Moving Byron 2022 to 2042

Integrated Transport Strategy

Part 4
Background Information

Contents

1. Why is Moving Byron needed?

Residents and visitors to Byron Shire already experience the transport challenges that come with rapid growth, very high levels of visitation, congested coastal town and hinterland road networks struggling to cope, poor public transport and inadequate walking and cycling links limit movement options.

There is nothing new about this situation. These trends have been building for decades with the current failings of the transport network being predicted by the Sydney-Brisbane Corridor Study (DOTARS 2006). The study noted that growth along the 'coastal side of the corridor' is likely to lead to 'congestion, capacity, safety and traffic issues' that 'will challenge the performance and adequacy of the transport system' in a 'number of key regional locations' including 'the Gold Coast and Northern NSW down to Byron Bay' (page 28.).

This assessment was made prior to the opening of the Yelgun to Ewingsdale section of the Motorway and Ewingsdale interchange was completed. Yet these costly upgrades have led to increasing problems rather than relieving them.

The development and expansion of a national route without sufficient planning, co-ordination, and funding of regional and local road networks by the three levels of government responsible has played its part in this getting to this point. In particular while roads and population have expanded, a critical missing element has been planning for a diversified transport network offering alternatives to car-based road movement.

In summary, the financial cost of providing movement corridors for people and goods are significant and the choices made now can have substantial environmental, financial and social benefits (or impacts) over time. Clearly it is in the community interest to make well informed choices now and into the future. Moving Byron takes a fresh look at how our transport network functions and identifies alternatives approaches that involve expansion of active, shared and public transport as part of a connected, diversified and more sustainable movement network.

1.1. How has Moving Byron been developed?

The work of bringing the Strategy together has been led by Council's Transport and Infrastructure Advisory Committee consisting of community representatives, Councillors, and staff.

While Federal and NSW transport strategies, policies and regulations are important considerations in the development of a local strategy, its clear the lack of co-ordination has not always delivered expected outcomes. It is also the case that the objectives of State and Federal policies do not always align with the needs and aspirations of our community, as demonstrated by the conflicts between the operation of the M1 and sustainability of our local road network. Similarly State funding programs can conflict and even hinder highly rated values such as access and safety.

As such it is important that Moving Byron does not simply replicate the stated aims of State and Federal policy. To avoid this, Moving Byron has approached the situation primarily from our community's viewpoint in three keyways:

- Transport networks and their operation are critically considered 'with our eyes'. That is an 'on ground' assessment of the current situation and emerging issues without the policy filters of other levels of government.

- Critical analysis is informed by our community's needs and aspirations as expressed in the Community Strategic Plan and other data obtained through extensive consultation and engagement with community, such as the Community Solutions Panel, the Transport and Infrastructure Advisory Committee amongst others.

- The above approaches have identified a disconnect between NSW policy characterisations and context of local networks and the way our community sees the 'on ground' situation. A key insight is the observation that local and regional travel is concentrated into two movement corridors and 'trunk' routes within each of these corridors. This challenges the language of a 'dispersed' and 'isolated' population in various NSW policy and opens new and exciting possibilities for diversified, better connected and sustainable transport.

These fresh viewpoints have helped to inform the structure of the document and accordingly, Moving Byron aims to:

- Describe movement challenges – locally and regional

- Reflect the aims and aspirations of the Byron Shire community

- Develop strategic directions to support the paramount objective

- Identify policy and planning initiatives

- Identify transport actions and options

As noted, the following NSW policies are critically considered and at times challenged:

- Northern Rivers Regional Transport Plan, Transport for NSW, 2013

- Regional NSW Services and Infrastructure Plan, Transport for NSW, 2018

- North Coast Regional Plan, Department of Planning and Environment 2017.

In addition, there is an extensive list of Council's movement polices, plans and strategies that help to inform and support Moving Byron. Where required, the strategy identifies new policy and or revisions to existing policy.

2. List of Council's movement and access policies

- Byron Shire Community Strategic Plan
- Byron Shire Residential Strategy
- Byron Shire Business and Industrial Lands Strategy
- Byron Shire Rural Land Use Strategy
- Byron Shire Open Space and Recreation Needs Assessment and Action Plan 2017-2036
- Byron Shire Pedestrian Access and Mobility Plan 2019
- Byron Shire Bike Plan
- Strategic Transport Statement (Transport Policy) 2019
- Multi Use Rail Corridor Feasibility Study
- Byron Bay Town Centre Masterplan
- Byron Arts & Industrial Estate Precinct Plan
- Bangalow Village Plan
- Our Mullumbimby Masterplan
- Sustainable Visitation Strategy
- Net Zero Emissions Strategy
- Biodiversity Conservation Strategy
- Business and Industrial Lands Strategy
- Economic Development Strategy
- Electric Vehicle Strategy
- Development Control Plans and LEP's
- Car share policy
- Paid parking
- Transport Asset Management Plan
- Strategic Asset Management Plan 2016-2026

- Delivery Program 2017-2021 and Operational Plan 2019-2020.

The Delivery Program 2017-2021 and Operational Plan 2019-2020 bring together Council's strategies, plans and budgets to provide services and infrastructure, and to ensure future sustainability.

The Delivery Program turns the goals set out in the Community Strategic Plan into broad actions over the medium term while the Operational Plan drills down to specific projects and activities for the year ahead.

3. Social and Economic Indicators

This section provides a range of demographic and social determinants to assist in identifying current and future movement needs, as well as, assisting to identify barriers to transport access and the reasons for transport disadvantage.

Population and Housing

It is forecast that there will be an increase in Byron Shire's population of around 10 percent to 37,950 by 2036, anticipating a need for an additional 3,150 dwellings. Not all homes will be delivered in the urban areas, with over 400 new dwellings expected in our rural areas. Population growth will primarily occur in Bayside, Brunswick Heads, Mullumbimby, and West Byron.

Table 4.1: Population Projection for Local Council Areas

LGA	2016	2041	% Change
Lismore	44.122	42.944	-3%
Byron	33.399	37.955	14%
Ballina	42.993	47.092	10%
Tweed	93.742	111.531	19%
Gold Coast	576.918	943.686	64%

Byron Shire is expecting a 14% population increase from 2016 to 2041 with similarly strong growth expected in coastal areas. Regionally, the most significant growth is in the northern border at Tweed and adjacent, Gold Coast in Queensland. The latter's population is expected to grow by 64% in the same period. This will generate increasing social, economic, and cultural links that in turn will see continuing and substantial people and goods movements between the Gold Coast and Byron Shire. While population is not expected to increase in Lismore City over the period, its status as a regional service centre and source of employment opportunities is likely to continue to drive a two-way growth in people and goods movement in the East-West corridor.

Figure 4.1 shows a breakdown of the age structure with the Byron Shire population compared to regional NSW. In 2016 our population was tilted towards middle age brackets (35-65) with younger and older people less represented. This pattern is consistent with previous census data and highlights difficulties faced by younger people in accessing education, employment and training who leave the local area for opportunities elsewhere. Poor transport connections are regularly cited as a difficulty facing young people as they seek to move to higher education and employment in the Shire and across the region.

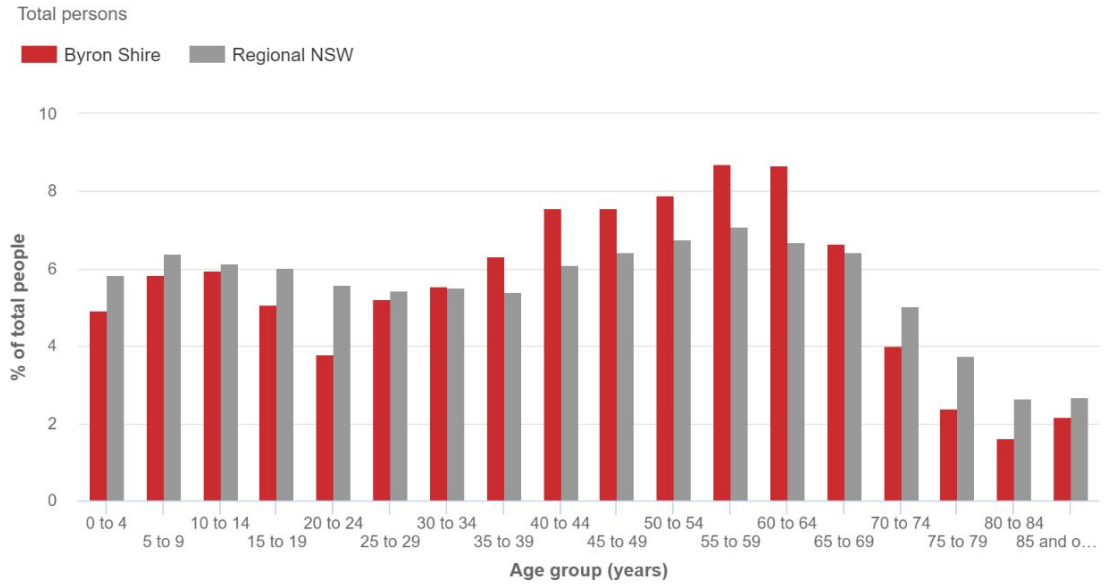

Figure 4.1: Byron Shire Age Structure (2016)

3.1. Ageing Population

As can be observed in **Figure 4.2,** the percentage of people over 65 years of age is expected to noticeably increase in the future, going from 16% in 2016 to a projected 28%. It is expected that there will be greater demand for healthcare and recreational travel as the population gets older. As of now, the trip purpose is 34% health care related. The demand for modes of transport will also need to adjust with more shared transport, specialist vehicles and services likely to be needed.

