls to facilitate integration of land use elements for future transit centres and include criteria for traffic generating developments on classified roads.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(c) Consider the integration of transport services with major developments, particularly the future transitioning of Norwest Marketown, Winston Hills and Windsor Road Kellyville centres to higher order centres.</td>
<td>Development Control</td>
</tr>
<tr>
<td>1.1.3</td>
<td>Minimise the impact of transport infrastructure on surrounding land uses.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(a) Draft provisions for child care centre development that has frontage to a classified road.</td>
<td>Forward Planning</td>
</tr>
</tbody>
</table>
### T1.2

**Objective:** Respond to population and employment growth in the Shire in an effective and timely manner.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2.1</td>
<td>(a) Monitor changes in travel patterns.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Monitor the rate of land releases, development and population growth.</td>
<td>Forward Planning</td>
</tr>
</tbody>
</table>

- **Strategy:** Ensure the transport network meets the travel demands of the community in the future.

**Image:** Cyclists, Rouse Hill Major Centre
A cohesive transport network incorporating a range of transport options is critical to moving people to key destinations both within and outside the Shire. Currently travel for Hills Shire residents relies heavily on the road network and travel by private vehicle.

There is potential to achieve a significant mode shift away from the private car, however this will rely upon suitable and convenient public transport. If just a 2.5% mode shift to public transport can be achieved, daily car driver trips would reduce by 23,000. This would result in a saving of 270,000 vehicle kilometres travelled per day.

There is a strong need to deliver improved transport infrastructure and services to improve connections not only to Sydney City but also to regional cities including Parramatta and Penrith. It is important for all levels of government to respond to and meet the transport needs of the projected population and employment growth that will occur within the Shire. Responses to these needs have been identified as ‘regional’, ‘shire-wide’ or ‘local area’ reflecting the ability of Council to achieve change either on its own or in partnership with government or business.

Regional responses

To date, bringing some key State-level infrastructure projects to fruition for the residents of Sydney's North West has been difficult to achieve. Council will continue to lobby for the reinstatement and commitment to the timely delivery of key projects as identified in Figure 23 which will significantly improve connectivity to the metropolitan region.

Shire wide responses

The Hills Shire road network has experienced significant pressure from commuters for some time, and will continue being challenged unless adequate transport options are made available. In the short term a priority focus is required on projects that increase the capacity of the road network to address congestion at major intersections and also accommodate improved bus transport such as dedicated bus lanes.

Ongoing negotiation and discussion will be required with the RTA to secure improvements in the short term. In the longer term working with other Western Sydney councils will assist in achieving north-south links to connect to the regional cities of Penrith and Parramatta.

As identified in the Findings, the connectivity between Castle Hill and Norwest requires particular attention given the vital role of these strategic centres. Strategic planning will be undertaken together with liaison with key stakeholders to improve bus connection and frequency. Council will plan for the following projects and seek the financial support of Government in implementing these projects:

**Bus projects**

1. Bus priority lanes at:
   - Green Road from St Pauls Avenue to the intersection with Showground Road.
   - Full length of Carrington Road and Victoria Avenue.
   - Epping/M2 to Round Corner via County Drive.

2. Bus link from Castle Hill through the West Pennant Hills Valley from Highs Road to Pennant Hills Road via Taylors Street and Aiken Road to the City and to Parramatta. In the longer term, extensions of the bus priority lane along Oakes Road and Jenkins Road will be investigated.

3. Bus interchanges at Castle Hill and Baulkham Hills town centre together with pedestrian/cycleway accessibility and commuter parking.

4. Working with local bus operators to implement new bus depots proposed in Annangrove Road industrial area and identify other infrastructure needed to support the operation of buses from such depots.
5. Investigation and master planning for commuter parking demand at the Oakes Road/M2 Motorway overpass and within the Norwest Business Park.

