

# Tablelands Regional Council



## Transport Strategy

2019 - 2024



Tablelands Regional Council acknowledges the Traditional Custodians of the Tablelands region and recognise their continuing connection to country. We pay respect to Elders past, present and future.



# Contents

<b>Executive Summary</b> .....	<b>1</b>
<b>Abbreviations and Acronyms</b> .....	<b>2</b>
<b>Definitions</b> .....	<b>3</b>
<b>1. Introduction</b> .....	<b>4</b>
<b>2. Vision</b> .....	<b>4</b>
<b>3. Purpose</b> .....	<b>4</b>
<b>4. Objectives and Outcomes</b> .....	<b>4</b>
<b>5. Need and Community Expectations</b> .....	<b>4</b>
5.1 Service Provision and Strategy Need .....	4
5.2 Community Expectations .....	6
<b>6. Strategy Scope</b> .....	<b>7</b>
6.1 Inclusions .....	7
6.2 Exclusions .....	8
<b>7. Regulatory Context</b> .....	<b>8</b>
7.1 State Legislation .....	9
7.1.1 Local Government Act 2009 .....	9
7.1.2 Transport Infrastructure Act 1994 .....	9
7.1.3 Transport Operations (Road Use Management) Act 1995 .....	10
7.1.4 Heavy Vehicle National Law (Queensland) .....	10
7.2 Local Laws .....	10
7.2.1 Local Law No. 8 (Local Government Controlled Areas and Roads) 2019 10	10
7.2.2 Subordinate Local Law No. 8 (Local Government Controlled Areas and Roads) 2019 .....	11
<b>8. Governance Context</b> .....	<b>11</b>
8.1 Community Plan .....	11
8.2 Corporate Plan .....	12
8.3 Asset Management .....	13
8.3.1 Asset Management Policy .....	13
8.3.2 Strategic Asset Management Plan .....	14
8.3.3 Asset Management Plan .....	14
8.3.4 Maintenance Management Plan .....	14
<b>9. Planning Context</b> .....	<b>15</b>
<b>10. Star Rating</b> .....	<b>16</b>
10.1 Rural Roads .....	18
10.2 Urban Roads .....	20
<b>11. Desired Design Levels of Service</b> .....	<b>22</b>
11.1 Rural Roads .....	23
11.2 Urban Roads .....	24
<b>12. Planning for Infrastructure Upgrades</b> .....	<b>25</b>
<b>13. Planning for Infrastructure Renewal</b> .....	<b>26</b>

<b>14.</b>	<b>Planning for Infrastructure Maintenance .....</b>	<b>30</b>
<b>15.</b>	<b>Strategy Implementation .....</b>	<b>31</b>
<b>16.</b>	<b>Effectiveness and Efficiency Measures.....</b>	<b>31</b>
16.1	Effectiveness Measures.....	32
16.2	Efficiency Measures.....	32
<b>17.</b>	<b>Strategy Review .....</b>	<b>33</b>

## Version Control

Version	Outline of Revisions	Date	Updated By
1.0	Initial development	13/11/19	Mark Vis
1.1	Comments from: Manager Projects and Technical Services Manager Strategic Assets Coordinator Planning Manager Roads and Transport	15/11/19	Mark Vis
1.2	Draft for adoption	15/11/19	Mark Vis
2.0	Adopted by Council	29/11/19	Mark Vis
3.0	Updates to Strategy following Council Workshop 12/08/2021	30/08/21	Tony Hughes



## Executive Summary

Tableland Regional Council (TRC) manages, maintains and operates an extensive roads and transport portfolio with limited financial resources. To ensure the service delivery is sustainable and effective TRC needs to ensure the roads and transport service is fit for purpose and that capital and operational investments in relation to this service are prioritised in a considered and consistent manner.

To achieve this Council has identified the need to develop this transport strategy, which defines the star rating (criticality) and associated desired level of services of each road under its control.

The star rating, based on a set of predetermined criteria, identifies the criticality of each road and allows investments to be prioritised objectively and consistently.

The desired levels of service will help define investment requirements as they relate to upgrades, renewal and maintenance.

The transport strategy aims to achieve roads and transport service delivery that meets the needs of the community now and in the future at lowest whole of life cost (WOLC).



## Abbreviations and Acronyms

AMP	Asset Management Plan
CBD	Central Business District
DNRME	Department of Natural Resources, Mines and Energy
DTMR	Department Transport and Main Roads
FNQ ROC	Far North Queensland Regional Organisation of Councils
GIS	Geographic Information System
HVNL	Heavy Vehicle National Law (Queensland)
ISO	International Organisation for Standardisation
LGA	Local Government Area
LG Act	Local Government Act 2009
LGIP	Local Government Infrastructure Plan
LTFP	Long Term Financial Plan
MMP	Maintenance Management Plan
PBS	Performance Based Standard
PIA	Priority Infrastructure Area
QPWS	Queensland Parks and Wildlife Services
RMPC	Roads Maintenance Performance Contract
RV	Recreational Vehicle
SAMP	Strategic Asset Management Plan
TI Act	Transport Infrastructure Act 1994
TIDS	Transport Infrastructure Development Scheme
TO Act	Transport Operations (Road Use Management) Act 1995
TRC	Tablelands Regional Council
VFM	Value for Money
WOLC	Whole of Life Cost



## Definitions

- Road - A road is:
- an area of land that is dedicated to public use as a road; or
  - an area of land that:
    - is developed for, or has as 1 of its main uses, the driving or riding of motor vehicles; and
    - is open to, or used by, the public; or
  - a footpath or bicycle path; or
  - a bridge, culvert, ford, tunnel or viaduct.
- However, a road does not include:
- a State-controlled road; or
  - a public thoroughfare easement.
- Star Rating - Criticality



## 1. Introduction

Tableland Regional Council (TRC) manages, maintains and operates an extensive transport network of sealed (770 km) and unsealed roads (1100 km), bridges (98), major culverts (112) and footpaths (69 km) with limited financial resources. To ensure the service delivery in relation to this transport network is sustainable and effective TRC needs to ensure the service is fit for purpose and that capital and operational investments in relation to this service are prioritised in a considered and consistent manner.

To achieve this TRC has identified the need to develop a transport strategy.

## 2. Vision

The transport strategy provides the following vision.

*“To provide residents, businesses and visitors access to integrated fit for purpose infrastructure, that makes for safe, efficient and sustainable transport within the region.”*

## 3. Purpose

With the transport strategy TRC aims to ensure the road network sustainably provides a level of service that addresses the needs and expectations of the TRC community and its visitors.

## 4. Objectives and Outcomes

The primary objective of the transport strategy is to ensure the design, construction, renewal and maintenance of TRC-controlled roads is fit for purpose and prioritised based on road criticality and condition.

There is an expectation that the transport strategy will result in a more consistent level of service provided for roads with a similar criticality. For some roads this may result in an increased level of service with reference to the design, functionality and safety of the road.

In addition to and informed by the transport strategy TRC is also developing Asset Management Plans (AMPs) and Maintenance Management Plans (MMPs) for the different road assets. These may also result in changes to levels of service to appropriately manage risks whilst optimising the WOLC of these assets.


## 5. Need and Community Expectations

### 5.1 Service Provision and Strategy Need

There are several tiers of service levels provided through the roads and transport services, being:

- Design service levels (desired and actual);
- Renewal service levels (based on intervention levels); and
- Maintenance service levels (regular and based on intervention levels).

With regards to the design service levels TRC currently provides a varying level of service both across the different parts of the LGA and in relation to the different asset classes. This is a legacy resulting of the amalgamation of three former shires (Atherton, Herberton and Eacham) into the current TRC. The three former shires each applied different service levels to the design, renewal



and maintenance of roads. Although new roads and road upgrades have more recently been developed in consideration of the Far North Queensland Regional Organisation of Councils (FNQ ROC) design standards, the differences in service levels have to date not fully been addressed.

There is currently more consistency in relation to renewal service levels. All roads and associated infrastructure receive a similar service based on the star rating, intervention levels and risk.

Planned maintenance is generally conducted regularly based on a set frequency, regardless of the criticality of the road and or the risks posed by its condition.

Reactive maintenance is guided by intervention levels and prioritised using a risk score, which is calculated based on road criticality and defect score.