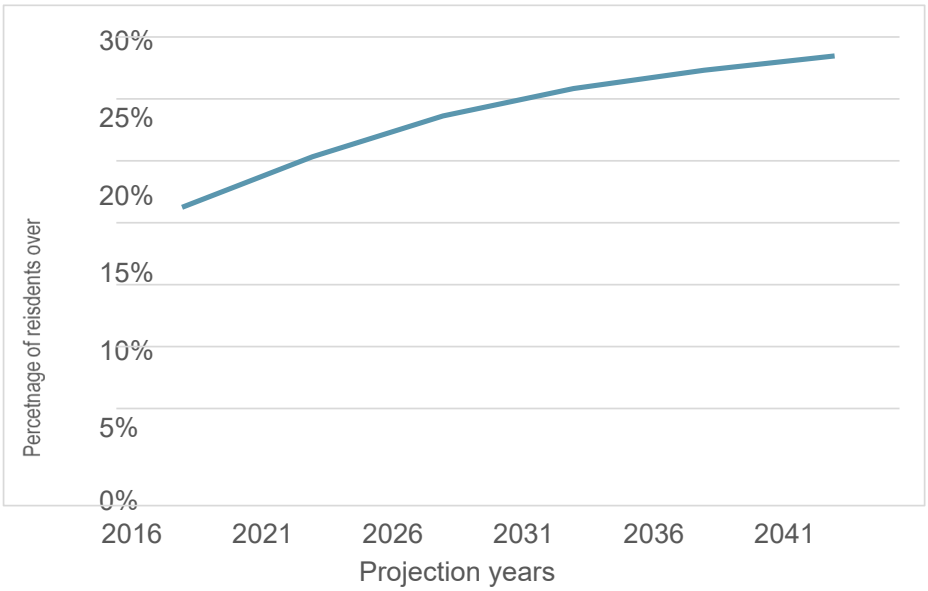

Figure 4.2: Byron Shire aging population trend and future forecast

3.2. Unemployment

According to a Council demographics review in 2017, Byron has an unemployment rate of 8.5% as opposed to the NSW average of 6.1% and National average of 5.6%. The youth unemployment is also high at a 15.5% with 11.8% of the youth unengaged in any work or studies. With a high turnover and a strong tourism industry, the region has a significantly higher percentage of part-time employment at 47%, with the NSW average at 32%.

3.3. Income

In the same review, the reported median income of $1,143 per week in Byron is also lower than the NSW average of $1,500. Despite the lower income Byron property prices on average are higher than the NSW average by $125,000.

3.4. Travel Disadvantage

While Byron Shire is often seen as a holiday and tourist destination with limited diversity in non-tourist industries, the Shire does have parts of the community which are socially and economically disadvantaged. The relationship between socio-economic disadvantage and travel disadvantage is often circular in that each can exacerbate and entrench the other. For example, lack of access to a car can limit employment and education opportunities with a consequent drop in income that reduces the ability to overcome transport barriers.

3.5. Socio-Economic Deprivation

The Socio-Economic Indexes for Areas (SEIFA) Index of Disadvantage measures the relative level of socio-economic disadvantage based on a range of Census characteristics.9 The coastal areas and Lismore are regarded as socially advantage compared to the rest of the region, however, there are rarely any areas that can be considered the most advantaged. The most deprived areas are generally at local

centres such as Lismore and Tweed Heads, with Byron Shire being the exception to this observation. Details of the individual areas can be seen in **Figure 4.3**, taken from the Australian Bureau of Statistics.

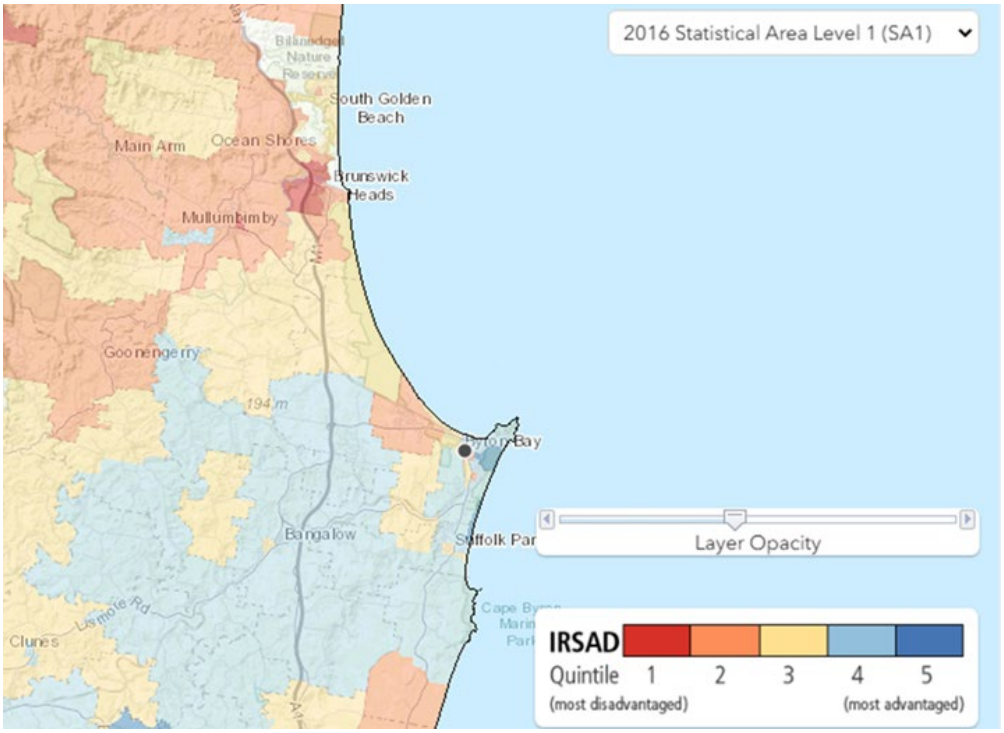

Figure 4.3 Byron Shire aging population trend and future forecast

4. Our Regional and Local Transport Networks

This section takes an on-ground view of our transport networks, their operation and emerging issues to:

- Describe movement challenges – locally and regional
- Reflect the aims and aspirations of the Byron Shire community
- Develop strategic directions to reduce car dependence
- Identify policy and planning initiatives
- Identify transport actions and options.

Figure 4.4 Byron Shire regional and local transport networks map

Roads rate as the most important issue for Byron Shire residents and there is much community discussion on the subject for good reason given the services the road network provides. Whether we drive, use shared transport, ride a bike or walk, virtually all our movement in the Shire is by road. Public transport, access and safety issues also rate highly.

How the Shire's transport network connects with the region and beyond has a major influence on movement patterns. Topography, climate and historical construction of our roads add to challenges of providing a safe and accessible network. For these reasons it is important to beginning by consider the wider context.

Byron Shire is located on the North Coast of New South Wales (NSW), approximately 800 kilometres north of Sydney and 200 kilometres south of Brisbane, with shared boundaries with the Tweed, Lismore and Ballina Local Government Areas, within the broader Northern Rivers Region a region known as the Northern Rivers. Byron Shire is connected to the region along two key movement corridors.

4.1. North-South Movement Corridor

Byron Shire is bisected by the M1 Motorway, running north-south in a Coastal Corridor. The catchment for this national route extends beyond the coastal shires and includes most of the Northern Rivers. The Mt Warning caldera and Bother Ranges preclude the development of alternative cross border routes and as such traffic will continue to increase long the Coastal Corridor.

The M1 is the primary link connecting the major population centres in the Shire as well as the primary link for travel between coastal regions to the south, the Gold Coast and Brisbane. There is a significant daily commuter and visitor movement between the north and south of the Shire. While the old Pacific Highway alignment provides diversion routes within the north-south corridor, connections between them remain via the M1.

The M1 is the primary route for the significant numbers of tourist visitors to Byron Shire. A key driver of the growth in visitor numbers moving within the north south corridor is the ongoing expansion of Gold Coast Airport on the Queensland border and to a lesser degree, the Byron-Ballina Airport to the south at Ballina.

An alternative diversion route in the south of the Shire is Bangalow/Broken Head Road (‘coast road’) that links Byron Bay, Suffolk Park and Broken Head to Lennox Head and connecting with the M1 at Ballina.

There are currently poor shared transport links connecting the northern and southern ends of the corridor. The rail corridor is part of the movement corridor connecting the town centres of Mullumbimby, Byron Bay, Bangalow and Billinudgel (Ocean Shores) within the Shire.

Covid induced periods of border closures and restricted movements have emphasised the increasingly important social and economic links between Byron Shire and South East Queensland. Visitors and travellers join significant numbers of daily commuters, people accessing services such as healthcare and goods supplying and supporting a range of key industries such as agriculture and construction.

4.2. Emerging issues

4.2.1. M1 Interchange at Ewingsdale

Taken together the above characteristics are combining to induce significant traffic congestion including back up on the Motorway around the Ewingsdale interchange at peak commuting and holiday times. This is affecting the operation of the motorway and increasing safety risks.

To date proposed solutions would in part shift the congestion into the east-west corridor that intersects with north-south corridor at the interchange. This impacts would exacerbate the impacts of increased vehicle numbers on Ewingsdale Road.

An alternative approach is to diversify transport options and utilise the rail corridor to mode shift from cars to active and shared transport and reduce growth in demand for road space. As such issues are emerging at other interchange locations, notably

Gulgan North and Bangalow, planning to activate the rail corridor in the Shire can get a head start on tackling the problem.