<table>
<thead>
<tr>
<th>Transport Infrastructure</th>
<th>Timeframe required to meet The Hills demand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Rail Projects</strong></td>
<td></td>
</tr>
<tr>
<td>1. Construction of a North West rail link from Epping to Rouse Hill including additional stations at Norwest and Samantha Riley Drive.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>2. Extension of the rail line from Rouse Hill to Vineyard</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>3. Construction of the rail link between Epping and Parramatta</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td><strong>Bus Projects</strong></td>
<td></td>
</tr>
<tr>
<td>• Showground Road from Old Northern Road to Carrington Road</td>
<td></td>
</tr>
<tr>
<td>• Windsor Road from Memorial Avenue to Showground Road.</td>
<td></td>
</tr>
<tr>
<td>• Full length of Memorial Avenue.</td>
<td></td>
</tr>
<tr>
<td>• Windsor Road, Northmead from Churchill Drive to the M2 Motorway.</td>
<td></td>
</tr>
<tr>
<td>• Old Northern Road, Castle Hill to Baulkham Hills</td>
<td></td>
</tr>
<tr>
<td>• Pennant Hills Road, Carlingford between Jenkins Road and Carlingford Road.</td>
<td></td>
</tr>
<tr>
<td>• Full length of Norwest Boulevarde.</td>
<td></td>
</tr>
<tr>
<td>• M2 Motorway, Windsor Road to Old Windsor Road.</td>
<td></td>
</tr>
<tr>
<td>6. Implementation of Strategic Bus Corridor No. 5 on a route that is direct and facilitates high speed bus travel.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>7. Tidal flow projects to improve existing situations along Windsor Road and Old Windsor Road and provision for bus priority.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td><strong>Road Projects</strong></td>
<td></td>
</tr>
<tr>
<td>8. M2 upgrades including additional lanes, and west facing ramps at Windsor Road.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>9. Planning of the motorway between the M2 and F3 (Dean Park to Kariong).</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>10. Construction of the motorway between the M2 and F3 (Dean Park to Kariong).</td>
<td>Long Term (2020-2025)</td>
</tr>
<tr>
<td>11. Grade separation of Windsor Road, Seven Hills Road and Old Northern Road intersection at Baulkham Hills.</td>
<td>Medium Term (2015-2015)</td>
</tr>
<tr>
<td>12. Norwest Boulevarde upgrades to facilitate the provision of bus lanes and replacement of roundabouts with traffic signals.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>13. Road upgrades to Windsor Road and Old Windsor Road north of Parramatta.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td>14. Road upgrades to Showground Road and Memorial Avenue as part of the Blacktown to Castle Hill Bus Priority.</td>
<td>Short Term (2010-2015)</td>
</tr>
<tr>
<td><strong>Cycle Projects</strong></td>
<td></td>
</tr>
<tr>
<td>15. Construction of anew cycle lane along the M2 motorway to address safety and accessibility for cyclists.</td>
<td>Short Term (2010-2015)</td>
</tr>
</tbody>
</table>

Figure 23: Timetable of priorities for regional infrastructure.
Road Projects

1. Widening of Showground Road from 2 to 4 lanes, plus 2 bus lanes.

2. Widening of Windsor Road, Kellyville to Norwest Boulevarde from 4 to 6 lanes, plus 2 bus lanes.

3. Completion of the regional transport connection along Withers Road, Mile End Road and the deferred route of Green Hills Drive.

4. Provision of additional bus priority measures at selected intersections along the seven strategic bus corridors.

5. Intersection traffic signal improvements along State routes such as Old Northern Road, Windsor Road and Seven Hills Road and within employment precincts such as Victoria Ave and Norwest Boulevarde.

6. Monitor and respond to the NSW Government NSW Freight Strategy when it is released.

Cycleway projects

1. Provision of cycle parking at the transit points in Castle Hill and Baulkham Hills and all future commuter parking locations.

   Opportunities for funding include RTA network development, Metropolitan Greenspace Program, Harbour Foreshores Program, and the Department of Sport and Recreation Program.

2. Monitor and respond to the Premier’s Council for Active Living Bike Plan and the NSW Government Bike Plan when it is released.

Local area responses

Council has a strong role to play in planning, lobbying and seeking support for regional and shire wide improvements. Additionally, Council can play a direct role in realising a number of local projects that will complement the wider transport network including:

Parking projects

1. Reassessment of parking needs and development controls particularly within destination centres such as Castle Hill (refer Key Direction 3).

Road projects

1. Various road upgrades that are within new release areas including Samantha Riley Drive, Withers Road, Commercial Road and Annangrove Road.

2. Various road upgrades that are within urban renewal areas. These roads include Glenhaven Road, Cook Street, Renown Road, Barclay Road, Bettington Road, Statham Avenue, Oakes Road and Jenkins Road.

3. Intersection traffic signal improvements to provide better accessibility for pedestrians and cyclists (Mid block pedestrian signals, footpaths and cycleways).

4. Roundabouts at numerous locations to manage traffic safety and congestion.

Cycleway and pedestrian projects

1. Provision of commuter and recreational cycleways within the Shire.

2. Review of development controls to incorporate end of trip cycle facilities within new developments (refer Key Direction 3).