At the time of development of this transport strategy the roads and transport services are provided using a wide range of assets, including:

- 92 km asphalt roads
- 680 km sealed roads
- 675 km gravel road
- 419 km formed road
- 98 bridges (82 road bridges and 16 pedestrian bridges)
- 112 major culverts
- 284 km kerb and channel
- 69 km footpaths

The services provided using these assets may have been fit for purpose and at the right capacity and a reliability level acceptable at the time of construction. However, community expectations and vehicular technology have evolved over time and a lot of the road assets are no longer fit for purpose.

Over time the use of TRC-controlled roads has intensified and modern vehicles, especially commercial vehicles, are larger and heavier. This requires roads to be designed with increased dimensions and improved structural design to ensure safety and reliability.

Other current transport challenges experienced in the community and by TRC to be addressed through and providing the need for the transport strategy are:

- TRC has a small rate base relative to the quantum of road assets under its control. This affects TRC's capacity to pay for upgrades, renewal and maintenance of roads to meet changing demands and expectations. The transport strategy will inform TRC's investments in roads to ensure best return on investment from a quadruple bottom line perspective.
- Inefficient and ineffective external funding systems. State and Federal Government funding programs for infrastructure projects are predominantly competitive and are not aligned with TRC project development and budget processes. Regional areas, although they generally manage significantly larger road networks per ratepayer compared to cities, have lower vehicle movements and lower vehicle incidents statistics, resulting in funding application often losing out in the competitive application processes. Funding programs often require infrastructure projects to be shovel ready and planning and design needs to be funded from TRC budgets. Funding is generally also only available for new and upgrade capital works, which generally leaves TRC with a maintenance and renewal funding gap for any externally funded infrastructure. Prioritisation of infrastructure projects is therefore essential to ensure efforts are focussed and application success rate is maximised.
- The socio-economic situation in the TRC LGA with limited economic diversity, low household incomes and limited social services being provided results in difficulty to create new employment opportunities that attract people to the area. As such population growth forecasts and associated forecasted rate revenue increases are low, which means that the funding shortfall discussed above is expected to continue into the foreseeable future.
- Due to the geographical spread of the various communities on the Tablelands, the hilly terrain and relatively wet climate there is a high dependence on privately owned motor vehicles increasing demands on roads.



- There are very limited public transport offerings within the TRC LGA to connect its communities and to provide connectivity with neighbouring LGAs. This contributes to the high reliance on private vehicles mentioned before, which increases the demands on roads.
- The dependence on private motor vehicles is further exacerbated by a lack of appropriate footpath and cycle connections within and between towns.
- The TRC LGA attracts large numbers of Australian and overseas visitors/tourists of which the majority self-drive. Many visitors/tourists are not familiar with Australian road rules and conditions, which puts an increased onus on TRC to ensure road safety. Many tourists drive RVs requiring fit for purpose roads.

TRC has historically only upgraded roads when external funding was provided and the prioritisation of roads to be upgraded was therefore opportunistic and ad hoc, resulting in a significant portion of the road network failing to remain fit for purpose. This has resulted in reduced safety outcomes, increased deterioration and reduced reliability of the service provided using the road network. This in turn results in increased reactive maintenance requirements, which due to limited resources negatively affects responsiveness and timeliness of repairs.

The transport strategy will ensure prioritisation of upgrades, renewal and maintenance investments based on road criticality, service delivery gaps and or condition. This will enable the development of fit for purpose roads over time maintained to acceptable standards, which will result in improved service delivery to the community and its visitors at lowest WOLC.

## 5.2 Community Expectations

In September and October 2019 TRC has undertaken a community survey to gain an understanding of:

- our community's views regarding the importance and satisfaction with various services we provide; and
- community perceptions regarding how TRC goes about their business.

668 residents completed this survey. The results relating to the road and drainage services provided by TRC are summarised below.

Roads and drainage was identified as the key issue for TRC to focus on and increase their effort in.

The overall satisfaction with roads and drainage services scored 2.5 out of 5 (rating level 'mixed') across all divisions.

TRC's perceived reliability in delivering core services is 3.1 out of 5.

33% of respondents indicate that the top priority for TRC is to fix / maintain roads. This is by far the highest response score in this regard.


Infrastructure provision also scores highest as the area for TRC to increase its efforts in (79%).

Roads and drainage scores the highest dissatisfaction and the highest importance, which means that prioritising investment in and improvement of this service is essential to ensure delivery at the right level.

The community have further emphasized this by giving 'improve roads and paths' the same highest score (18%) as 'more communication / listen / be responsive' when asked how services can / should be improved.

However, the majority of respondents are not willing to pay extra for these improved services.

When asked how TRC could improve the region, most respondents (20%) answered 'improve roads'.



This feedback clearly demonstrates the community expectation that TRC provides better roads and transport services. Improving these services in a sustainable manner requires a consistent prioritised approach working towards achieving clearly defined fit for purpose service delivery. The transport strategy aims to achieve this.

TRC has also undertaken a specific community engagement process to inform the development of the transport strategy.

The engagement involved a community survey and focus group sessions for specific road user groups. The purpose of the engagement process was to:

- confirm the importance the community assigns to specific criteria to determine the criticality (star rating) of roads within the LGA;
- assess if the community believes our roads are fit for purpose; and
- confirm if the community wants to spend more money on roads.

The survey only attracted 85 respondents predominantly made up of domestic, everyday commuters and some commercial road users.

- The community response provides a balanced weighting across the 5 criteria used to determine the star rating of a road, with the highest weighting allocated to the use of a road rather than traffic count and speed limit. This differs from the weightings allocated by TRC officers who have based their criteria weightings on assessment of the relative impact of each criterion on safety risks, benefits and service provision.
- 77% of the respondents indicated that our roads are not fit for purpose.
- 67% would like to see more funding spent on our roads with the majority willing to pay 1% to 2% more rates to fund the additional spending.

Further focus group sessions were undertaken with identified external stakeholders related to heavy vehicle and active transport users (pedestrians / cyclists). The additional feedback received through this process was for TRC to give consideration to planning for more active transport routes with increased separation from vehicular routes and also consider the potential for Performance Based Standard (PBS) Vehicles (<https://www.nhvr.gov.au/road-access/local-government-road-managers>) on TRC roads. Whilst these issues have been noted for further consideration by TRC, they are outside the specific scope of the transport strategy to ensure the design, construction, renewal and maintenance of TRC-controlled roads is fit for purpose and prioritised based on road criticality and condition.

Overall the community engagement exercise including the feedback received in the focus group sessions demonstrates clear support for the transport strategy and the aim to provide fit for purpose transport services to the community, which for many roads may result in an increased level of service.

## 6. Strategy Scope

### 6.1 Inclusions

The transport strategy applies to all roads as defined in the section 59 of the *Local Government Act 2009* (LG Act).

The transport strategy includes:

- a methodology to determine the criticality of each road;
- clearly defined desired service levels for each road based on its criticality;
- a methodology to identify and plan for road upgrade requirements;
- a methodology to identify and plan for road renewal requirements; and
- a methodology to identify and plan for road maintenance requirements.

## 6.2 Exclusions

This transport strategy does not apply to any of the following:


- Any road, driveway or pedestrian pathway on private property and/or providing access from private property to a public road;
- Any access track or driveway location within a road reserve, that was not constructed by or on behalf of TRC that only provides access to adjoining private property and is not already listed on TRC's Register of Roads Maintained;
- State-controlled roads except for parts of State-controlled roads for which TRC has responsibility under a cost sharing arrangement;
- National Highways;
- Roads or tracks maintained by the Department of Natural Resources, Mines and Energy (DNRME);
- Roads or tracks maintained by Queensland Parks and Wildlife Services (QPWS);
- Roads or tracks maintained by Telstra;
- Roads or tracks maintained by NBN;
- Roads or tracks maintained by Ergon;
- Roads or tracks maintained by SunWater;
- Railway Structures, Interface Agreement between Ravenshoe Railway and TRC, Interface Agreement for Rail or Road Crossings and associated assets;
- Any utility infrastructure or assets located within the road reserve;
- Any non-road infrastructure as defined by the LG Act and this strategy;
- Any road that falls within the following TRC precincts:
  - aerodromes;
  - leased facilities for community and youth buildings;
  - leased facilities for commercial buildings;
  - libraries;
  - major sporting venues;
  - nurseries;
  - reserves;
  - parks;
  - showgrounds;
  - tourist parks and campgrounds;
  - multi-use buildings;
  - waste management; and
  - all other internal precincts for which the roads and transport section is not the asset custodian.