4.2.2. Safe, access and movement

As a high-speed Motorway, the M1 significantly limits access, especially for active movements. There are only six opportunities to cross from the hinterland road network to the west of the M1 to the east. Only one of these, at Billinudgel, is a pedestrian crossover. The other five all involve the negotiation of roundabouts with heightened risks to cyclists and pedestrians. Ewingsdale interchange is not accessible for foot traffic and unacceptable unsafe for cyclists.

There needs to be safe access infrastructure in place at Motorway crossings, both to ensure unrestricted movement and to encourage active movement choices for residents and visitors in hinterland locations.

4.2.3. East-West (Bruxner) Corridor

This corridor extends from Byron Bay to Lismore and further west along the Bruxner corridor terminating at Tenterfield where it links with the New England Highway. Movement is concentrated along the Ewingsdale Road/Hinterland Way route connecting at Bangalow with the Lismore-Bangalow Road. The Nightcap range and Wilson River have shaped links and settlement patterns along this route that connects key regional populations in Lismore, Casino, Grafton and Kyogle

There are significant commuter and visitor movements within this corridor. Daily movements by Shire residents to neighbouring LGAs is higher in this corridor with traffic growth at Bangalow exceeding growth at Ewingsdale and Gulgan Road interchanges. The intersection with the Coastal Corridor is at the Ewingsdale interchange, exacerbating the congestion, access and safety issues discussed above.

Trip drivers to and from the regional centre of Lismore include University, TAFE and school students, Lismore Base and St Vincents hospitals, government services and retail. There are also significant movements of workers between Lismore and centres in Byron Shire. Together this results in a high number of commuter vehicle movements in both directions during AM/PM peaks.

There are currently poor public transport links within the East-West corridor that are unable to meet the needs of many of these daily commuters. The rail corridor runs within this movement corridor and connects the town centres of Byron Bay, Bangalow, Lismore and Casino.

4.2.4. Key features of regional corridors

As noted, geography has played a key role in the development of and concentration of the Coastal and Bruxner corridors both for movement and settlement.

Apart from very local movement, travel within and beyond each corridor involves using minor roads to feed onto key trunk routes, being the Pacific Highway/Hinterland Way and the Coast Road in the Coastal Corridor and Ewingsdale Road/Lismore-Bangalow Road in the Bruxner. These trunk routes have

to be used for all modes of travel. As such people and vehicles are concentrated onto these key roads.

It is also the case that these roads link the key population centres within the Shire and across the Region in a linear fashion.

These features challenge the language of a ‘dispersed’ or ‘scattered’ resident population especially in relation to the provision of shared transport as key catchments are linked by these truck routes. Movement patterns rather than location of population centres shows concentrated, as opposed to dispersed, movement. In addition, high visitation adds to concentration of movement, sometimes beyond the capacity of existing road networks. Together the concentration of movement within corridors suggests there is scope to improve public transport links along trunk routes.

While larger towns and population centres within both corridors are serviced by shared transport such as buses, there are significantly fewer services connecting towns along the regional trunk routes. In the past, such services were provided by rail operating on the Casino-Murwillumbah line that runs in tandem with the key trunk routes in both corridors.

4.2.5. Rail Corridor

The Casino to Murwillumbah Rail Corridor is a 130 kilometre rail corridor that was opened in 1894. It was built to move goods and people between towns located in these corridors, heavily influencing regional settlement patterns. Today eight of the ten largest population centres in the Northern Rivers are linked by rail and retain rail stations at their heart. When the line was connected to a state wide network following construction of the Clarence River crossing at Grafton, the focus of the line began to change.

During the post war boom that bought better roads and a rapid uptake in car use, local services were discontinued in favour of long distance intercity services. Although less frequent, for many decades these services continued to provide a daily return link across the region until 1990 when this was replaced by an overnight express to Sydney. This was discontinued in 2004 and the line closed despite many years of community advocacy for a return of local services able to meet the daily needs of commuters and visitors.

The corridor is strategically located within regional corridors and there are a number of opportunities to use the corridor to support the goals of Moving Byron.

Mode shift with active and shared transport in the rail corridor

Utilise as key alternative to car use within the Ewingsdale Road Corridor as part of integrated strategy incorporating park and ride, active and shared movement options and town centre parking management.

Improve public transport connections, regularity and convenience

Provide opportunities for visitors to arrive and move about without car use as part of well connected public, shared and active networks.

Council has undertaken a Multi-Use Rail Corridor Study (MURC) and is pressing activation of the corridor as a central plank of a sustainable, diversified and connected transport network.

4.2.6. Urban roads

All urban road networks in the Shire are serviced by the two key movement corridors with the greater proportion located in the coastal zone. Mullumbimby and Bangalow being the two larger centres located to the west of the M1 Motorway.

There is variation in the layout of urban networks from older grid layouts dominating in Byron Bay and Mullumbimby to widespread cut de sac layouts in Ocean Shores. These different layouts are a key influence on movement behaviours and constraints, often favouring cars over active movement or making access difficult for shared and active transport.

Like many regional areas, the cores of townships in Byron Shire are centred around main streets which have become vehicle centric. These types of main streets lend themselves to conflict, seeking to serve both a ‘movement’ function (in terms of movement of goods and people, often by vehicles) and ‘place’ function where people feel comfortable to spend time and shop, dine or socialise. Such conflicts have increased with popularity and high visitation in coastal towns and are now apparent in hinterland villages such as Federal.

The various town and village masterplans have identified a preference for people centred places that are not dominated by cars and traffic.

Safe, accessible and connected pedestrian infrastructure is often lacking in many parts of the urban road network, although Council with the assistance of TIAC has adopted Bike and PAMP plans is rolling out projects in many parts of the urban road network.

There is a need to improve the provision of well connected and safe pedestrian access both within some of the existing urban areas and in new urban releases. Development Control Plans (DCPs) need to be reviewed to ensure that development is laid out so as to prioritise convenient active and public/shared transport links that encourage reduced car use.

4.2.7. Hinterland and Coastal Roads

Hinterland roads primarily refer to the networks to the west of the M! Motorway. Coastal roads outside towns are less extensive and generally service small populations though some such as Broken Head Road and Seven Mile Beach Road that experience significant pressure from visitors.

Hinterland road networks in Byron Shire are necessarily extensive due to topography with ‘no through road’ access into valleys and connection to a key trunk road being common features. Travel between towns in Byron Shire is via the two primary roads in the Coastal and Bruxner movement corridors.

As is the case elsewhere hinterland roads provide a number of services to communities. Cyclists and walkers need safe access alongside motorists, as do

school children catching buses. Delivery of goods, post and roadside collection of waste are other services dependent on access to a safe road network.

Hinterland road networks are largely built on original formations and are susceptible to significant damage at times due to a combination of slope, soils and climate. Heavy rainfall events can lead to land slips that can limit or even cut off access completely. In 2013, Cyclone Oswald delivered 11 major land slips overnight, the most serious cut road access for the community of Upper Coopers Creek for many months.

Narrower pavements and lack of shoulders can make it unsafe for residents to consider active transport and create conflicts between the various services that the network has to provide. Without a safe and accessible rural road network, rights of movement may be compromised. As such there is a need to balance the needs of all road users and services. Due to funding and topographical constraints the most cost effective solution is to take a more considered approach to safety and access on rural roads and where necessary reduce speed limits. A safe and accessible network is essential to the support of aim of reducing car and increasing active movement especially while public transport is not regular or in many instances, even available.

4.2.8. Traffic Growth

From local traffic count sites shown in Figure 4.5, there is an observed growth in traffic amongst the various town centres and accesses to state highway or motorway (35). Daily traffic on Ewingsdale Road to the M1 Motorway is an indicative measure of traffic going in and out of Byron Bay to other regional areas. From 2006 to 2016, the daily traffic grew from 16,600 to 21,700, which is a 31% increase.

Further north at Mullumbimby Road, which is the main entrance from the M1 to Mullumbimby, from 2006 to 2019, there was 41% traffic growth to an average daily estimate of 12,350. The highest growth of 58% has occurred at Bangalow indicating the importance of the east-west corridor. Other count sites at Ocean Shores and Suffolk Park had increases in traffic between 24% and 29%.

Overall, the traffic volumes in the Byron Shire have all increased significantly; indicating demand for regional travel between the centres is growing and placing more pressure on the road network.

Figure 4.5 – Sample Traffic Counter Locations

5. Public Transport Case Studies

Public transport is a term that needs to be carefully considered as publicly accessible transport is often provided by privately owned operators. In one sense all transport is public as road, rail and other infrastructure is invariably a public asset or subsidised by public funding. For example, privately owned cars are driven on public roads.

Similarly, public transport services are often a mix of private operators and public funding as is the case with bus services in Byron Shire and the Northern Rivers.

In this discussion, public transport generally refers to bus and rail services, however funded. However, it is worth considering the broader range of shared transport options as part of a publicly accessible transport network. Taxis, Ubers and car share services are increasingly part of the mix of shared options that can help to reduce the use of private motor vehicles and can link with public and active transport to increase the number and convenience of travel options.

Considering the public funding of roads and active links, the distinction between public and private is only relevant to a distinction between a private vehicle and a shared conveyance.

Public transport in Byron Shire and surrounding region is primarily delivered by private bus operators coordinated and funded by TfNSW. In addition to routed services, there is a significant school bus network deployed twice daily during term times that transports around 10,000 students.

A privately funded solar powered rail service operates between Byron Bay and North Beach, a distance of 3 km. The services are primarily targeted towards tourists and

demonstrates the potential of the rail corridor to further reduce the number of cars entering the Byron Bay town centre.

There are several private bus operators providing airport transfers, servicing Coolangatta and Byron-Ballina Airports. These services help to reduce the number of vehicle movements, particularly in the north-south corridor and the Byron Bay town centre. Skybus, an operator of large express airport transfers, has recently commenced operations in Byron Shire. See Skybus Case Study below.