3. Development of public domain plans for centres to improve accessibility and connectivity.

4. Adoption of a Shire-wide Bike Plan.

Roadworks, Glenhaven Road bridge
**Objective:** Encourage major transport infrastructure to assist movements at a regional level.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.1 Promote planning and delivery of key rail infrastructure.</td>
<td>(a) Continue to lobby State Government for the reinstatement of identified rail projects.</td>
<td>Councillors</td>
</tr>
<tr>
<td></td>
<td>(b) Liaise with Parramatta City Council to develop a joint position to advocate for Carlingford rail improvements.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td>2.1.2 Promote timely delivery of bus infrastructure to alleviate congestion on Shire roads.</td>
<td>(a) Lobby the RTA for the provision of bus priority lanes and tidal flow measures in key locations to reduce travel times.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Work with local bus operators to support the operation of buses from new depots in release areas.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(c) Continue to plan for and negotiate funding for bus interchanges at key destinations.</td>
<td>Infrastructure &amp; Transport Planning Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(d) Liaise with Hillsbus, Busways and the RTA to address bus connection and frequency between Norwest and Castle Hill.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(e) Plan for a bus link between Castle Hill and West Pennant Hills Valley from Highs Road to Pennant Hills Road via Taylors Street and Aiken Road.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(f) Master plan for commuter parking within the M2 Motorway and the Norwest Business Park and liaise with State Government for delivery.</td>
<td>Infrastructure &amp; Transport Planning Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(g) Liaise with Hornsby Shire Council to facilitate a bus link from Epping/M2 through to Round Corner via County Drive.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
</tbody>
</table>
**Objective:** Encourage major transport infrastructure to assist movements at a regional level.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1.3 Promote timely delivery of road improvements to alleviate traffic congestion.</td>
<td>(a) Negotiate with the RTA for the early delivery of improvements to the M2 Motorway.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td>(b) Plan for and lobby the RTA for grade separation at the intersection of Windsor Road and Old Northern Road Baulkham Hills.</td>
<td></td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td>(c) Plan for and seek the support of the RTA for widening of Showground Road and Windsor Road and the provision of the public transport corridor at Rouse Hill.</td>
<td></td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td>(d) Liaise with the RTA for the provision of bus priority measures and intersection traffic signal improvements as identified.</td>
<td></td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
</tbody>
</table>

| 2.1.4 Promote connections that facilitate the movement of freight and build upon economic growth in the Shire. | (a) Lobby State Government for the early construction of a “Type C” link between the F3 Freeway and M7 Motorway. | Forward Planning Infrastructure & Transport Planning |
| (b) Monitor and respond to NSW Government NSW Freight Strategy when released | | Infrastructure & Transport Planning |

| 2.1.5 Make bicycle transport an attractive and safe option for commuters. | (a) Plan for and seek government support for cycle parking at existing and future transit points. | Forward Planning Infrastructure & Transport Planning |
| (b) Lobby State government for a new cycle lane along the M2 Motorway | | Infrastructure & Transport Planning |
| (c) Monitor and respond to Premier’s Council for Active Living Bike Plan and the NSW Government Bike Plan when released. | | Infrastructure & Transport Planning |
| (d) Council adopt an updated Shire-wide Bike Plan. | | Infrastructure & Transport Planning |
**Objective:** Provide for transport infrastructure to serve, support and connect local destinations.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
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</thead>
<tbody>
<tr>
<td>2.2.1 2.2.1 Improve accessibility and connectivity at targeted locations.</td>
<td>(a) Provide road upgrades within new release areas as identified.</td>
<td>Infrastructure Projects</td>
</tr>
<tr>
<td>2.2.1 2.2.1</td>
<td>(b) Provide road upgrades within urban renewal areas as identified.</td>
<td>Infrastructure Projects</td>
</tr>
<tr>
<td>2.2.1 2.2.1 2.2.1</td>
<td>(c) Provide intersection traffic signal improvements and new roundabouts as required.</td>
<td>Infrastructure Projects</td>
</tr>
<tr>
<td>2.2.2 Facilitate direct and safe pedestrian and cycle access to centres and other key destinations.</td>
<td>(a) Continue the program of commuter and recreational cycleway provision.</td>
<td>Infrastructure &amp; Transport Planning Infrastructure Projects</td>
</tr>
<tr>
<td>2.2.2</td>
<td>(b) Development of public domain plans for centres.</td>
<td>Forward Planning</td>
</tr>
</tbody>
</table>
Key Directions
INTEGRATED TRANSPORT DIRECTION

T3 PROMOTE AND ENHANCE SUSTAINABLE TRAVEL CHOICES

The availability of transport choice provides many social, environmental and economic benefits to the community. Most significantly, improving transport choice will reduce car dependency and traffic congestion. This will see improvements to the amenity of urban areas and general quality of life for the community. Essentially, the availability of a range of travel choices will increase mobility and allow people to move between places easily.