The transport strategy also does not include:

- planning for new infrastructure to service growth and development, which is included in the planning scheme, the Local Government Infrastructure Plan (LGIP) and other relevant planning instruments;
- planning for public transport;
- planning for recreational and active transport within or outside of undeveloped road reserve between Tablelands towns and villages;
- asset management systems and practices;
- maintenance management systems and practices; and or
- detailed technical standards and specifications for road design and construction.

## 7. Regulatory Context

To understand the constraints and obligations guiding the transport strategy it is important to understand the regulatory context in which TRC provides roads and transport services. This section provides an overview of relevant conditions and objectives of a selection of legislation that



regulates TRC's roles and responsibilities in relation to the provision of roads and transport services.

In addition to the legislation described in this section there may be other applicable legal or policy requirements under common law, Local Government planning schemes, local laws and/or roads and transport guidelines and codes relevant to this strategy.

## 7.1 State Legislation

### 7.1.1 Local Government Act 2009

The LG Act provides for the way in which a Local Government is constituted and the nature and extent of its responsibilities and power and provides a system of Local Government in Queensland that is accountable, effective, efficient and sustainable.

As such the service provided on Local Government controlled roads is mandated through the LG Act. The LG Act provides that a Local Government has control of all roads in its LGA and includes, amongst other provisions, the ability to construct, maintain and improve roads.

A road is defined in section 59 of the LG Act as follows.

A road is:

- an area of land that is dedicated to public use as a road; or
- an area of land that:
  - is developed for, or has as one of its main uses, the driving or riding of motor vehicles; and
  - is open to, or used by, the public; or
- a footpath or bicycle path; or
- a bridge, culvert, ford, tunnel or viaduct.
  
- However, a road does not include:
  - a State-controlled road; or
  - a public thoroughfare easement.

Clause 60 (1) of the LG Act, which states that a Local Government has control of all roads in its LGA, does not make a Local Government liable for the construction, maintenance or improvement of a private road.

A private road is defined as a road over land that is owned by a person who may lawfully exclude other persons from using the road.


The LG Act outlines the control of roads by TRC, the ability to acquire land for a road, closure of roads, how TRC may categorise roads, and unauthorised works on roads, amongst other items associated with roads.

The LG Act prescribes that a Local Government must categorise the roads in its LGA according to the surface of the road and that a Local Government must prepare and keep-up-to-date a map of every road including private roads in its LGA and a register of roads that shows the category of every road and the level of every road that has a fixed level and other particulars described under a regulation.

### 7.1.2 Transport Infrastructure Act 1994

TRC is not the sole road authority within the TRC LGA. Other roads authorities include; Department Transport and Main Roads (DTMR), RoadTek, DNRME, QPWS and private and corporate bodies.

DTMR is the coordinating road authority for all declared State-controlled roads within the LGA.



In accordance with the *Transport Infrastructure Act 1994* (TI Act) TRC's responsibility for roads controlled and managed by DTMR is defined within the current Roads Maintenance Performance Contract (RMPC) and the DTMR / Local Government Cost Sharing Arrangement.

The TI Act further describes the relationship between the State and Local Governments in relation to, amongst others, the provision of funding for road works on a Local Government road that contribute to the effectiveness and efficiency of the road network or for the operation of the Local Government road.

### 7.1.3 Transport Operations (Road Use Management) Act 1995

The *Transport Operations (Road Use Management) Act 1995* (TO Act) has the objective to provide for the effective and efficient management of road use in the State and applies to the use of Local Government-controlled roads as well as State-controlled roads.

Amongst other provisions the TO Act authorises Local Governments to install and remove traffic signs on a road in the relevant LGA and to regulate parking.

### 7.1.4 Heavy Vehicle National Law (Queensland)

The objective of the *Heavy Vehicle National Law (Queensland)* (HVNL) is to establish a national scheme for facilitating and regulating the use of heavy vehicles on roads in a way that:

- promotes public safety; and
- manages the impact of heavy vehicles on the environment, road infrastructure and public amenity; and
- promotes industry productivity and efficiency in the road transport of goods and passengers by heavy vehicles; and
- encourages and promotes productive, efficient, innovative and safe business practices.

The application of the HVNL to Local Governments and specifically in the context of the transport strategy relates to the requirement for the regulator of the HVNL to obtain consent from the Local Government for the purpose of granting a mass or dimension authority (overload or oversize permit) relating to a Local Government-controlled road.

## 7.2 Local Laws

### 7.2.1 Local Law No. 8 (Local Government Controlled Areas and Roads) 2019

Local Law No. 8 (Local Government Controlled Areas and Roads) 2019 has the following purpose:

- allow the use of Local Government- controlled areas or roads where there is a positive community benefit in allowing that use;
- decline the use of Local Government-controlled areas or roads where there is a negative community outcome in allowing that use;
- balance the public interest against the competing private interest in granting a permit;
- protect the health and safety of persons using Local Government-controlled land, facilities, infrastructure and roads;
- protect the health and safety of persons using State-controlled roads to the extent that the Local Government has assumed responsibility for the management of the state controlled road;
- preserve features of the natural and built environment and other aspects of the amenity of Local Government-controlled land, facilities, infrastructure and roads; and
- protect the environment and public health, safety and amenity within the LGA.

## 7.2.2 Subordinate Local Law No. 8 (Local Government Controlled Areas and Roads) 2019

The purpose of this subordinate local law is to supplement Local Law No.8 (Local Government Controlled Areas and Roads) 2019 in order allow appropriate use of and to protect the health and safety of persons using Local Government-controlled land, facilities, infrastructure and roads and preserve features of the natural and built environment and other aspects of the amenity of Local Government-controlled land, facilities, infrastructure and roads.

## 8. Governance Context

The relevance and success of the transport strategy depends on its alignment with Local Government planning processes and plans, which provide the strategic direction and key priorities of TRC based on community engagement and input. This section describes the governance context within which the transport strategy has been developed, which is also summarised in *Figure 1* below.


**Figure 1. Governance context of the transport strategy**



The transport strategy will inform the roads and bridges AMPs, roads and bridges MMPs, the ten (10) year capital works program, the Long Term Financial Plan (LTFP), annual operational plans, including operational and capital budgets, asset management and roads related policies and the Local Government Infrastructure Plan (LGIP).

### 8.1 Community Plan

The current level of service being delivered by TRC through its roads is informed by the Community Plan 2021. This community plan was developed in 2011 by the larger TRC after amalgamation prior to de-amalgamation, which incorporated the current Mareeba Shire Council



area. The process to develop the community plan was very comprehensive and included significant community engagement involving close to 11,000 community and regional participants through surveys, voting stall and planning workshops.

Road infrastructure was the most identified priority community aspiration in twenty (20) towns and districts involved in the development of the plan.

The Tablelands Community Plan 2030+ provides five priority areas for community, environment, healthy lifestyles, economy and infrastructure. Key aims for transport include:

- Getting places - support walkability, connectivity and less reliance on vehicles
- Serving community - smart, sustainable, affordable and resilient infrastructure
- Moving better - connectivity through shared ride/drive, public transport and cycling infrastructure

Each aspiration from the Community Plan 2021 has several desired outcomes and associated performance measures of which the following relate to services provided with road infrastructure.

- Our Tablelands governance is responsive to community issues and aspirations and governs in partnership with communities to deliver efficient and effective services.
- Our road and transport infrastructure meets desired service levels and maintenance, renewals and upgrades are adequately funded via annual budget allocation.
- Our roads become safer as borne out by lower accident statistics.
- Alternative transport routes increase safety and efficiency of heavy vehicles and reduce conflict with residential and commercial uses.
- Our Tablelands communities are well connected with public and community transport systems and high quality communication systems. Our roads provide high quality transport routes connecting communities across the region.
- Our road, rail and air networks are well maintained and upgraded to ensure adequate capacity for future population and economic growth and enhanced community safety and convenience.
- Strategic infrastructure priorities are identified and planned, supported by up-to-date regional and local area plans.
- Key infrastructure is provided in advance of development.
- Though the development of long term asset management plans, our infrastructure is maintained and managed for future generations.
- We have an efficient road hierarchy.
- Road infrastructure assets are progressively upgraded to provide desired service levels and meet community expectations in accordance with the project prioritisation tool and annual budget allocation.
- Facilities for green transport options increase (bikeways, walkways, trails).