Community Transport provides several critical services to travel disadvantaged people on low incomes including medical and other appointments as well as social and shopping bus runs under a Community Transport Program and Community Home Support Program. There is more demand than can be catered to, in part due to the lack of general shared transport options. Community Transport is an NDIS provider of transport services for NDIS participants.

Public transport is not widely used, with existing services limited in coverage and irregular. Bus services are largely planned around school services, limiting public transport options to key services for commuters. There is also little timetable and service integration, and this provides further disincentives to use public transport. Public transport development and policy has been hindered by poor rationale based around a “low resident population” and a failure to acknowledge the very significant numbers of tourist visitors moving around the region on our strained transport networks.

5.1. Case Study 1 – Public Transport (Buses) between Mullumbimby and Byron Bay

The following is a case study on how someone can plan to travel from Mullumbimby to Byron Bay Bus Interchange.

Table 4.2 Case Study of bus travel from Mullumbimby to Byron Bay Bus Interchange

Route	Connections <15mins	Evenings / Weekends / Public Holidays	Frequency	Comment
640 Mullumbimby-Byron Bay				Route using Pacific Motorway does not directly service population centres with exception of one am and one pm (m-f) service that reroute through Parkway Drive loop.
5 services (Mon-Fri) per day between 8.35am and 5.10pm including school holidays	645 from Brunswick Heads and Ocean Shores (morning services only).	No evening	1 hour 40 mins - 3 hours 25 minutes	
3 Services (Sat) 9.30am, 1.00pm and 4.35pm	645 from Brunswick Heads and Ocean Shores.	Limited weekend and public holidays.	3 hours 30 minutes	Limited bus stops mainly located in places with poor pedestrian access (eg Pacific Motorway).
2 Services (Sun/Public Holiday) 9.30am and 4.25pm	None		7 hours	

Route	Connections <15mins	Evenings / Weekends / Public Holidays	Frequency	Comment
645 Mullumbimby-Byron Bay 2 Services 2.53pm and 4.34pm Monday-Friday	None	No evening, weekend or public holidays	1 hour 41 mins	Afternoon services only. Route using Pacific Motorway does not directly service population centres. Stops at Byron Central, but no other locations on route.
610/645 Mullumbimby-Brunswick Heads-Byron Bay 1 Service 7.18am Momday-Friday	None	No evening, weekends or public holidays	One daily	Mullumbimbiy to Brunswick Heads then change (wait time 33 minutes). Total travel time1 hour 30 minutes
610/165 Mullumbimby-Clunes-Byron Bay. 1 Service 8.40am School Holidays only.	None	No evening, weekends. Limited holidays.	One daily	610 to Clunes and change to 165 (wait 20 mins). Countrylink - Pre booking required for 165.

Route	Connections <15mins	Evenings / Weekends / Public Holidays	Frequency	Comment
				Not guaranteed to connect. Total travel time 1 hour 28 mins.
166 Mullumbimby-Byron Bay 1 Service 5.28am daily	None	No evening, weekends	One daily	Countrylink - Pre booking required
165/PM41 Mullumbimby-Brunswick Heads-Byron Bay 1 Service 10.30am Sunday only	None	No evening, public holidays.	One daily	Mullumbimby to Brunswick Heads then change (wait 2 hours 35 minutes). Countrylink/PM - Pre booking required for both. Not guaranteed to connect. Total travel time 3 hours 15 mins

Route	Connections <15mins	Evenings / Weekends / Public Holidays	Frequency	Comment
162/610 Mullumbimby-Binna Burra-Byron Bay 1 Service 6.38am School holiday only.	None	School holiday only. No evening, weekends	One daily	Mullumbimby to Binna Burra then change and walk (wait time 37 minutes). Countrylink - Pre booking required for 162. Not guaranteed to connect. Total travel time 1 hour 32 minutes.

5.2. Case Study 2 – Ocean Shores to Byron Bay

The following is a case study on how someone can plan to travel from Ocean Shores to Byron Bay Bus Interchange. This case study is based on resources available in 2021.

As a baseline the distance between Ocean Shores and Byron Bay Bus Interchange is ap-proximately 20km and takes 15-20 minutes to drive via a car.

In planning an alternative transport option, three trip planning websites were considered to plan alternative transport options:

- TfNSW Trip Planner
    - Provides details relating to connecting bus service and timetables
- Going Places
    - Provide bus, taxi, train, community transport and other transport information for towns within the Northern Rivers and beyond.
- Blanches Bus Company

- Provides timetable and fare details for services connecting to the airport.

Using the above transport planning resources, a public bus (such as Blanches Bus service 645) will cost approximately $2.50 for pensioners and seniors and $9 for an adult. Total trip time is estimated to be 45 minutes.

However, the number of trips available are very limited with no services on Sundays or public holidays. The timetable below shows the current bus service between Ocean Shores and Byron Bay.

Route Number	Monday to Friday								Saturday			
	645 am	645 am	645 am	645 am	645 pm	645 pm	645 pm	645 am	645 am	645 am	645 am	645 pm
Billinudgel - Mogo Place Humble Pies	7.40	9.51	...	...	...	...	...	8.36	...	...	...	3.26
Balemo Drive Ocean Shores	7.30	n7.44	9.55	11.08	12.21	2.08	3.49		8.40	9.54	11.59	
Shara Blvd (SDA Church)	7.37	...	10.02	11.15	12.28	2.15	3.56	8.47	10.01	12.06	3.37	
Golden Beach - (Bus zone adjacent Golden Beach Shop)	7.41	...	10.06	11.19	12.32	2.19	4.00	8.51	10.05	12.10	3.41	
New Brighton Shop	7.45	...	10.10	11.23	12.36	2.23	4.04	8.55	10.09	12.14	3.45	
Orana Road (east of Wahlooga Way)	7.48	10.13	11.26	12.39	2.25	4.07		8.58	10.12	12.17	3.48	
Yamble Drive Ocean Shores	7.52	...	...	...	...	...	...	...	...	...	...	...
Wahlooga Way Ocean Shores	...	7.50	10.17	11.30	12.43	2.30	4.11	9.02	10.16	12.21	3.52	
Coomburra Crescent Ocean Shores	7.54	7.54	10.19	11.32	12.45	2.32	4.13	9.04	10.18	12.23	3.54	
Goondoolloo Drive Ocean Shores	7.56	7.56	10.21	11.34	12.47	2.34	4.15	9.06	10.20	12.25	3.56	
Ocean Shores Shopping Centre	7.58	7.58	10.23	11.36	12.49	2.36	4.17	9.08	10.22	12.27	3.58	
Brunswick Heads Info Centre (Park St)	8.03	8.03	10.28	11.41	12.54	2.41	4.22	9.13	10.27	12.32	4.03	
Bayside (Tweed Street)	8.06	8.06	10.31	11.44	12.57	2.44	4.25	9.16	10.30	12.35	4.06	
Uncle Toms	8.09	8.10	10.34	11.47	1.00	2.47	4.28	9.19	10.33	12.38	4.09	
A Mullumbimby (River Terrace Bus Zone)	8.20	...	10.40	11.53	1.06	2.53	4.34	9.25	10.39	12.44	c4.15	
Ewingsdale - Byron Central Hospital	...	8.20	...	...	...	3.08	4.48	...	...	...	...	
Byron Bay Bus Interchange	...	8.45	...	...	...	3.15	4.54	...	...	...	...	

A similar limited number of services are available between Mullumbimby and Byron Bay, highlighting the limited connection between key towns within the Shire and the need for high dependance on cars.

5.3. Case Study 3 - School Bus Network Northern Rivers

A fully integrated public transport network exists in the Northern Rivers, even if it does so for only part of the day.

For 221 days of the year that are school days, 10,000 students can move safely across the region, sometimes crossing multiple LGAs to get to and from school. They can do so because existing bus companies work together to ensure that there is a network of buses able to collect students in their neighbourhoods and deliver them either directly to school or to transfer points where other buses are waiting so they can continue their journey.

Great care is taken to ensure that each child can safely connect to transfer services. On occasions drivers will be in contact with late connecting services and wait at transfer points to ensure supervision until transfers can be made.

As populations increase, the benefits extend beyond the students and their families as each bus removes many peak time private car movements from urban and constrained hinterland roads networks.

This remarkable operation swings into action twice a day each school day. Unfortunately, the rest of the time, much of the bus fleet remains idle and as such there is a significant resource of people, knowledge and fleet that is under-utilised that might otherwise be able to provide better public transport integration at other times.

5.4. Case Study 4 - Skybus: Connection, Convenience, Integration, Success

Skybus operates express coach services to and from a number of airports in Australia and New Zealand. The ‘flagship’ service operates between Melbourne Airport and the city centre, growing from modest beginnings in 1978 to now carry over 2 million passengers per year and 8.3% of all Melbourne Airport passengers. Success is built on the operation’s connectivity, convenience and integration.

Connection

- Door to door pick up and set down at Terminals 1 and 3, pickup at Terminal 4 and short pedestrian link of Terminals 2 and 4 to 3.
- Express service between Melbourne Airport and city centre (Southern Cross Station).
- Transfer hub at Southern Cross connects with multiple hotel and airport transfers to and from suburbs.
- Hub is located within the rail station with easy access to City Circle, metropolitan and regional rail services.
- At the front door of the station step out onto the footpath and catch a tram or taxi.

Convenience

- Easiest option to access with Skybus stops, ticket booths and attendants located right outside the arrivals door.

- Attendants on hand to assist with luggage and boarding.