Travel choice can be influenced by education programs and infrastructure improvements, and Council is well-placed to target this area for improvement. However for many people, particularly those who already own cars, changing ingrained travel habits that have been developed over a lifetime will be difficult, though not impossible, to achieve.

Encouraging the community to make sustainable travel choices will involve making private vehicle use less attractive and improving the appeal of public transport to the community. The successful promotion of sustainable travel choices will be instrumental in generating acceptance and change within the community. Council has a role in influencing the community’s transport choices. Some strategies to achieve this include:

- Reviewing the Department of Planning’s Metropolitan Parking Policy to maintain consistency as appropriate (when released). This will be particularly relevant for the strategic centres of Castle Hill, Rouse Hill and Norwest.
- Developing a parking policy and reviewing development controls that address on and off-street parking in centres and parking for higher density residential development.
- Reviewing demand and funding options for sustainable travel initiatives to provide alternative transport options for the community, for example a shuttle bus.
- Continue with the Walking School Bus program.

An integrated ticketing system for Sydney is long overdue. The NSW Government will commence MyZone in April 2010 which will provide an improved fare system for public transport users. The Metropolitan Transport Plan also seeks to deliver an integrated electronic ticketing System commencing in 2012.

The appeal of public transport is enhanced by the availability of direct services that connect easily with services in surrounding areas. Council will continue to be involved in improving overall public transport services in the Shire. This will include strategies such as working with bus operators to identify gaps in services and improve frequency and connectivity with the wider transport network and investigating opportunities for the establishment of a bus hub in Glenorie to improve access and services to public transport in the rural areas.

Council will continue to apply for funding for Pedestrian Access Mobility Plans (PAMPs) to help improve walkability and connectivity through the provision of local pedestrian facilities.
To improve community awareness of sustainable travel options, Council will work with relevant stakeholders to prepare Transport Access Guides (TAGs) for Castle Hill, Winston Hills, Baulkham Hills and Carlingford. Council will also provide support as required to operators of key destination sites within the Shire who wish to prepare TAGs for their venues. A focus will also be given to special events that are coordinated by Council to ensure the potential for traffic congestion is well managed and alternative transport options are made available. In the longer term such an approach may provide a model for the efficient operation of other special events.

A review of the Baulkham Hills Development Control Plan will be undertaken to achieve a better balance between community / resident needs and public transport provision, and encourage a shift away from private vehicle usage. Consideration will be given to a reduction in parking rates for locations that are well served by public transport or are readily accessible by sustainable travel modes. A particular focus will be on:

- Ensuring that parking rates are closely aligned with resident needs given public transport availability.
- A reduction in parking requirements for locations that are well served by public transport.
- The need for larger scale retail and commercial developments to prepare travel plans and transport access guides.
- Bicycle parking rates and end of trip facilities.
- Incorporating technology to improve the efficiency of parking in new developments.
- Incentives, such as reserved parking spaces for high occupancy vehicles.

Any change to parking standards should be accompanied by a community education program to improve awareness of public transport availability and walking and cycling opportunities. Improving the level of walking and cycling in the community will involve raising awareness of cycleways and walking tracks throughout the Shire, and improving footpaths and cycleways, track facilities and connectivity where needed. Completion of the Tracks and Trails Strategy will play a key role in achieving an accessible network of well-located and connected walking and cycling trails in the Shire. The Integrated Transport Direction supports the preparation of this Strategy.
**Objective:** Enhance the attractiveness of the public transport network as a travel option.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
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<tbody>
<tr>
<td>3.1.1</td>
<td>Improve the community's awareness of sustainable transport options.</td>
<td>(a) Prepare Transport Access Guides (TAGs) for Castle Hill, Winston Hills, Baulkham Hills and Carlingford. Infrastructure &amp; Transport Planning</td>
</tr>
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<td></td>
<td></td>
<td>(b) Provide support to operators of key destination sites in the preparation of transport access guides (TAGs) as required. Infrastructure &amp; Transport Planning</td>
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<td></td>
<td>(c) Consider the development of transport access guides for Council organised special events. Infrastructure &amp; Transport Planning</td>
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<td>(d) Liaise with business to encourage work place travel plans, with a focus on large commercial developments. Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td>3.1.2</td>
<td>Work with State Government and service providers to improve public transport services in the Shire.</td>
<td>(a) Work with bus operators to identify gaps in services and improve frequency and connectivity with the wider transport network. Infrastructure &amp; Transport Planning</td>
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<td></td>
<td>(b) Lobby the State Government for the implementation of an integrated ticketing system. Infrastructure &amp; Transport Planning</td>
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</tbody>
</table>
### T3.2