## 8.2 Corporate Plan

TRC's Corporate Plan 2021-2026 provides the following statements:

### Vision

***We will celebrate and embrace our uniqueness, community connections, First Nations Peoples, diversity and enviable healthy lifestyle.***


***We will continue to focus on sustainable provision of assets, business development and regional planning while protecting our natural environment and good quality agricultural land.***

***We will be inclusive, respecting diversity and providing equitable access to all.***

***We will be resilient and adaptable, responding to change and opportunities.***

### Purpose

***To be an efficient, effective and sustainable local government for our Tablelands community.***



The transport strategy aims to deliver fit for purpose and sustainable roads to support the growth of the TRC area and ensure the various communities are connected to each other and to other parts of North Queensland.

The transport strategy contributes specifically to the following strategic goals and outcomes listed in the corporate plan:

#### Our Organisation

- Model leadership and good governance
- Deliver customer focussed systems and processes

#### Our Infrastructure

- Plan and deliver contemporary infrastructure and spaces for community need
- Maintain and improve road network

## 8.3 Asset Management

Asset management involves the systems, processes and strategies for the management of assets used to provide services to the Tablelands community.

Roads and transport services are delivered using an extensive asset portfolio. The transport strategy is based on the principles of best practice asset management and informs the Strategic Asset Management Plan (SAMP) and subordinate AMPs and MMPs for different road assets.

### 8.3.1 Asset Management Policy

The asset management policy supports the achievement of TRC's vision, goals and corporate strategies through the development, implementation and continuous improvement of an asset management framework based on the international asset management series ISO55000.

Through this policy TRC recognises that fit for purpose assets are essential for service delivery to the Tablelands community. TRC also recognises the need to establish an appropriate balance between the creation of new assets and the maintenance of existing assets. This includes reducing the gap between current expenditure on infrastructure maintenance and renewal and the level of expenditure required to ensure on-going infrastructure sustainability. This requires assets to be managed from a WOLC perspective.

Furthermore, TRC recognises that levels of service need to be set via a process that balances the community's needs and expectations with TRC's ability to fund, both now and in the future.

To achieve this, TRC is committed to the adoption of sound asset management practices and processes which will significantly contribute to the achievement of the its vision.

The principles and commitments guiding the policy are:

- responding to the community's needs;
- the provision of fit for purpose assets in support of TRC's service delivery commitments;
- provision of assets to serve the current and future generations; and
- long term financial sustainability.

In view of the above TRC aspires to develop an asset management system that provides the desired level of service for present and future customers in a fit for purpose and affordable manner.

The transport strategy supports the objectives and intent of the asset management policy by providing an objective and consistent methodology to assign fit for purpose service levels to roads and planning and prioritising road upgrades, renewals and maintenance to achieve lowest WOLC.



### 8.3.2 Strategic Asset Management Plan

The SAMP is the long term plan providing guidance to TRC with the objective of achieving long term sustainability through efficient and effective management of all its assets. The SAMP identifies the current state of asset management within TRC, the level of asset management maturity to be obtained over the life of the plan and the strategies and actions required to reach this level of maturity.

Specific AMPs for different asset classes are derived from the SAMP.

### 8.3.3 Asset Management Plan

Road AMPs intend to:

- give effect to asset management and strategic objectives as outlined the SAMP and transport strategy;
- demonstrate responsible stewardship of roads;
- manage the risks associated with the service delivery through roads;
- provide input into the long term financial planning for roads;
- support community engagement to determine suitable roads and transport service delivery requirements;
- optimise spending on roads by taking a WOLC approach;
- guide the development of maintenance practices; and
- drive continuous improvement.

TRC is finalising the development of specific AMPs for roads and bridges.

The transport strategy and specifically the desired design standards inform these plans.

### 8.3.4 Maintenance Management Plan

TRC is finalising the development of the roads and transport MMP and the bridges and major culverts MMP.

The MMPs outline TRC's approach to road asset maintenance and demonstrate how budget expenditure will be optimised to ensure residents of TRC receive value for money (VFM). The creation and implementation of these plans puts in place the structure for TRC to move from a reactive to a planned maintenance approach improving service delivery and service reliability.

The objective of these plans is to set the direction and framework required for road maintenance sustainability, and to include:

- ensuring TRC's road assets are maintained in a sustainable manner, with appropriate levels of service that balance the needs of customers and the environment within available funding;
- meeting legislative requirements for asset maintenance management;
- maximising VFM, considering the full costs of maintaining the assets throughout their full lifecycles;
- demonstrating transparent and responsible maintenance management processes that align with established best practice; and
- allowing clear communication to internal and external stakeholders around roads and transport annual maintenance delivery.

The principles relating to the identification and prioritisation of maintenance requirements included in this strategy are essential inputs for the development of these plans.



## 9. Planning Context

The TRC planning scheme guides development within the TRC LGA through the provision of the strategic framework, which sets the policy direction for the planning scheme and forms the basis for ensuring appropriate development occurs within the planning scheme area for the life of the planning scheme.

The planning scheme, amongst other provisions, provides strategic and specific outcomes in relation to planning for future transport and infrastructure. These outcomes relate to the development of:

- the road network;
- active and public transport;
- freight routes; and
- infrastructure provision.

Some of the outcomes included in the TRC planning scheme related to roads, which have guided the development of this transport strategy are summarised below.

- Roads are progressively upgraded (including construction of future State roads and local connections) and maintained to a high standard to support higher urban densities, rural production, commerce, industry and major trip generators.
- New streets integrate with the existing road network in a way which results in high levels of connectivity, accessibility and legibility to motorists and residents.
- The region is provided with a high quality road network which is upgraded and extended to provide for the safe, efficient movement of vehicles and to cater for new development.
- Development of new roads and upgrades to existing roads are designed and constructed in accordance with the FNQ ROC Regional Development Manual.
- Street layout and design supports mixed transit modes, including buses, pedestrians, cyclists and mobility devices, particularly in denser urban areas and activity centres. New development supports the use of active and public transit modes through the design and layout of new road networks and provides high levels of pedestrian and cyclist infrastructure including end of trip facilities. Centre areas and destinations are safely and conveniently accessible to cyclists and pedestrians through the provision of a permeable and highly connected active transport network.
- TRC urban communities are well serviced with walking and cycling infrastructure, including:
  - footpaths;
  - shade trees;
  - seating along key routes and in major trip generation areas;
  - principle cycle networks;
  - bike paths and lanes; and
  - end of trip facilities.
- Centre development provides for safe and convenient pedestrian mobility and access, and the provision for public transport and interchange facilities.
- Designated freight routes (including B-double routes) are appropriately managed, upgraded and are not impeded by inappropriate land uses to ensure the efficient transportation of essential goods and services.
- Infrastructure and services are provided in an economical and efficient manner in order to consolidate urban form, support community needs and maximise return on investment.

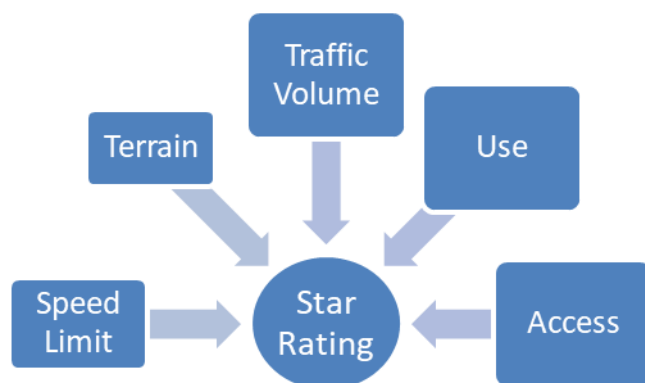
The urban desired design standards as defined within this transport strategy apply to the areas defined as urban footprint in the planning scheme and mapped on the Priority Infrastructure Area (PIA) and Local Plan layers within TRC's GIS system, MapInfo. The rural design standards apply to all other areas within the TRC LGA.