- Service operates 24 hours every 10 minutes, 365 days a year between 6:00 am and midnight and between 15 and 30 minutes outside these hours. Since 2015, services have averaged 350 per day and a 5 minute frequency has been achieved during peak periods.

- 20 minute door to door service making it competitive with taxis on access, trip time and fares (currently an on line ticket is $15).

- Additional value with free wi-fi and tourist information on board.

- Undercover transfer hub at Southern Cross connecting with transfer and rail services within the station, tram and pedestrian networks at the front door. Airport bound similarly convenient.

Integration

- In 2002 the Victorian Government partnered with Skybus to improve the then service. This included updating the fleet as well as improvements to the Tullamarine Freeway to give Skybus priority in traffic.

- Proposals to turn emergency lanes into bus lanes on the freeway and Bolte Bridge as well as include Skybus on a Myki fare (cheaper tap and go ticketing for public transport) were challenged by the operator of the Citylink toll road and Melbourne Airport as likely to reduce toll revenue and car parking profits.

- Skybus integration frees up significant road space. Travel times for all vehicles between the city and airport continue to extend out during congested peak periods. Compared to the estimated 7000 taxi trips on the freeway each day, the Skybus fleet is able to move people faster and using less road space. Recently the fleet has been extended with high capacity double decker buses that use no more fuel.

- Connectivity to other services and transport modes such as rail help further reduce car use to and from the city centre and airport.

Skybus has continued to grow and now operates similar services at a number of other airports including Hobart, Auckland, Avalon and since 2017, Gold Coast. The range of services has expanded to hotel transfers (eg Gold Coast), urban and regional airport transfers.

The key features of all are fast express services with minimal stops at major transfer points, convenience, connectivity and competitive pricing.

In 2018, Skybus introduced an express connection between Byron Bay and Gold Coast Airport.

5.5. Public transport as central element of movement networks

A regular and consistent public transport network would improve community connectivity, provide convenient access to employment, health, education, and many services as well as improve safety for commuters. The benefits to community resilience by ensuring the opportunity for residents to fully participate in the social, economic, and cultural life of the community are extensive, as are the costs of limiting access. As such a shift in focus is required so that public transport is seen as a core element of transport networks, rather than a need addressed only at the margins. The latter approach highlights the lack of connectivity and tends to perpetuate the problem by targeting limited funding towards isolated projects on the periphery of movement networks.

Public transport that is well connected to active links and integrated with other shared transport, such as car share, can help reduce the number of cars on our roads and reduce demand for parking. Such an integrated network could also be attractive to tourists for getting about the Shire and region and could encourage tourists to not rely on private vehicles for entry to the Shire.

In addition to regular connected services, achieving a significant mode shift towards public and other shared transport needs to be well located, accessible and affordable. In a word convenient. The relative convenience between modes of transport, particularly compared to private cars, is a key factor in transport choices. There are several measures that can be taken to help make public and shared transport more convenient including.

- Planning for centrally located public transport interchanges.
- Review planning controls so that future development ensures active and public transport links are located to maximise convenience and reflect the movement hierarchies adopted by the various village and town centre masterplans.
- Ensure that proponents are required to include active and public transport infrastructure when developing subdivisions.
- Economic incentives that reflect the costs of driving.
- Parking management including park and ride.
- Prioritise active and public transport access. Bus lanes, rail corridor.

5.6. Convenience

As an example of comparative convenience, the public transport network from the Byron Bay town centre only provides access within 30 minutes to Suffolk Park to the south and the North Beach / Arts and Industry Precinct to the west. On the other hand, car accessibility from Byron Bay covers most of the townships in the Local Government Area and while driving a car, covers access further north into the Tweed Local Government Area and south into the Ballina Local Government Area. This

would suggest that relative convenience using public transport would need to combine express transit with efficient connection to active, shared and private (i.e. park and ride) transport links.

In the case study above, the significant service gaps between the northern and southern parts of the Shire could be addressed by connecting the existing northern town centre bus service in Mullumbimby with an express service direct to the Byron Bay town centre. One way of overcoming the 'time penalty' would be to use the rail corridor to avoid traffic at the M1 interchange and in the Ewingsdale corridor. Convenience would be maximised at peak times and could appeal to commuters, locals, and day tripper tourists, particularly when combined with measures referred to above. Use of hi rail provides an opportunity for neighbourhood pickup without the need for transfer, a door-to-door service.

Regional transport integration

Transport for NSW are working with stakeholders in both NSW and Queensland on improving transport connections between the North Coast and the Gold Coast, including investigating:

- Extension of light rail from Gold Coast airport to Tweed Heads.
- Corridor protection for higher speed connections along the east coast.
- Bus and coach improvements to improve connectivity.
- New servicing patterns and infrastructure to enable better connections and day return opportunities for regional communities.
- Integrating and harmonising fares for cross border regions.
- Harmonising cross border licencing, registration and regulatory requirements.
- Jointly prioritising infrastructure investment on either side of the state border.

Planning for diversified transport connections with South East Queensland

With the current and future growth in the Shire and broader region expected to put increasing demands on transport networks that will struggle to improve levels of service regardless of the level of upgrades, it is increasingly apparent that the region needs to plan for a diversified transport network incorporating better public transport infrastructure including rail. Queensland has been expanding capacity on the Southern Rail line and developing light rail. Increasingly there is a need to plan for infrastructure and services in Northern NSW. The border is not a relevant or rational reason not to plan for connection to the Queensland rail system. Continued reliance solely on road-based networks dominated by cars, is not financially, socially or environmentally sustainable.

6. Road Safety

6.1. Context

Road safety forms part of the Premier's Priorities relating to Safer Communities, with most road fatalities occurring in rural areas. The intent is to reduce road fatalities by at least 30 per cent between 2011-2021. The 2021 Road Safety Plan outlines a number of priority actions including creating liveable and safe urban communities; this includes the expansion of 40km/h high pedestrian activity areas, safety upgrades at intersections and safety integration in bicycle network programs.

A Safe Systems approach has been adopted which looks at safe roads (and intersections), safe speeds, safe vehicles and safe people. Whilst this moves away from the traditional crash cluster analysis to identify specific crash issues, an understanding of historical road crashes provides an understanding of prevalent types of crashes within the Shire.

A crash map of Byron Shire for a five-year history from 2014 to 2018 is shown in **Figure 4.6** below. A total of 818 crashes were recorded in the Shire during this period. Detailed analysis of the crash history of the Shire indicates that the most frequent location for crashes is along major roads including Bangalow Road with three fatal crashes, and the Pacific Highway and Hinterland Way with 1 fatal crashes likely related to high traffic speed.

There were no fatal crashes in Byron Bay, Mullumbimby and other town centres between 2014 to 2018, although the number of injury crashes are substantial. Approximately 12% of crashes involved cyclists and pedestrians within the Shire and more than 92% of the crashes involved cars with 8 fatal crashes.

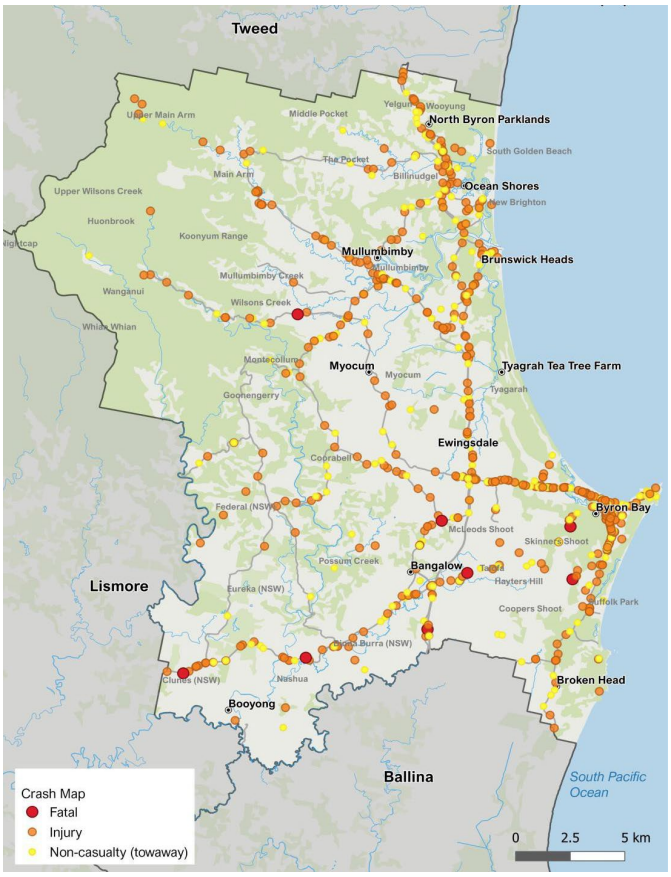

Figure 4.6 - Crash map of Byron Shire from 2014 to 2018

The Safe Systems approach is not reflected uniformly in road funding as has been demonstrated through a number of State funded 'road safety upgrades' where the focus has been on 'vehicular' traffic and identified risks to pedestrians and cyclists are unable to be funded under program guidelines. In addition, much of the safety 'infrastructure' can be seen to reduce safety for pedestrians and cyclists. These issues are exacerbated on the Shire's network due to topography, original formations that do not meet current standards and narrow pavement widths

Viewing safety from one user perspective is reducing safety and access on hinterland roads for other road users and services such as buses. Under this approach rural roads are viewed solely as 'movement' corridors for 'vehicular' traffic, when there are still significant numbers of 'place' features along rural roads.

- Cyclists
- Pedestrians
- Buses - on hinterland roads this is mostly school bus
- School children and others waiting, getting on and getting off busses, mostly along route rather than at centralised bus stops.
- Rubbish removal services.
- Property access.