**Objective:** Promote the availability and accessibility of alternative transport options.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
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</thead>
<tbody>
<tr>
<td>3.2.1 Make walking and cycling attractive to the community.</td>
<td>(a) Continue with the Walking School Bus Program.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Continue to apply for PAMP funding for local pedestrian facilities.</td>
<td>Infrastructure &amp; Transport Planning</td>
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<tr>
<td></td>
<td>(c) Review development controls to incorporate end of trip cycle facilities within new developments.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td>3.2.2 Improve opportunities for sustainable travel in the Shire.</td>
<td>(a) Review the feasibility and funding options for Council-supported sustainable travel initiatives (e.g. shuttle bus).</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Investigate opportunities for the establishment of a bus hub in the Glenorie area.</td>
<td>Infrastructure &amp; Transport Planning</td>
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</tbody>
</table>

### T3.3

**Objective:** Guide the supply and management of parking to support sustainable transport use.

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<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
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</thead>
<tbody>
<tr>
<td>3.3.1 Implement parking provisions that discourage the use of private vehicles.</td>
<td>(a) Review the Department of Planning’s Metropolitan Parking Policy when completed.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Develop a parking policy and review development controls for on and off-street parking in centres and higher density residential development.</td>
<td>Forward Planning</td>
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</table>
Key Directions
INTEGRATED TRANSPORT DIRECTION

T4 PLAN FOR AN INTEGRATED TRANSPORT NETWORK FOR NEW AREAS

Planning for new areas provides the opportunity to apply integrated land use and transport principles to increase access to public transport, walking and cycling, and reduce car dependency thereby positively influencing sustainable travel choices and behaviour from the outset.

The location, density, design and staging of development is important to maximise access to public transport. The following principles are considered critical for the future planning of Box Hill:-

• Design of street patterns that minimises the travel distance between two points and facilitates direct pedestrian and cycle access between residential areas, centres, bus stops, and parks. This would involve minimising cul-de-sacs and maximising connected streets to create a permeable and legible network.

• Connectivity with the wider local and regional bus network is important. Key destinations include Sydney CBD, regional cities of Parramatta and Penrith, Blacktown and the Shires major centres.

• Location of bus stops within easy walking distance of dwellings. Key bus stops could provide cycle storage facilities and other amenities to attract use.

• Early introduction of bus services in the development process with connectivity to the existing network and accessibility to wider interests.

• Centres should be located within transport corridors supported by high frequency public transport services. Incorporating taxi ranks into the initial design of site layouts will provide alternative transport options.

• Provision of walking and cycling paths for commuter and recreational users and connect residential areas with places of work, recreation, and education.

• Development must be staged in conjunction with the provision of sufficient transport.

It is acknowledged that ultimately the planning outcomes in the Growth Centre are the responsibility of State Government, however given the Shires existing transport shortage, Council seeks to take active involvement in ensuring the delivery of transport infrastructure to support the increase in population and employment growth. This would involve working with the Department of Planning, conveying principles for the planning of the precinct based on research and experience in the local area.

Council has a role for all release areas to lobby for the early delivery of key State level infrastructure including the North West rail link, the public transport corridor and extension of North West Transitway along Windsor Road to the Box Hill precinct.
### Objective: Guide the planning and delivery of new transport facilities and services to support new areas.