## 10. Star Rating

The star rating of a road defines its criticality based on a pre-determined set of criteria relating to the use, safety and access limitations of the road. Each road attracts a score between zero (0) and ten (10) for each applicable criterion based on its use, safety and access attributes. Each criterion score is then weighted based on its perceived relative importance.

The criteria applied to determine the star rating are shown in *Figure 2*.

**Figure 2. Star rating criteria**



The speed limit, terrain, traffic volume and use criteria all relate to road safety and associated risks presented to road users. Roads with a higher speed limits and/or hilly or mountainous terrain and/or higher traffic count and/or a greater variety of road users pose a higher road safety risk and therefore require higher desired levels of service and prioritisation when planning upgrades, renewals and maintenance.

Traffic volume and use also relate to the social and economic benefit the road has to the community due to the number of vehicles using it and the types of social and or economic activities the road supports. Roads with greater overall usage and/or use by recreational, tourism, commercial, industrial, social support and essential services vehicles provide a higher benefit to the community and should therefore have a higher level of service and be prioritised for upgrades, renewals and maintenance.

The access criterion only applies to rural roads that provide single access to residential and commercial properties. Full or partial loss of access due to physical or functional failure of these roads or road assets results in significant impact to property owners serviced by these roads. As a result, the level of service provided by these roads needs to be reliable and fit for purpose. Renewal and preventive maintenance needs to be prioritised to, as much as possible, prevent road asset failure and reactive maintenance needs to be prioritised to ensure timely reinstatement of required service levels.

The weightings of each of the criteria have been determined based on assessment of the relative impact of each criterion on safety risks, benefits and service provision.

The weightings of the criterion for rural and urban roads are summarised in *Table 1*.

**Table 1. Weighting of star rating criteria**

Criterion	Rural	Urban
	Weight	Weight
Speed limit	5%	5%
Terrain	5%	5%
Traffic Count	50%	50%
Use	30%	40%
Access	10%	N/A

Although road safety is an important consideration the weightings allocated to speed limit and terrain are relatively low, because of the consideration that traffic count and use have a greater impact on road safety whilst also having a social and economic benefit impact.

Access has been allocated a lower weighting because this only applies to a small number of rural roads and their use, being predominantly for primary production already attracts a high weighted score.

As discussed in Section 5.2 TRC engaged with the community in relation to the weightings to be applied to the criteria. 85 people responded to this question and their responses result in a more evenly distributed weighting for all criteria ranging from 15% to 25%. It is noted that the number of responses received is very low compared to the total TRC population. It is also noted that most respondents (>82%) use the TRC controlled road network for domestic and every day commute purposes. Very few responses were provided by people using the network for commercial, primary production and heavy transport purposes. It is questionable if the responses are reflective of the whole community and all uses, and it has therefore been decided to not amend the weightings based on the engagement results.

The weightings can easily be adjusted at a later point in time should this be required following future engagement and or as part of strategy refinement based on future learnings.

The star ratings of rural and urban roads are assessed and determined separately using different attributes, attribute scores and criteria weightings to ensure roads in both categories can be awarded the maximum star rating.


The star rating ranges between zero (0) and five (5), with five (5) representing the highest achievable road criticality and zero (0) being the lowest.

**Table 2. Relationship between star rating and road criticality**

Star Rating	Score Range	Criticality
5	4.6 - 5.0	Very High
4	3.6 - 4.5	High
3	2.6 - 3.5	Moderate
2	1.5 - 2.5	Low
1	0.0 - 1.5	Very Low

The following paragraphs provide the models used to determine the star ratings of both rural and urban roads.

A minimum desired level of service is assigned to each TRC controlled road including all associated road assets and asset components based on its star rating.



The star rating is subsequently used to prioritise road upgrades from the current level of service provided to the desired level of service.

The star rating in combination with a condition score also assists with prioritisation of road asset renewal and maintenance.

The assignment of desired levels of service and prioritisation processes for upgrades renewals and maintenance are provided in Sections 11, 12, 13 and 14 respectively.

## 10.1 Rural Roads

*Table 3.* Provides the criteria including associated criteria values, scores and weightings applied when determining the star rating of individual TRC-controlled rural roads.

**Table 3. Star rating criteria for rural roads**

STAR RATING CRITERIA FOR RURAL ROADS														
Desired Speed Limit*			Terrain			Traffic Count			Use			Access		
Value	Score	Weight 5%	Value	Score	Weight 5%	Value	Score	Weight 50%	Value	Score	Weight 30%	Value	Score	Weight 10%
						Vehicles per day (v/pd)								
Speed - 100 km/h	10	0.5	Mountainous	10	0.5	>1000	10	5	Primary Production (High Value Crops)	2.7	0.81	No Alternative Access	10	1
Speed - 90 km/h	0	0	Rolling	5	0.25	600-1000	10	5	Primary Production (Broad Acre Crops)	2	0.6	Limited Alternative Access	8	0.8
Speed - 80 km/h	5	0.25	Level	2	0.1	300-599	8	4	Tourism	1	0.3	Some Alternative Access	6	0.6
Speed - 70 km/h	0	0	Not Applicable	0	0	150-299	6.5	3.25	Essential public infrastructure Access	2	0.6	Moderate Alternative Access	4	0.4
Speed - 60 km/h	2	0.1				75-149	4.5	2.25	B Double (NHVR)	1.5	0.45	Good Alternative Access	2	0.2
Speed - 50 km/h	0	0				20-74	2	1	Public Transport	2.5	0.75	Not Applicable	0	0
Speed - 40 km/h	0	0				0-19	1	0.5	Cycling	0.3	0.09			
Not Applicable	0	0				Not Applicable	0	0	Not Applicable	0	0			

\* The desired speed limit applies to gravel roads which have no sign posted speed limit. For rural roads with a posted speed limit this speed limit applies.

The following example shows how the star rating of each rural road can be calculated using the information provided in *Table 3*.

<b>RURAL ROAD X</b>				
<b>Criterion</b>	<b>Value</b>	<b>Score</b>	<b>Weight</b>	<b>Weighted Score</b>
Desired speed limit	100 km/hr	10	5%	0.50
Terrain	Level	2	5%	0.10
Traffic Count	52 v/pd	2	50%	1.00
Use	Primary Production	2.7	30%	0.81
Use	Tourism	2.2	30%	0.66
Access	Some	6	10%	0.60
<b>Total Weighted Score</b>				<b>3.67</b>
<b>Star Rating</b>	<b>(=total score divided by 2)</b>			<b>1.84</b>
Rural road X is a 2 star road				

## 10.2 Urban Roads

*Table 4*. Provides the criteria including associated criteria values, scores and weightings applied when determining the star rating of individual TRC-controlled urban roads.

**Table 4. Star rating criteria for urban roads**

STAR RATING CRITERIA FOR URBAN ROADS											
Speed Limit			Terrain			Traffic Count			Use		
Value	Score	Weight	Value	Score	Weight	Value	Score	Weight	Value	Score	Weight
		5%			5%	Vehicles per day (v/pd)		50%			40%
Speed - 100 km/h	0	0	Mountainous	10	0.5	>1000	10	5	CBD / Commercial / Tourism	2.5	1
Speed - 90 km/h	0	0	Rolling	5	0.25	600-1000	10	5	Public Transport	2	0.8
Speed - 80 km/h	0	0	Level	2	0.1	300-599	8	4	Essential Public Infrastructure Access	2	0.8
Speed - 70 km/h	10	0.5	Not Applicable	0	0	150-299	6	3	Recreational Access	1.5	0.6
Speed - 60 km/h	9	0.45				75-149	4.5	2.25	Industrial Zone	1.5	0.6
Speed - 50 km/h	6	0.3				20-74	2	1	Cycling	0.5	0.2
Speed - 40 km/h	2	0.1				0-19	1	0.5	Not Applicable	0	0
Not Applicable	0	0				Not Applicable	0	0			



The following example shows how the star rating of each urban road can be calculated using the information provided in *Table 4*.