- Delivery services including floating of large machinery.

- Road and tree maintenance workers.

The crash statistics above highlight speed as a key contributing factor and it can be noted that all fatal crashes occurred on hinterland trunk routes or regional arteries within the two movement corridors. Yet addressing speed is not a central feature of the program. The funding of 'safety upgrades' is mostly consumed in infrastructure aimed at mitigating the impacts of speed rather than reducing speed and as noted none is able to fund identified risks to other road users. It is the placement of hard infrastructure along pavement shoulders of topographically challenging and narrow roads that introduces new hazards for cyclists, pedestrians, and services. This also can signal to vehicular traffic that the road is regulated solely for their benefit and can lead to a reduced awareness of other road users.

Acknowledging that historical formations and topography can often constrain prospects of creating separated infrastructure for pedestrians and cyclists, an equitable and affordable approach would be to reduce speed on these sections and work with community to raise awareness of the many road users and services dependent on these movement corridors through place.

Access and safety are fundamental values to be considered in the ongoing management of hinterland roads. Ensuring equitable access and safety also aligns with the aim of achieving a mode shift towards active and shared movement.

6.2. Hinterland Roads Actions

- Road funding needs to better support safety and access of all road users and identified place features.

- Council needs to review and develop new policy and future capital works to ensure equitable safe access for all road users and services.

- Moderation of speed on constrained hinterland roads be given paramount consideration to ensure equitable, safe access for all road users.

- Council to advocate for change within external funding programs and regulatory frameworks that better support an equitable, safe access for all road users and services.

- Acknowledge 'place' features of hinterland network.

6.3. Road Access and Safety Principles (RASPs)

In response to increasing community concerns regarding access and safety, Council has resolved to adopt a series of Road Access and Safety Principles and to incorporate the principles within key infrastructure and maintenance policies to ensure a more equitable approach to safe, accessible active movement on our road networks. Provision of active infrastructure as part of new, renewed and upgraded roads will be expanded in future works.

The recommendation to reduce speed on constrained hinterland roads as an equitable measure to enhance access and safety of all road users on hinterland roads where retro fitted active infrastructure is neither practical or feasible is an example of a pragmatic application of RASPs that supports the goals of Moving Byron, specifically mode shift, increased active movement and improved safety and access for all road users.

7. Action Priorities

A number of measurable achievable actions have been identified in this report. To help identify the most effective and priority projects Council has adopted a decision-making process:

- Prioritise actions that can be included within existing or upcoming projects.
- Prioritise actions that can be achieved under an existing budget item.
- Prioritise actions that tick multiple goals and strategic directions.

The table below adopts a sample Action to demonstrate how Actions within the Strategy will be assessed annually to identity priority projects for the year ahead.

Table 4.3 6 month trial of a driverless EV shuttle bus in collaboration with SCU

	Connected Byron	Smart Byron	M&P	Sustainable Byron
Movement choices	✓			
Integrated network	✓			
Disadvantaged				
Transport hubs				
Trials	✓	✓		✓
Parking systems				
Partnerships	✓	✓		
Technology	✓	✓		
Road Safety				
Policy Documents				

	Connected Byron	Smart Byron	M&P	Sustainable Byron
Planning Studies				
Byron Brand	✓			
Climate Mitigation	✓	✓	✓	✓
Asset management				
Resilient				
Future Proof	✓	✓	✓	✓

8. Transport Options

8.1. Active Transport

According to ABS data, the active transport mode share for going to work is 9% in the Shire. The supply of cycling facilities in the Byron area is limited, while cycling is permitted on the M1 Motorway, this is dangerous with heavy vehicles and other private vehicles travelling at high speeds. On a local level, only sections of major centres have any form of cycle paths. Given the distance between the centres in Byron Shire, travelling by active transport is challenging, through there are some connections that are easily covered by a cycle, especially with more e-bikes becoming common. Safety and access however remain significant barriers to inter town or hinterland cycling.

Council has adopted Bike and PAMP plans and is expanding active networks in line with the priorities set out in the plans. One significant example is the Byron Bay to Suffolk Park cycleway, while planning is underway for a cycleway between Mullumbimby and Brunswick Heads. Further expansion of active links in and around towns will prioritise safety, access and connectivity to shared and public transport options.

In the Northern Rivers Regional Transport Plan, there has been provisions to support the introduction of new cycle facilities, which includes converting disused rail tracks into cycle trails for the region. In Byron Shire, Council has adopted a multi-use strategy for both active and shared movement.

8.2. Cars

For a range of reasons, people are very much reliant on cars for mobility in Byron Shire - almost nine in ten residents drive a car to work and three-quarters of tourists self-drive. Local residents are owning more private vehicles, with growing numbers of two or three-car households and fewer households with no vehicles.

Some roads (particularly in and around townships) become congested at peak times on weekday mornings and afternoons, as well as during tourist periods including weekends, holidays and large events. Higher traffic volumes cause increases, or greater variability, in travel times. For example, a trip on Ewingsdale Road might take 10 minutes on one day, but 20 minutes on the next. Cars require large amounts of usually public areas to be used for parking and this adds to the demand for infrastructure as well as detracting from people focused town centres.

In some locations, notably the M1 interchange at Ewingsdale, infrastructure is unable to meet current demands with little prospect that upgrades will do little other than induce greater car numbers and or shift the burden on to other parts of the network such as on Ewingsdale Road. The substantial financial, social and environmental costs of business-as-usual demand alternatives be considered that can slow the growth in car numbers and help generate a mode shift to active and shared movement.

Cars are considered essential by most residents for many reasons that are unlikely to substantially change in the near term. However reduced car use may be more likely among certain cohorts where convenience or a set arrival time is less important such as tourist visitors where the experience is key. Others may be induced to shift some or all trips to active or shared movement where convenient, regular and connected services exist. In particular, shorter trips in and around town and village centres can be avoided with safe connected infrastructure that encourages active movement. A strategy to reduce car use needs to address the following:

- Well-connected active links connected to public and shared transport options in and around town centres.
- Prioritise active and public/share infrastructure for access to town centres.
- Improve pedestrian access to ensure safety and connectivity.
- Improved public transport between town centres and hinterland villages.
- Parking management that includes park and ride, peripheral parking and staggered pricing mechanisms that reflect the true cost of parking in the town centre.
- Improving safety and access for all road users on hinterland roads.

9. Sustainability

Byron Shire enjoys many beautiful natural features, including its beaches, waterways, bushland and forests. The community is very conscious of protecting and conserving this natural beauty. Ensuring the conservation of these features goes beyond physical maintenance, and strategies for behaviour change, innovation and sustainable initiatives should be encouraged to ensure the natural beauty of Byron Shire can be enjoyed by the community in years to come.

Weather events impacting the transport network affect connectivity and can have significant social and economic costs for regional communities and businesses.

Regional and remote areas face significant resilience challenges. Increased resilience in the transport system will improve access and reduce isolation for communities affected by severe weather events and avoid service disruptions and associated negative impacts on business costs and the regional economy.

In 2018, Council declared a state of climate emergency. Road transport accounts for 30 per cent of the Byron Shire community's greenhouse gas emissions. Switching to more sustainable ways of travel can go some way to protecting and preserving the precious environment.

10. Community needs, expectations and aspirations

In this section, we look at community needs, expectations and aspirations identified through engagement and consultation to guide the importance of emerging issues and assist in the identification of strategic directions and actions.

10.1. Community Strategic Plan

The Community Strategic Plan is developed with the Community and is Council's guiding document for the delivery of infrastructure and services. The first priority listed is:

1.1 Provide a road network which is safe, accessible and maintained to an acceptable level of service

While this objective can ensure key safety, access and levels of service principles are considered, there are a number of countervailing constraints that can limit the potential to achieve the goal such as:

- Funding guidelines for NSW and Federal agencies that do not align with or only partly align with the safety and access priorities determined by the community.
- Limited financial resources of Council.
- Inconsistent or conflicting Council Policy.

One approach to access is to ensure there are safe alternatives for those that do not drive, as reflected in priority 1.3:

1.3 Support, through partnership, a network of integrated sustainable transport options

It could be argued that an integrated sustainable transport network is a higher order strategic priority as it can encompass the objective of a safe and accessible road network as part of broader connected transport options. As such, it may be possible to better overcome constraints such as limited financial resources by investing in infrastructure that shifts movement demand off road or away from car movement. By scaling back growth in demand, it may be possible to better manage the delivery timeframes for road network upgrades that are financially more sustainable and help

to overcome the ‘infrastructure backlog’. A result of doing so would be to meet community expectations for improved active and public transport as well as supporting efforts to reduce carbon emissions. Perhaps of greatest importance is that it can ensure that human movement options are maximised.

It is worth noting that a strategic approach to achieving this goal can incorporate additional or expanded funding streams such as paid parking revenue. There is also scope to better align forward planning with the priorities reflected in the Community Survey.

10.2. Community Survey

Each year Council conducts a community survey as part of the Community Strategic Plan process. There is clear evidence of a mismatch between expectations and satisfaction of community priorities regarding transport. Most notably on local roads and public transport.

In the context of limited resources, the maintenance of local roads often suffers due to the demand for upgrades and maintenance of higher order roads to deal with the pressures of growth and tourism. This can be exacerbated following natural disasters such as floods. There appears to be an opportunity to improve levels of service for local roads as a benefit of a more financially sustainable strategy to reduce growth in demand for access by car in key movement corridors as described above.

Another feature is the importance of cycleways and walkways that is higher in Byron Shire compared to other communities. A shift towards a sustainable and connected movement network would align with this expectation.