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Action</th>
<th>Lead Team</th>
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<tbody>
<tr>
<td>4.1.1</td>
<td>Have an active role in the planning of Box Hill Precinct.</td>
<td></td>
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<tr>
<td></td>
<td>(a) Work with the Department of Planning in planning the Box Hill Precinct.</td>
<td>Forward Planning</td>
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<tr>
<td></td>
<td>(b) Convey integrated land use and transport principles for the planning of the precinct to the Department of Planning.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td>4.1.2</td>
<td>Proactively encourage the early and efficient delivery of transport services to release areas.</td>
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<tr>
<td></td>
<td>(a) Continue to make representation to State Government for specific public transport infrastructure to service release areas.</td>
<td>Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Lobby State Government and bus operators to ensure the timely development of new bus routes and commence services before demand.</td>
<td>Infrastructure &amp; Transport Planning</td>
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<tr>
<td></td>
<td>(c) Monitor transport network performance in new areas and review the success of infrastructure provision to identify any shortfalls.</td>
<td>Infrastructure &amp; Transport Planning</td>
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</tbody>
</table>
Key Directions
INTEGRATED TRANSPORT DIRECTION

T5 ENCOURAGE QUALITY TRANSPORT OUTCOMES

Achieving quality transport outcomes plays a major role in encouraging the use of public transport by the community and includes safety and accessibility of the transport network and protection of cultural heritage along transport corridors. There are several strategies and actions that can be pursued to encourage quality transport outcomes that incorporate these ideals.

Safety and Accessibility

Council currently has a number of road safety initiatives in place and will continue to implement these initiatives. This will be subject to ongoing monitoring and review to ensure that the program of works continue to address the causes of fatality and injury on our transport network.

In terms of cyclist safety Council will lobby the State Government to deliver dedicated bicycle lanes along the Blacktown to Castle Hill bus corridor as identified in the RTA Bike Plan 2010 and will investigate additional locations for such improvements particularly along high speed and high volume roads.

In terms of accessibility, focus is required on users who do not have a high level of mobility or easy access to services. Continuation of services provided by Council’s community care organisations is supported. Review of these services is warranted to determine if it is feasible to expand the program to include a wider range of services. Council will continue to facilitate pedestrian access where required to encourage and support walking for all users.

Council will continue its program of bus stop improvements with a view to improving standards and attracting a broader range of patrons to the bus transport network. Particular factors identified for improvement included the consistency of signage and the provision of information, shelter from the elements, seating, lighting, footpaths and convenient road crossings in close proximity.

Cultural Heritage

Opportunities to achieve the protection of cultural heritage from transport related impacts include improving education and training for the development industry and Council staff, and continue dialogue with the Roads and Traffic Authority to ensure the consideration of heritage during the planning, construction and landscaping phase of road provision.
### T5.1

**Objective:** Contribute to the development of a transport network that is safe and accessible to all users.

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<tr>
<th>Strategy</th>
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<tbody>
<tr>
<td>5.1.1 Improve the safety of the transport network to support multiple users.</td>
<td>(a) Lobby the State Government for delivery of a dedicated bicycle lane along the Blacktown to Castle Hill bus corridor.</td>
<td>Infrastructure &amp; Transport Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Investigate future locations for commuter cycleways particularly along high speed and high volume roads.</td>
<td>Infrastructure &amp; Transport Planning</td>
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<td></td>
<td>(c) Continue the provision, upgrade and maintenance of public pathways and the program of bus stop improvements.</td>
<td>Infrastructure</td>
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<td></td>
<td>(d) Continue to apply for funding for Hills Community Care bus service.</td>
<td>Community Development</td>
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<td></td>
<td>(e) Prepare a program that will address the causes of fatality and injury in our transport network.</td>
<td>Infrastructure &amp; Transport Planning</td>
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### T5.2

**Objective:** Ensure the protection of cultural heritage along transport corridors.

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<tr>
<th>Strategy</th>
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<tr>
<td>5.2.2 Improve awareness of heritage along transport corridors.</td>
<td>(a) Maintain dialogue with the Roads and Traffic Authority to ensure heritage is considered during road planning.</td>
<td>Infrastructure &amp; Transport Planning Forward Planning</td>
</tr>
<tr>
<td></td>
<td>(b) Raise awareness among Council staff and developers of heritage issues.</td>
<td>Forward Planning Development Assessment Subdivision &amp; Development Certification</td>
</tr>
</tbody>
</table>
Development Controls

A new Development Control Plan will be drafted to support Local Environmental Plan 2010. Areas identified for particular attention include: review of car parking rates for retail, commercial and residential development; end of trip facilities such as bicycle parking, change/shower facilities and storage lockers; bicycle parking rates; preparation of Transport Access Guides by businesses.