<b>URBAN ROAD Y</b>				
<b>Criterion</b>	<b>Value</b>	<b>Score</b>	<b>Weight</b>	<b>Weighted Score</b>
Desired speed limit	60 km/hr	9	5%	0.45
Terrain	Level	2	5%	0.10
Traffic Count	320 v/pd	8	50%	4.00
Use	Cycling	0.5	40%	0.20
Use	Tourism	2.5	40%	1.00
<b>Total Weighted Score</b>				<b>5.75</b>
<b>Star rating</b>	<b>(=total score divided by 2)</b>			<b>2.88</b>
Urban road Y is a 3 star road				

## 11. Desired Design Levels of Service

The star rating calculated using the methodology provided in Section 10 determines the desired design level of service provided by each TRC-controlled road. Design service levels are different for rural and urban roads to ensure fit for purpose design.

It is noted that these desired design levels of services define the minimum desired design standard of each road within a certain star rating range. In some situation this minimum standard cannot be achieved for example due to geographic limitation or inadequate road reserve width or alignment. In some cases, TRC might want to provide a higher level of service for example in industrial areas, in the western part of the region to accommodate triple road trains and in Central Business Districts (CBD).

The desired design standards for rural and urban roads correspond largely with the design standards prescribed in the FNQ ROC development manual as amended for TRC. Infrastructure delivered as part of and to service new development needs to be delivered in accordance with the conditions provided in the relevant development approval.

## 11.1 Rural Roads

Table 5. Desired design standards for rural roads

Star Rating	Design Element											
	Width [m]			Flood Immunity	Wearing Course	Design Life (maximum) [yr]		Reserve Width** [m]	Desirable Speed Environment (maximum) [km/h]	Design Speed Environment (minimum) [km/h]	Bridges***	
	Formation	Pavement	Lane			Pavement	Seal				Load Limit [t]	Lane Configuration
4.6 - 5.0	10	9	7	Q5	Seal	50	12	30(+)	100	80	S1600	Dual
4.1 - 4.5	10	9	7	Q5	Seal	50	12	30(+)	100	80	S1600	Dual
3.6 - 4.0	9	8	7	Q5	Seal	50	12	30(+)	100	80	44	Dual
3.1 - 3.5	7.5	6.5	3.5-6.5*	Q2	Seal	50	12	20 - 30	80	60	44	Dual
2.6 - 3.0	7.5	6.5	3.5-6.5*	Q2	Seal	50	12	20 - 30	80	60	44	Single
2.1 - 2.5	5.5	4.5	4.5	Q2	Gravel	8	N/A	20 - 30	60	40	44	Single
1.6 - 2.0	5.5	4.5	4.5	Q2	Gravel	8	N/A	20 - 30	60	40	44	Single
1.1 - 1.5	4.5	3.5	3.5	Q2	Natural	Infinite	N/A	20	40	N/A	N/A	N/A
0.0 - 1.0	NA	NA	NA	NA	Natural	Infinite	N/A	20	40	N/A	N/A	N/A
* Seal width depending on environmental considerations (weather) and whole of life costing												
** Reserve width depending on environmental considerations (terrain) or as existing												
*** Bridge Load Limit depending on alternate access or Traffic Count >20 VPD												

Note: It is recommended that sections of gravel roads will be considered for an upgrade to bitumen seal standard where there are occupied dwellings on the prevailing downwind side within 100m of the centreline of the road carriageway. Officers will apply discretion on project scope (i.e. length of the section proposed to be sealed) based on the number of and distance between dwellings on the road. This does not apply to formed natural material roads.

## 11.2 Urban Roads

Table 6. Desired design standards for urban roads

Star Rating	Design Element																		
	Width [m]			Flood Immunity	Wearing Course	Design Life (Maximum) [yr]		Line marking	Reserve Width** [m]	Desirable Speed (maximum) [km/h]	Bridges***		Drainage			Footpaths (formed)		Cycle path	Lighting
	Formation	Pavement*	Lane			Pavement	Seal				Load Limit [t]	Lane Configuration	Kerb and Channel	Under Ground Stormwater	Drainage Easements	Location	Width	Location	Type
4.6 - 5.0	16	16	16	Q5	Asphalt	50	25	Yes	25	40-60	44	Dual	Yes	Yes	As Applicable	Both sides	Unlimited	Yes	V3
4.1 - 4.5	11	11	11	Q5	Asphalt	50	25	Yes	25	40-60	44	Dual	Yes	Yes	As Applicable	Both sides	Unlimited	Yes	V3
3.6 - 4.0	11	11	11	Q5	Asphalt	50	25	Yes	25	40-60	44	Dual	Yes	Yes	As Applicable	Both sides	2m	Yes	B1
3.1 - 3.5	7.5	7.5	7.5	Q5	Asphalt	50	25	Intersection and Curves	20	40-50	44	Dual	Yes	Yes	As Applicable	Both sides	2m	Yes	B1
2.6 - 3.0	7.5	7.5	7.5	Q5	Asphalt	50	25	Intersection and Curves	20	40-50	44	Dual	Yes	Yes	As Applicable	One side	2m	Yes	B1
2.1 - 2.5	6.5	6.5	6.5	Q2	Asphalt	50	25	Intersection and Curves	20	40-50	44	Single	Yes	Yes	As Applicable	N/A	N/A	N/A	B1
1.6 - 2.0	6.5	6.5	6.5	Q2	Asphalt	50	25	No	16	40-50	44	Single	Yes	N/A	As Applicable	N/A	N/A	N/A	B1
1.1 - 1.5	5.5	5.5	5.5	Q2	Bitumen	50	12	No	16	40-50	44	Single	N/A	N/A	As Applicable	N/A	N/A	N/A	B2
0.0 - 1.0	5.5	5.5	5.5	NA	Bitumen	50	12	No	16	40-50	44	Single	N/A	N/A	As Applicable	N/A	N/A	N/A	B2

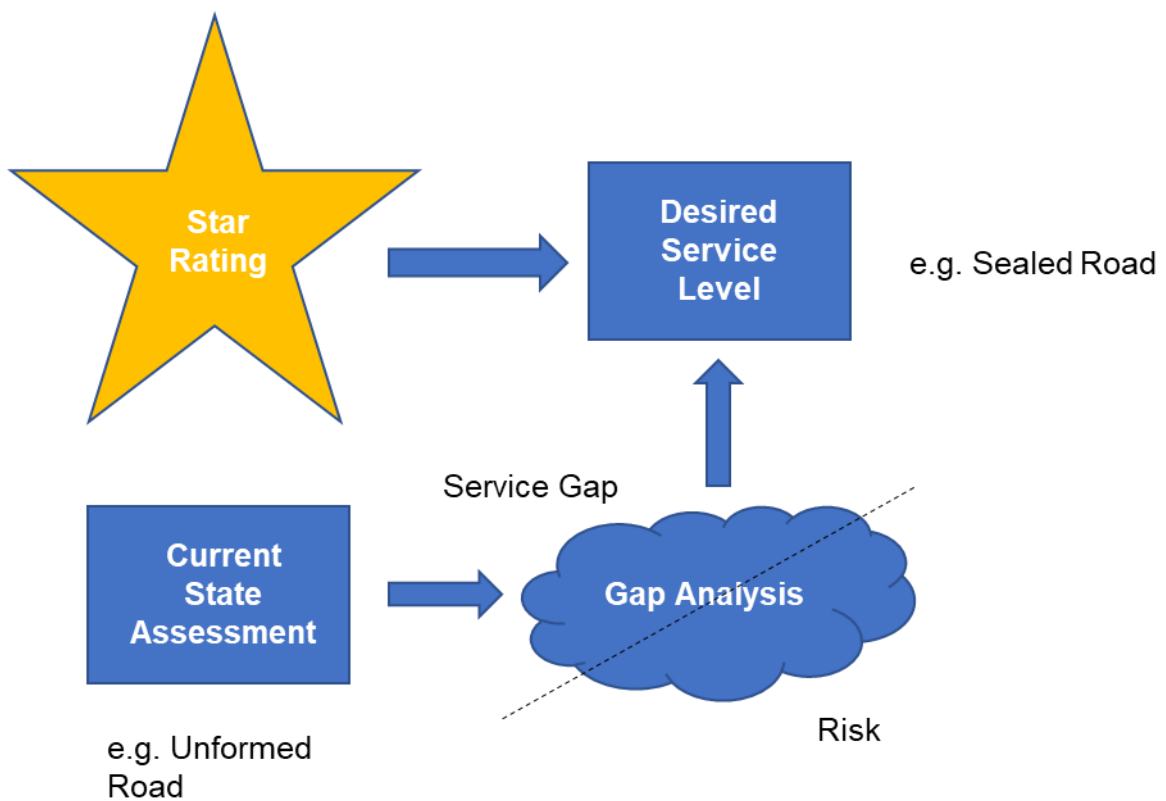
\* Seal width depending on environmental considerations (weather) and whole of life costing  
 \*\* Reserve width depending on environmental considerations (terrain) or as existing  
 \*\*\* Bridge Load Limit depending on alternate access or Traffic Count >20 VPD

## 12. Planning for Infrastructure Upgrades

Identification, costing and prioritisation of road upgrades requires the star rating, associated desired design standards and a road condition score.