Although ‘public transport’, perhaps better described as shared transport, has traditionally been seen not to be a responsibility of local government, the fact that the issue is consistently raised by the community reflects the high importance placed on access to safe sustainable transport. This should not be surprising given the potential that shared transport has to overcome restricted movement options that limit access to essential services. Experience suggests that Council could achieve more by taking a more active leadership role in developing a network of sustainable transport options.

10.3. Community Solutions Panel

To help Council overcome some of the dilemmas associated with meeting community expectations, understanding priorities, an infrastructure backlog and limited funding, community representatives were asked through a deliberative democracy process to provide guidance on the following key question.

> *“What infrastructure spending should we prioritise and how should we fund these priorities if the rates alone are not enough?”*

The panel were provided with extensive information and full access to senior staff to seek clarification and information. While the panel considered the question for all types of infrastructure, not just transport, their conclusions provide excellent guidance on transport issues from a well-informed community.

'The panel came up with a set of considerations, values, a decision-making framework and infrastructure categories weighted by values to inform Council's priorities. The panel also outlined potential revenue options and how the community should continue to be involved in Council activities and decisions.' (Delivery Program 17-21/Operational Plan 20/21, page 9).

The panel identified the following key considerations during their deliberations on the question.

- We aim to be proactive, not reactive.
- We recognise there are different needs in different places.
- We support investing in renewal when it is practical and necessary to do so.
- We encourage, support and facilitate shared ownership of community issues.
- We recognise that the development of transport alternatives to cars is essential.
- We support investment into infrastructure that generates a return.
- We endorse innovative approaches and efficiency in processes.
- We require organisational and individual responsibility, accountability, and transparency.

The panel also identified the following key values:

- Safety
- Community wellbeing
- Connectivity - Infrastructure functions to promote intra-shire access for pedestrians, cyclists and users of all vehicles.
- Equity
- Environmental consciousness
- Excellence in design

The panel also developed a decision-making framework for Council to follow when planning infrastructure where 'risk and safety are the first priority across all infrastructure types'. Other principles included a requirement that when making choices, decisions 'are reflective of the [panel's] vision and values' and that they are considered 'in terms of long-term planning and cost efficiency'.

When weighting transport infrastructure categories to the identified values, 'safety' and 'connectivity' were considered the top two values for each of the following.

- Rural roads

- Urban roads
- Footpaths and cycleways
- Bridges and footbridges

The only exception was for bus shelters where safety and excellence in design were the top two values.

When ranking categories by importance, the five transport categories accounted for half of all rankings. When urban stormwater and rural drainage are included, both considered important in the management and maintenance of movement infrastructure, the total importance went up to 69 percent.

11. Movement Patterns in the Shire

This section presents a snapshot of movement patterns, needs, emerging issues and historical influences for each of the main population centres in the Shire.

11.1. A Shire on the Move

Byron Shire is famous for its culture, beaches creativity, sustainability and a relaxed lifestyle. Beautiful natural surroundings, friendly and accepting people and an alternative community consciousness make Byron Shire unique. Byron's residents are diverse and colourful including surfers, professionals, farmers and those committed to alternative lifestyles and philosophies

Byron Shire has changed from an agricultural area to a region that attracts innovators, entrepreneurs and big city sea and tree changers. Tourism is a key industry within the Byron Shire economy – in 2016/2017 Tourism and Hospitality generated 23% of Byron Shire's jobs (3,506 jobs) and 14.1% of output/sales ($463M) in 2016/2017. More than 2 million tourists visit the Shire every year. As a sector it is Byron Shire's largest employer.

11.2. Moving In Our Communities

Each town and village in Byron Shire has their own unique character offerings, which collectively contribute to the culture of Byron Shire. Towns and villages are where, in 2016, 72% of the Shire's residents live. Each making an important contribution to the diverse character of Byron Shire and offering an attractive range of lifestyle options.

Hinterland communities are equally diverse with clustered settlement in coastal, lush valley, misty mountain and bucolic farmland settings. Each locale has a particular focus, anything from a school, landcare group or art collective. Agriculture remains important, has diversified with a strong focus on local supply of fresh produce and expanded into food manufacturing. Small scale tourism is expanding, sometimes in conjunction with operating farms. There are also rural villages where residents benefit from the additional services that closer living brings, such as parks, community halls, cafes, restaurants and shops.

11.3. Commuting to work

It is difficult to separate out commuting data. The ABS Census data records 'travel to work', however a broader understanding of commuters would include students and other regular travellers moving during peak times. It general terms ABS data indicates that:

- 23% of Byron Shire workers live outside the Shire,
- 77% of Byron Shire workers live inside the Shire,
- 74% of workers live and work in the Shire, and
- 26% of workers work in the Shire but live outside the Shire.

Understanding the data around these cohorts and separating workers from others, such as, tourist visitors is important to be able to identify particular barriers that may inhibit a shift towards active, shared and public movement options. It is also the case that different strategies and approaches may be required to influence these different groups.

Specifically, the following questions require better answers.

- Where are the movements during the peaks?
- What are the main 'commuter' trips drivers?
- What are the travel needs of commuters and what actions are required to better meet these needs as they are relevant to Moving Byron goals?

11.4. Visitor movements

Byron is a popular tourist spot both domestically and internationally, it is home to various festivals attracting thousands of visitors a day. It is already an established centre for musical, artistic, and other surfing events for visitors across the globe. Domestically, the wider Northern Rivers region is identified as the most popular regional NSW attraction. Council has forecast the number of annual visitor nights to increase by 1.6 million from 2017 to 2027.

Peak visitation to Byron is a seasonal affair as the main attractions are the summertime beaches and major festivals, where 5 per cent of all visitors in the region to attend an event. The biggest events are "Splendour in the Grass" and "Bluesfest" which both are estimated at over 100,000 visitors over the course of the festivals24. Smaller events also scatter across the year, where the Council estimates at least a few thousand on average. More examples can be seen in **Table 4.4.**

Table 4.4: Examples of Main Festivals and Events in Byron Shire in 2018

Category	Event	Estimated no of attendees (counting over event days)	Closest station
Music Festivals	Splendour in the Grass	105,000	Yelgun
	Falls Festival	60,000	Yelgun
	Bluesfest	100,000	Tyagarah
	Mullum Music Festival	9,000	Mullumbimby
Sport Events	Byron Bay Surf Festival	10,000	Byron Bay
	Byron Bay Tri & Multisport Festival	2,000	Byron Bay
Other Cultural Events	Sample Food Festival	17,000	Bangalow
	Byron Writers Festival	12,000	Byron Bay
	Soul St NYE	15,000	Mullumbimby
	Schoolies	10,000	Byron Bay
	Byron Bay Japan Festival	5,000	Byron Bay
	Byron Bay Spirit Festival	4,500	Cavanbah Centre / Elements

The large influx of visitors bolsters the local hospitality and other tourism associated business; however, it does create a sudden demand for essential infrastructures that far surpasses what is considered business as usual.

Over 12 million people visit the North Coast annually and the region will remain a major tourism destination, particularly given greater access from an upgraded Gold Coast Airport, however, it is recognised that tourism can both benefit and increase pressure on the environment and smaller communities.

Gold Coast Airport passengers are expected to increase from approximately 6 million in 2016 to approximately 16 million in 2036, an increase of 167%. This will place more pressure on towns and key tourist destinations such as Tweed Heads, Ballina, Byron Bay, Coffs Harbour and Port Macquarie.

Most international tourists come from the Gold Coast Airport, while Ballina Byron Airport plays an important role as a domestic tourism gateway. The continued growth of the Gold Coast Airports likely to contribute to the need for better cross border transport services.

Further, most visitors to Byron Shire come by car and all by road no matter the mode, which is a significant contributor to congestion in Byron Bay and elsewhere in the Shire.

11.5. Intra-Regional Trips

Local towns and centres are attractions for travel movements within Byron Shire. Typically, these are accessed by car, and this is also the case for visitors and for trips to and from regional centres.

The main regional destinations are Tweed Heads, Lismore and Ballina, as they are the largest centres in the area with a comprehensive range of essential services and employment.

1. Lismore is a regional city and the focal point of inland journeys. It is also the gateway to the west. It has a concentration of government services, University, TAFE, education precinct, health precinct with two hospitals and airport. It is also home to new housing and employment developments.

2. Tweed Heads is the most populated urban area on the NSW side, situated right at the Queensland border. Any coastal movements between the states typically go through Tweed Heads.

3. Ballina is a coastal centre south of Byron Bay located at the mouth of the Richmond River Valley, it is a regional significant area as it has a hospital, major retail, airport and port. As a coastal area, Ballina is experiencing strong growth and can be expected to have a major influence on travel patterns into the future.

Further north is the Gold Coast airport, which is a main attraction for either passengers or workers. It is the closest international airport for Byron Shire. The airport facilitates a sizeable number of passengers, and support more than ten times the amount of air traffic of Ballina airport, in 2018, 7% of all international visitors to Byron entered Australia from Gold Coast Airport.

11.6. Non work trips

Non work trips are a significant proportion of all trips, yet this data is not collected by the ABS Census data is therefore often absent from movement and infrastructure studies. Sustain Northern Rivers undertook a survey that fills in some of the gaps. Some key takeouts are cited here.

Many non-work trips occur every day across Byron Shire and the wider Northern Rivers region for a variety of purposes. While being able to choose multiple options for their reason for making their most regular non-work trip, the primary reason identified for regular trips was for shopping (72%), with other main travel motivations

being personal reasons (38%), visiting family or friends (34%), health appointments (33%), social cultural events (32%) and recreation (30%).