Timeframe: Completion to coincide with gazettal of Local Environmental Plan 2010

Transport Access Guide

To encourage the use of sustainable transport and reduce personal vehicle use Council will work with relevant stakeholders to develop Transport Access Guide for key destinations within the Shire including Castle Hill, Winston Hills, Baulkham Hills and Carlingford. Providing information of the various ways that a site can be accessed using alternatives to the private care will bring major benefits such as increasing vehicle occupancy, reducing traffic congestion and air pollution and encouraging active transport.

Timeframe: Completed December 2010
Monitoring & Review
INTEGRATED TRANSPORT DIRECTION

Evaluation and review of the Integrated Transport Direction will be vital to its implementation and effectiveness. As a dynamic document, its content will be continually revised and amended to ensure innovation in the planning and management of centres.

Mechanisms for monitoring and measuring the progress of implementation for the Integrated Transport Direction is essential. Much of the work anticipated in the Direction will form the core business and work program of Council’s Forward Planning Section. It is anticipated that an annual report will be formulated commenting on the progress in Key Direction Areas, objectives, strategies and actions.

It is intended that a major review of the Local Strategy and supporting Directions will be undertaken every five years in line with the regular review of Council’s Hills 2026 Community Strategic Direction and the Local Environmental Plan as shown in Figure 24. Periodic review may also be appropriate as a result of changes to metropolitan planning policy, new infrastructure projects or completion of new strategic work by Council.

This will provide Council with an opportunity to monitor the status of completed actions and where targets are met, and will allow the Direction to be tailored to address changing demographic situations, State Government planning policies, and new or updated Council strategies.

Figure 24: Timeline of Review
References
INTEGRATED TRANSPORT DIRECTION


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Baulkham Hills Shire Council, Local Environmental Plan 2005.


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Growth Centres Commission, Special Infrastructure Contribution Practice Note (November 2008).


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NSW Government, February 2010, Metropolitan Transport Plan – Connecting the City of Cities.


Premier’s Council for Active Living (PCAL) website. Available at: www.pcal.nsw.gov.au


The GPT Group, Rouse Hill Town Centre – Sustainable Communities, available at <http://www.rhtc.com.au>


TravelSmart Australia website, available at <www.travelsmart.gov.au/>


Willoughby City Council website, available at <www.willoughby.nsw.gov.au>

State Environmental Planning Policies:

- State Environmental Planning Policy Sydney Region Growth Centres 2006
- Draft State Environmental Planning Policy 66 – Integration of Land Use and Transport.
- REP 18 – Public Transport Corridor

Standard Instrument – Principal Local Environmental Plan made in 2006 under the Environmental Planning and Assessment Act 1979.
Glossary

INTEGRATED TRANSPORT DIRECTION

ABS
Australian Bureau of Statistics.

Active transport
Walking, cycling and use of public transport instead of private cars.

BHDCP
Baulkham Hills Development Control Plan.

BHLEP 2005
Baulkham Hills Local Environmental Plan 2005.

BSP
North West Sector Bus Servicing Plan 2009

CBD
Central Business District.

Centre
Centres are places where services and facilities are concentrated to meet peoples needs. They may include shopping, office based employment, recreation, leisure, entertainment and cultural facilities, health and community services.

Centres Direction
One of the strategic directions that form the basis of the key directions in the Local Strategy.

Contributions Plans
A Contributions Plan sets out the levies a Council may collect under Section 94 of the Environmental Planning and Assessment Act, 1979 for public amenities and services that are required because of development.

DA
Development Application for consent to carry out development.

DCP
A Development Control Plan is a Council document incorporating development controls to guide the preparation and assessment of development applications.

DoP
Department of Planning (New South Wales).

Draft North West Subregional Strategy
The Draft North West Subregion: Subregional Strategy has been prepared by the Department of Planning to translate the Metropolitan Strategy into a specialised strategy for each local government area grouping in Sydney.

Employment Lands
Employment Lands include traditional industrial areas, business and technology parks. They incorporate light industries, heavy industry, manufacturing, urban services, warehousing and logistics and high-tech based activities.

Employment Lands Direction
One of the strategic directions that form the basis of the key directions in the Local Strategy.

Environment and Leisure Direction
One of the strategic directions that form the basis of the key directions in the Local Strategy.

EP&A Act
Environmental Planning and Assessment Act 1979 (New South Wales).

EP&A Regulation
Environmental Planning and Assessment Regulation 2000 (New South Wales).

GCC
The Growth Centres Commission was established by the NSW Government to ensure that new development proceeds with infrastructure and services planned, funded and linked to the sequence of land release.