A gap analysis between the current design level of service and the desired design standard of all TRC-controlled roads defines the upgrade requirements across TRC's road network. These upgrade requirements can be costed using standard activity rates, providing a high level estimate of the total road network upgrade requirements and the upgrade cost for each road. Following this assessment, road upgrades can be prioritised using the risk score of each road to be upgraded. Roads with a higher risk score get priority over those with a lower score. This process is schematically represented in *Figure 3*.

**Figure 3. Planning for infrastructure upgrades**



The risk score of a road is calculated using its weighted star rating and weighted condition score. Please refer to Section 13 of this strategy in relation to the calculation of the condition score.

The weightings applied to the star rating and condition score to calculate the risk score used to prioritise road upgrades are provided in *Table 7*.

**Table 7. Star rating and condition score weighting for prioritisation of road upgrades**

Star Rating Score Weighting [%]	Condition Score Weighting [%]
60	40

Application of a risk score based on weighted star ratings and condition scores ensures that required upgrades of roads with a lower star rating and poor condition can be prioritised over roads with a higher star rating and relatively good condition. This is demonstrated in *Table 8*.

**Table 8. Road upgrade prioritisation**

ROAD UPGRADE PRIORITISATION					
Asset	Star Rating	Condition Score	Calculation	Risk Rating	Priority
	60%	40%			
Bridge X	5	1	$(5*60\%)+(1*40\%)$	3.40	2
Bridge Y	3	5	$(3*60\%)+(5*40\%)$	3.80	1

Actual delivery of road upgrades not only depends on the risk score and associated prioritisation of each road, but also on TRC's financial sustainability, affordability (including consideration of external funding), prioritisation across all other TRC asset classes and efficiency of upgrade delivery.

The efficiency of upgrade delivery can be influenced by the proximity of other similar upgrade projects providing the opportunity to bundle works possibly requiring deferral or bringing forward certain upgrade projects compared to its delivery timing as dictated by the star rating of the roads involved. Improved efficiency can also be achieved by aligning road upgrades with planned renewal works if the timing of the upgrade and planned renewal is within a few years of each other.

It is noted that the implementation of the transport strategy will require TRC to increase its road upgrades budget to overcome the service level gap. As previously indicated, historically TRC has predominantly invested in road upgrades if external funding was made available, either through government grants or developer contributions. As a result the associated upgrades have either been opportunistic, related to specific developments and or limited to roads meeting the external funding requirements (e.g. Transport Infrastructure Development Scheme (TIDS)) and not necessarily aligned with community need and or TRC's priority.

The road upgrade program will be incorporated in the ten (10) year capital works program based on affordability as provided from the ten (10) year financial plan and as endorsed by TRC.

Every year TRC will endorse a capital budget based on its priorities. The ten (10) year financial plan, ten (10) year capital plan and road upgrade program will need to be reviewed and possibly amended following budget endorsement.

## 13. Planning for Infrastructure Renewal

A core principle of sound asset management is to provide agreed levels of services with acceptable reliability using fit for purpose assets at the lowest WOLC. To achieve this, assets, once constructed, need to be maintained and renewed to maintain functionality and to ensure they meet their useful life potential.

Renewal constitutes the restoration of an asset back to its original design capacity and functionality. For road assets this mostly involves the restoration of the wearing course of the road pavement (e.g. re-sealing, asphalt overlay and re-sheeting), or partial/full replacement of road asset elements, like kerb and channel, footpaths, road furniture and culverts. Renewal of roads needs to occur at the right time taking into consideration the design life as indicated in the desired design standards *Tables 5 and 6*, the star rating of each road and its condition.

The renewal intervention point is the point at which it becomes cost effective to replace an asset rather than continuing to spend money on reactive and planned maintenance. If renewal is conducted too early the asset is not reaching its full life potential (e.g. over-servicing). If renewal is done too late (e.g. sweating the asset) TRC is likely providing a reduced level of service than desired. Sweating assets often results in a need to invest more to bring the asset back to its original design intent through rehabilitation, because the structural elements of the road (i.e. formation or pavement) have deteriorated too far due to insufficient protection provided by the wearing course.

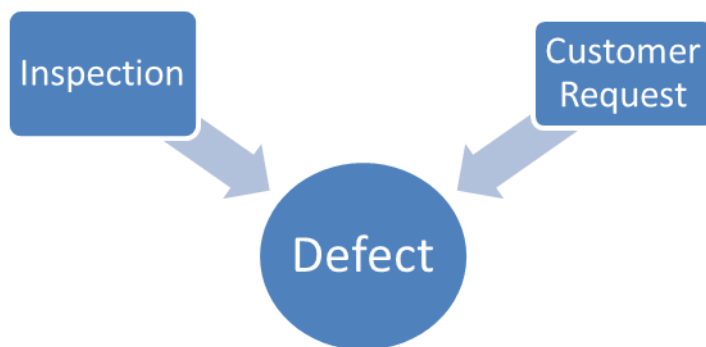
Roads should therefore be renewed when they reach an overall condition score of 4. Allowing roads to deteriorate beyond this condition score generally results in accelerated deterioration to an unacceptable condition standard requiring more intensive and costly rehabilitation works. Due to a backlog in road renewal it is currently not affordable to renew all roads when they reach condition score 4. This means that renewals need to be prioritised based on risk such that all roads with a risk score higher than the renewal intervention point will be prioritised.

The renewal intervention point is determined based on a risk score calculated using the star rating and the condition score of a road segment or its components.

The calculation of the star rating is provided in Section 10 of this strategy.

The road condition score is based on the identification of defects either through planned inspections or investigations of customer service requests followed by classification of the defects based on the risk they pose to the road users.

**Figure 4. Defect identification**



The TRC MMP and associated inspection and maintenance procedures define the different types of road defects, including a methodology to classify these defects using criteria, including size of the defect, defect location and visibility. Road defects are categorised by defect type. The condition of a road or road segment is established by determining the overall condition score for each defect type for the road or road segment. This defect type condition score is then weighted and subsequently added up with the weighted scores of all other relevant defect types for that road or road segment. An example of this process for sealed roads is provided in *Tables 9 and 10* below.

**Table 9. Sealed roads defects types**

SEALED ROADS				
Defect Type	Weight (%)	Condition Score	Condition Level	Detail
Surface Texture	20	5	Very poor	
		4	Poor	>30% of segment
		3	Fair to Moderate	
		2	Good	
		1	Very Good	
Cracking	20	5	Very poor	
		4	Poor	>35% of segment
		3	Fair to Moderate	
		2	Good	
		1	Very Good	
Patching	10	5	Very poor	
		4	Poor	>35% of segment
		3	Fair to Moderate	
		2	Good	
		1	Very Good	
Binder Age	50	5	Very poor	<10% life remaining
		4	Poor	<25% life remaining
		3	Fair to Moderate	20-35% life remaining
		2	Good	35-60% life remaining
		1	Very Good	>60% life remaining

**Table 10. Example calculation of the overall condition score of a sealed road**

Defect Type	Condition Score	Weight [%]	Weighted Condition Score
Surface Texture	3	20	0.6
Cracking	2	20	0.4
Patching	4	10	0.4
Binder Age	5	50	2.5
<b>Total</b>			<b>3.9</b>

Using the above calculated weighted condition score of a road or road segment and the star rating of the road a risk score can be calculated to determine if the road or road segment meets or exceeds the renewal intervention point.