For regular trips other than for work, the dependency of the region's residents on cars is clear, with almost 70% driving, with bus the most common form of public transport used (9%). It was found that Byron Shire residents also hitchhiked (10%) and cycled (12%) more than walking (6%), and no Byron respondents reported using taxis, community, or youth transport. It was also found that car drivers were more likely to be employed, earning a relatively good wage and were middle aged, while public transport users were more likely to be pensioners, earned a lower income and were either under 18 or over 65.

There is a need to better understand the full range of drivers for non work trips and to identify various cohorts and the factors that could influence their choice of sustainable transport.

12. Key Transport Projects

This section reviews a number of current and emerging projects that align with Moving Byron goals and which are critical components of the Strategy.

- Masterplans
- PAMP and Bike Plan
- Paid Parking
- Solar Train
- Activation of the Rail Corridor - Multi-Use Rail Corridor Study (MURC)
- Popcar - Shared Transport Trial
- Byron Bay Transport Interchange
- Byron Bay Town Centre Bypass

12.1. Master Plans

Guiding documents such as the Byron Bay Town Centre Masterplan, Our Mullumbimby Masterplan and the Bangalow Village Plan seek to reprioritise cars and promote more pedestrian friendly spaces within the town centres. An opportunity exists to build upon these directions.

12.2. Livable places for people – an emerging direction

Council has been working on several 'place plans' which have been created in partnership with the community for Byron Bay, Mullumbimby and Bangalow. At the heart of the place plans are principles that create more livable places for people. These place plans are long term visions that will drive quality outcomes for people, public spaces and the environment. The place plans work in conjunction with other

key strategies to realise places, spaces and pathways that support vibrant, safe and connected communities. A strategic, place-based approach will ensure that places across the Shire recognise and support the local community and support diverse needs, interests and lifestyle options which enable residents to develop a strong sense of belonging.

These place plans are supported by the Byron Shire Pedestrian Access and Mobility Plan 2019 and the Byron Shire Bike Plan that identify and prioritise pedestrian and cycling projects across the Shire. The Byron Bay Bypass is another example to reduce the number of cars in central Byron Bay and prioritise pedestrians in the town centre.

12.3. Pedestrian Access and Mobility Plan (PAMP) & Bike Plan

The 10-year Pedestrian Access and Mobility Plan (PAMP) for Byron Shire was adopted in 2019. The aim of the PAMP is to look at existing footpath networks and identify and prioritise proposed future walk and roll networks that will improve access, mobility, safety and connectedness for the whole community.

Over the years, Council has taken steps to develop its cycle network and encourage increases in the uptake of cycling across the Shire. Central to this was the development and adoption of the Byron Shire Bike Strategy and Action Plan in 2008. This document confirmed Council's commitment to cycling and outlined strategies and actions to increase cycling in Byron Shire. The new and updated 2019 Bike Plan considers cycling within the existing larger settlements of Mullumbimby, Byron Bay, Suffolk Park, Bangalow, Ocean Shores, Brunswick Heads, within smaller villages and in rural locations and between key settlements. It will help provide a coordinated and strategic approach to the delivery of cycling infrastructure and promotional programs in Byron Shire for the benefit of the community. Collaboration and partnerships between the community, state and local governments, developers and other stakeholders will also be critical to ensure the Bike Plan is representative of community needs and aspirations and supports the continual improvement of Byron Shire.

There is a great opportunity to build upon both the PAMP and Bike Plan to improve walking and cycling across the Shire. In particular, prioritise works that promote connectivity with public and shared movement options.

12.4. Introduction of Paid Parking

The introduction of paid parking to Byron Bay has improved the turnover of available parking spaces reducing excessive vehicle circulation. The contribution to Council's finances is significant with revenue from paid parking contributing to the development of Masterplan projects and other infrastructure. In conjunction with the Solar Train and expanded bike network, paid parking is helping to encourage reduced car use in favour of active movement options.

12.5. The Solar Train

The Byron Bay Railroad Company has restored a 1949 heritage train, repaired three kilometres of railway line and a bridge and reinvigorated a section of the Casino to Murwillumbah rail corridor to provide a heritage rail service linking the Byron Town Centre with the North Beach precinct and the Byron Arts and Industry Estate with a journey taking 10 minutes each way.

The train operates on energy from the sun, which is a world first. The Byron Bay Railroad Company was awarded the 2018 Rail Sustainability award at the Australasian Rail Association Awards in recognition of the work done to re-use infrastructure and rolling stock and to bring to life the world's first solar-powered conventional train. The train has capacity for 92 seated passengers, additional standing passengers and luggage room for bikes, prams and surfboards, carried free of charge. The Solar Train also allows for a Rail Trail within the rail corridor and clear of the operating rail line as the corridor is typically 40 metres wide.

Figure 4.7: Belongil Creek Railway Bridge after restoration by Byron Bay Railway Company

12.6. Activating the Rail Corridor- Multi-Use Rail Corridor Study (MURC)

In view of the history of the corridor, community concern and a push to optimise existing infrastructure and the opportunity for re-use and sustainable growth in the future, Byron Shire Council commissioned a Multi-Use Rail Corridor (MURC) Feasibility Study in 2019 to support multiple and integrated commuter, tourism and active transport uses of the rail corridor. The MURC Study looked at different transport options within the corridor, including:

- Very Light Rail (VLR): axle loads equal to or under ten tonnes
- Hi-Rail passenger vehicles and/or pedal cars

- Cycle track (rail trail, simple construction)

- Multi use cycle track which allows for usage for motorised mobility aids, Segways and the like.

The analysis indicated that the Hi-Rail option with active transport and travel behavior change incentives was the preferred option.

Following the MURC Study in 2019, Council is pursuing opportunities to enable the activation of the Byron Shire Rail Corridor as a “Rail with Trail”. The MURC has the potential to be a key tourism and economic driver providing alternative transport options via a rail-based service with integrated walking and cycling infrastructure. Connecting the Shire’s towns and key localities via an activated multi-modal corridor will disperse tourism and economic benefits more widely throughout the region whilst lessening the impact on roads and parking.

12.7. Popcar Car Share Trial

In 2018 Council resolved to trial a 12-month car sharing pilot program in Byron Shire. Popcar was selected as the most suitable operator for the pilot and launched on 5 June 2019, providing 8 cars in Byron Bay and 2 in Mullumbimby.

During the 12-month pilot, the share cars were used over 500 times with bookings totaling 6,000 hours. Usage has been steadily growing over the 12 months with a slight reduction in the final months likely due to COVID-19. Over 200 members from Byron Shire have subscribed to the service.

Council also received an award from Local Government NSW for cultural change innovation and excellence for being the first regional council to introduce a car sharing program.

The inclusion of the share cars in Byron Shire provides an alternative transport option for the community, can help to reduce the need for private car ownership and when coupled with other mechanisms, facilitate the people first, cars second vision of the Byron Town Centre Master Plan.

Figure 4.8 Popcars in Mullumbimby

12.8. Byron Bay Transport Interchange

In conjunction with the Byron Bay Bypass, a new bus interchange opens in May 2021 as part of the Transport Access Program by Transport for NSW to provide a better experience for public transport customers by delivering accessible, modern, secure and integrated transport infrastructure where it is needed most. The aim of the TAP is to provide commuters with an integrated transport system where customers are able to change from one mode of transport to another with ease.

The bus interchange is located on Butler Street, adjacent to the rail corridor. It involves the construction of a covered canopy area to accommodate up to three buses/coaches at a time, public amenities and kiss and ride facilities. This ties in with the bypass and removes many buses, vans and coaches from Jonson Street, making it a more pleasant environment for pedestrians, shoppers and outdoor dining.

There is however a need to review and distinguish ‘town’ bus services from inter town and regional services, with the former to be given continued access to Jonson Street to ensure that public transport can be as convenient as car use for main street access. A further benefit is that bus access of town centres reduces circulation of traffic and demand for parking.

12.9. Byron Town By-pass

The Byron Bay Bypass opened in May 2021. As the existing road network within Byron Bay has little to no spare capacity and is restricted by the rail line, which runs parallel to Jonson Street, all through traffic was previously forced to travel via the Byron Bay town centre over the rail crossing on Lawson Street. Pressure on Lawson and Jonson Streets has eased and helped reduce the conflicts with heavy pedestrian use. Key benefits:

- Improved traffic movement on the road network within Byron Bay particularly at the Lawson and Jonson Street roundabouts.
- Support future growth associated with predicted land use changes in the Byron Shire.
- Maximise road safety benefits by improving pedestrian connectivity and reducing conflicts in the town centre.
- Enhance in-town amenity.

There is an opportunity to build upon the bypass to improve conditions within the Byron centre by Supporting the Town Centre Masterplan aims for improved active use, a people focus and reduced cars in the town centre.

Figure 4.9 Traffic in Byron Bay Town Centre

13. Sustainability (Assets)

As more than 2 million people a year work and visit Byron Shire, high car use deteriorates road surfaces. This quantum of travelers places a tremendous demand on the infrastructure and roads in Byron Shire.

The cost of maintaining and upgrading existing assets, as well as providing new infrastructure, is typically borne by Council and rate payers. This demand, combined with limited resources, means it is essential to have effective asset management plans to meet community expectations in the best way possible. It is also important to find other ways of providing improved infrastructure, including other revenue sources linked to tourism and government grants.

The Country Passenger Transport Infrastructure Grants Scheme is a state fund which subsidies support for the construction or upgrade of bus stop infrastructure (generally owned and maintained by local councils) across regional NSW, of which Byron Shire is eligible. Fixing Country Roads 2020 is also NSW state fund providing up to the $150 million for roads, bridges, bridge and route load assessments; and Byron Shire Council is also one of 92 eligible local councils to apply for this fund.