Growth Centres Development Code
The Growth Centres Development Code was prepared by the Growth Centres Commission to guide planning and urban design in the North West.
Higher density residential
Higher density residential means a more dense housing form such as apartment buildings and town houses.

Hills 2026
Hills 2026 Community Strategic Direction: Looking Towards the Future.

Integrated Transport Direction
One of the strategic directions that form the basis of the key directions in the Local Strategy.

LEP
Local Environmental Plan.

LEP 2005
Baulkham Hills Local Environmental Plan 2005, as amended.

LEP 2010
Council’s new template Local Environmental Plan, known as Local Environmental Plan 2010.

LGA
Local Government Area.

Local Government Act, 1993
This Act provides for the system of local government in New South Wales.\textsuperscript{vi}

Local Strategy
The Local Strategy is the principal document for communicating the future planning and growth of the Hills Shire to the year 2031.

Low density residential
An urban area containing single residential dwellings.

Major Centre
A major centre usually comprises a transport interchange, taller commercial buildings, higher order retail and destination shopping, higher density residential development, community services and facilities, civic services and facilities and entertainment and cultural facilities.

Masterplan
A masterplan provides a site-specific framework for development on a site and sets key guidelines and planning principles for development.

Medium density residential
Generally comprising two storey development, for example townhouses.

Metropolitan Strategy
The Metropolitan Strategy: City of Cities ‘A Plan for Sydney's Future’ was prepared by the NSW Department of Planning, to plan for Sydney's growth over the next 25 years. The Strategy has five overarching aims: enhance liveability, strengthen economic competitiveness, ensure fairness, protect the environment, and improve governance.

Neighbourhood Centre
A neighbourhood centre is the smallest centre containing low scale strip retailing that meets daily convenience needs. Facilities may include post box, public phone and public open space.

NGO
Non-government organisation.

North West Growth Centre
The North West Growth Centre, comprising sixteen precincts, is approximately 10,000 hectares and will contain about 60,000 new homes in The Hills, Blacktown and Hawkesbury Councils.

North West Subregion
The North West Subregion includes the local government areas of The Hills, Blacktown, Blue Mountains, Hawkesbury, and Penrith.\textsuperscript{iii}

Open space and recreation land
This includes land that is identified in a planning instrument for uses such as parks, sporting fields, and general active and passive recreation and leisure activities, and land within identified heritage conservation areas or
public domain space, such as outdoor plazas and main streets in centres.

PAMPs  Pedestrian Access and Mobility Plans are plans developed as a partnership between the Roads and Traffic Authority and local councils and can improve walkability and connectivity within a local area.

Precinct Defined area smaller than a suburb.

Principal LEP Refers to Council’s new template Local Environmental Plan, known as Local Environmental Plan 2010.

Residential Direction One of the strategic directions that form the basis of the key directions in the Local Strategy.

RTA Roads and Traffic Authority of NSW.

Rural lands Non-urban land, located in the north of the Shire.


Section 117 Directions Section 117 of the Environmental Planning and Assessment Act 1979, gives the Minister for Planning the authority to incorporate specific directions into Local Environmental Plans. ¹

SEPP State Environmental Planning Policy.

Shire Means the Hills Shire Council local government area.

SREP Sydney Regional Environmental Plan.


Strategic Bus Corridor Corridors that are designed to connect major centres across Sydney, linking to important transport, health and educational facilities and other community facilities, and integrating with local bus services. ²

Strategic centre Castle Hill, Rouse Hill, Norwest.

Structure Plan The Structure Plan provides a graphic representation of the Local Strategy’s written text and illustrates where growth and change will occur in the Shire.

Sustainability Meeting the needs of the present without compromising the ability of future generations to meet their own needs. ³

Sydney Orbital Circumferential road network around Sydney. In the Hills Shire it includes the M2 and M7 Motorways.

TAG A Transport Access Guide provides customised information for people accessing locations via sustainable forms of transport.

Template LEP Refers to the Standard Instrument (Local Environmental Plans) Order 2006, as amended.

THSC The Hills Shire Council.
Town Centre  A town centre is located at a transport node and contains local scale built form with civic amenity. It includes services and community facilities with retailing meeting weekly shopping needs.

Waterways Direction  One of the strategic directions that form the basis of the key directions in the Local Strategy.

Zoning  Utilising the Local Environmental Plan, zoning maps graphically depict the application of various zones to specific areas of land.

1 Growth Centres Commission
2 Draft North West Subregional Strategy
parking spaces close by.