To this end the weighted condition score and star rating are weighted (again) to reflect their relative impact on risk depending on the type of asset. As shown in *Table 11* the relative weighting of road condition for unsealed roads is lower compared to the weighting of road condition for sealed roads. This reflects the expectation that road users will adapt their speed and driving behavior more to the prevailing road condition on unsealed roads, than they would do on sealed roads.

**Table 11. Weighting of star rating and weighted condition scores for renewal prioritisation based on impact on risk**

Asset	Star Rating Score Weighting [%]	Condition Score Weighting [%]
Unsealed Roads	40	60
Sealed Roads	20	80

The weighted scores are subsequently added up to provide the risk score. Examples of this calculation are provided in *Table 12* below.

**Table 12. Example calculation of risk score based on different star ratings and condition scores**

SEALED ROAD RENEWAL PRIORITISATION (EXAMPLE)					
Star Rating	Condition Score	Calculation	Risk Rating	Priority	Activity
20%	80%				
3.67	2.5	$(3.67 \times 20\%) + (2.5 \times 80\%)$	2.73	5	Maintenance
3.67	4	$(3.67 \times 20\%) + (4 \times 80\%)$	3.93	2	Renewal
4.5	2.5	$(4.5 \times 20\%) + (2.5 \times 80\%)$	2.90	4	Maintenance
4.5	4	$(4.5 \times 20\%) + (4 \times 80\%)$	4.10	1	Renewal
1	4	$(1 \times 20\%) + (4 \times 80\%)$	3.40	3	Maintenance
1.6	2	$(1.6 \times 20\%) + (2 \times 80\%)$	1.92	6	Maintenance

**Figure 5. Calculation of the risk score**




Once the risk score is calculated it is compared with the renewal intervention point to determine if renewal is required. If so, the renewal activity is prioritised in accordance with the risk score and scheduled accordingly and in consideration of approved renewal budgets.

Renewal is funded from depreciation. TRC applies straight line annual depreciation over the life of the road assets based on like for like replacement cost. Current asset lives allocated to some of these assets need review, likely resulting in an increase of TRC’s annual depreciation budget. This will in turn allow TRC to increase its renewal expenditure to ensure that the road assets are renewed when it is cost effective to do so.

The asset sustainability ratio included in TRC’s annual financial report measures the extent to which the tangible assets are being renewed as they reach the end of their useful lives. It is an indicator of our ability to maintain our tangible assets over the long term. This ratio is calculated by dividing the renewal expenditure over a financial year by the depreciation expense for that period.





The benchmark target for this ratio is >90% to be achieved over multiple consecutive years, rather than each year.

To ensure sustainable roads and transport service delivery TRC needs to allocate enough renewal budget to meet the long-term asset sustainability ratio to all individual road assets.

The renewal intervention point for TRC road assets will need to be determined annually based on the allocated renewal budget.

It is noted that TRC has a back log in road renewals due to insufficient renewal investments in the past. It will take several years to overcome this backlog unless TRC targets a higher asset sustainability ratio and a lower renewal intervention point in coming years.

## 14. Planning for Infrastructure Maintenance

Defects identified and classified in road segments which don't meet the renewal intervention point are repaired as part of reactive or planned maintenance activities and programs. Prioritisation of reactive maintenance will be based on the risk score and efficiency/productivity considerations. Programmed maintenance either occurs in accordance with set programs and frequencies or in line with programmed maintenance intervention levels (e.g. road surface roughness). Further details in relation to this are provided in TRC's roads and transport MMP.

## 15. Strategy Implementation

Implementation of the transport strategy involves the actions as outlined in *Table 13*.

**Table 13. Transport strategy implementation plan**

ACTION	DUE DATE	ACCOUNTABILITY
Update asset system (Confirm) with star rating criteria and scores	Complete	Strategic Assets
Allocate criteria scores to each TRC controlled road	Complete	Strategic Assets
Determine star rating of each TRC controlled road	Complete	Strategic Assets
Conduct gap analysis between current design standard and desired design standard for each TRC controlled road	Complete	Strategic Assets
Identify and cost road upgrade requirements	Complete	Strategic Assets
Update road renewal schedule and costing	Complete	Strategic Assets
Prioritise road upgrades and renewals	Ongoing	Strategic Assets
Update 10 year capital plan	Annually	Strategic Assets
Amend roads maintenance management plan	Complete	Roads and Transport
Seek external funding	Ongoing	Strategic Assets
Conduct traffic counts	Ongoing	Strategic Assets
Analyse road use	Ongoing	Strategic Assets
Review and refine road criteria scores and star rating	Annually	Strategic Assets
Review and refine road criteria scores and star rating	Annually	Strategic Assets
Review and amend effectiveness measures and targets	Annually	Roads and Transport
Review and amend efficiency measures and targets	Annually	Roads and Transport
Review transport strategy	2021	Roads and Transport

## 16. Effectiveness and Efficiency Measures

To ensure the transport strategy and associated levels of service continue to meet community expectations it is imperative to measure the effectiveness of the service to achieve the objectives and outcomes defined for the service. This will allow benchmarking performance against other Councils and helps inform future reviews of the strategy and levels of service.

The Effectiveness and Efficiency Measures included in this strategy relate to the overall performance of the service at high level. More specific measures to assess performance at activity level are included in the relevant AMPs and MMPs.

## 16.1 Effectiveness Measures

Proposed effectiveness measures are provided in *Table 14*. It is noted that these proposed measures and associated targets need further refinement. The final measures agreed upon will need to be measurable and have achievable targets that will need to be adjusted over time to achieve continuous performance improvement.

**Table 14. Proposed effectiveness measures**

EFFECTIVENESS MEASURE	DESCRIPTION	PROPOSED TARGET
Community satisfaction score	The percentage of community members scoring their satisfaction with the road services provided at good or excellent	80%
Service level indicator	The percentage of roads constructed and maintained at the desired service level	80%
Smooth travel exposure indicator	The percentage of roads meeting roughness criteria	80%
Reliability indicator 1	The number and duration of unplanned road closures expressed as the percentage availability of the total road network to all users	95%
Reliability indicator 2	The percentage of bridges and culverts with load restrictions	20%
Renewal indicator	The percentage of roads with a road surface age younger than its optimal target age	80%
Maintenance indicator 1	The percentage of roads maintained below intervention level	80%
Maintenance indicator 2	The number of defects exceeding intervention level per lane km of road	TBD
Safety indicator	The number of vehicle incidents per lane km of road	TBD

## 16.2 Efficiency Measures

Proposed efficiency measures are provided in the *Table 15* below. It is noted that these proposed measures and associated targets need further refinement. The final measures agreed upon will need to be measurable and have achievable targets that will need to be adjusted over time to achieve continuous performance improvement.

**Table 15. Proposed efficiency measures**

EFFICIENCY MEASURE	DESCRIPTION	PROPOSED TARGET
Sustainability indicator	Annual maintenance cost per lane km of road	TBD
Maintenance indicator	The ratio of reactive maintenance cost over planned maintenance + renewal costs	20/80
Construction delivery indicator	Percentage of construction contracts completed on time	90%
Construction delivery indicator	Percentage of construction contracts completed on budget	90%



## 17. Strategy Review

The transport strategy 2019 – 2024 is based on the knowledge and information available at the time of adoption and or review. It is intended that the strategy will be refined over the next four years following initial adoption with improvements made on an ongoing basis under delegation to the Chief Executive Officer and sub-delegation to the General Manager Infrastructure and Planning.

These delegations do not include the ability to change the strategy vision, objectives and principles, but include the authority to change:

- star rating criteria, criteria scores and weightings to improve how the impact of safety, community benefits and accessibility are reflected in the criticality of each road;
- desired design standards to ensure roads with a given star rating remain fit for purpose as road use, safety requirements and technical standards change over time; or
- the risk rating value or renewal intervention point that determines maintenance and renewal requirements based on star rating and condition score to ensure this value remains appropriate as the need for reactive maintenance decreases over time with more fit for purpose roads being constructed and maintained.



*Live, discover and invest in a Tablelands community*



Tablelands Regional Council

45 Mabel Street, Atherton Qld 4883  
PO Box 573, Atherton Qld 4883

1300 362 242

[info@trc.qld.gov.au](mailto:info@trc.qld.gov.au)

[trc.qld.gov.au](http://trc.qld.gov.au)



#athertontablelands