

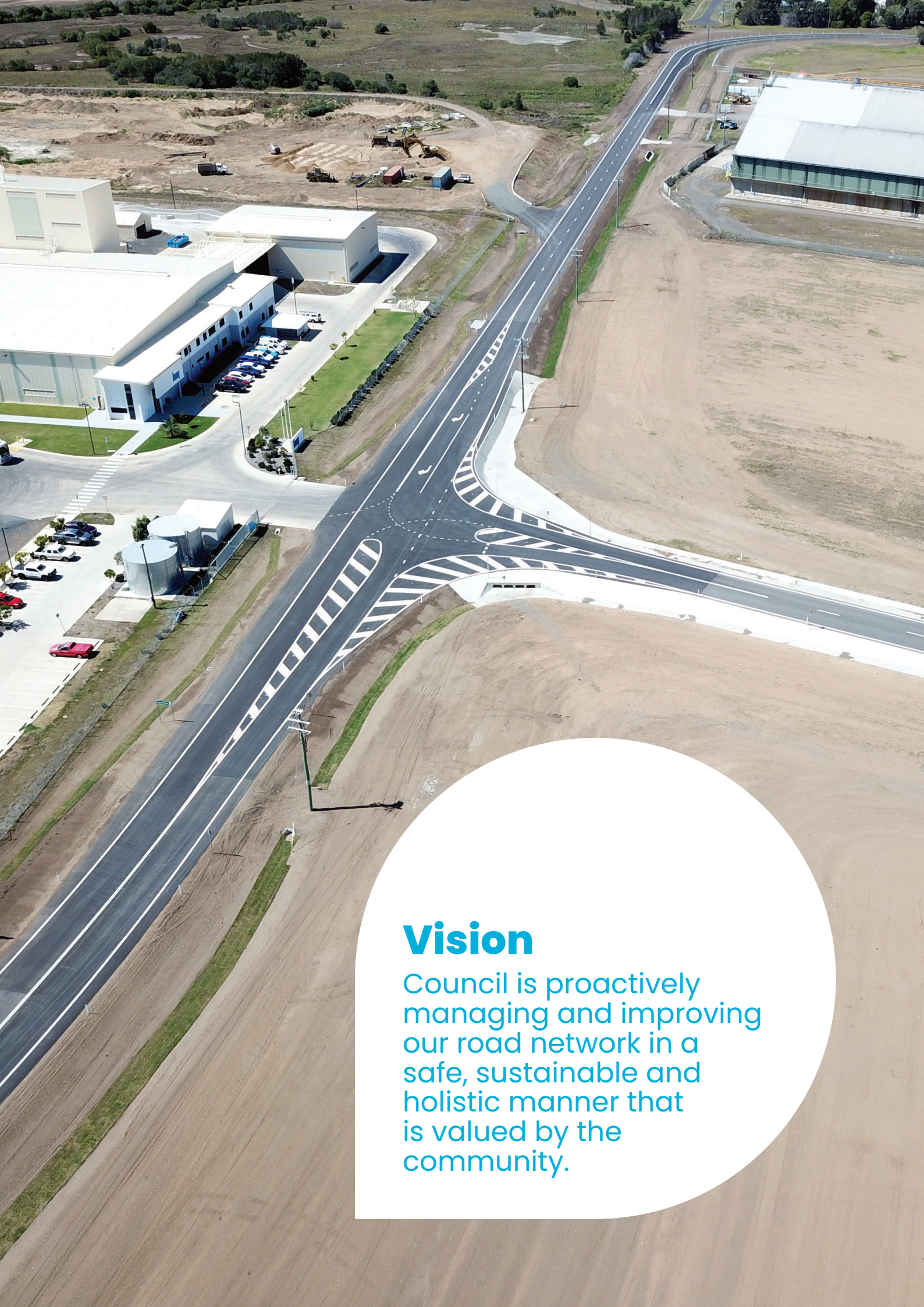


Bundaberg Regional Council

# Road Investment Strategy

June 2021





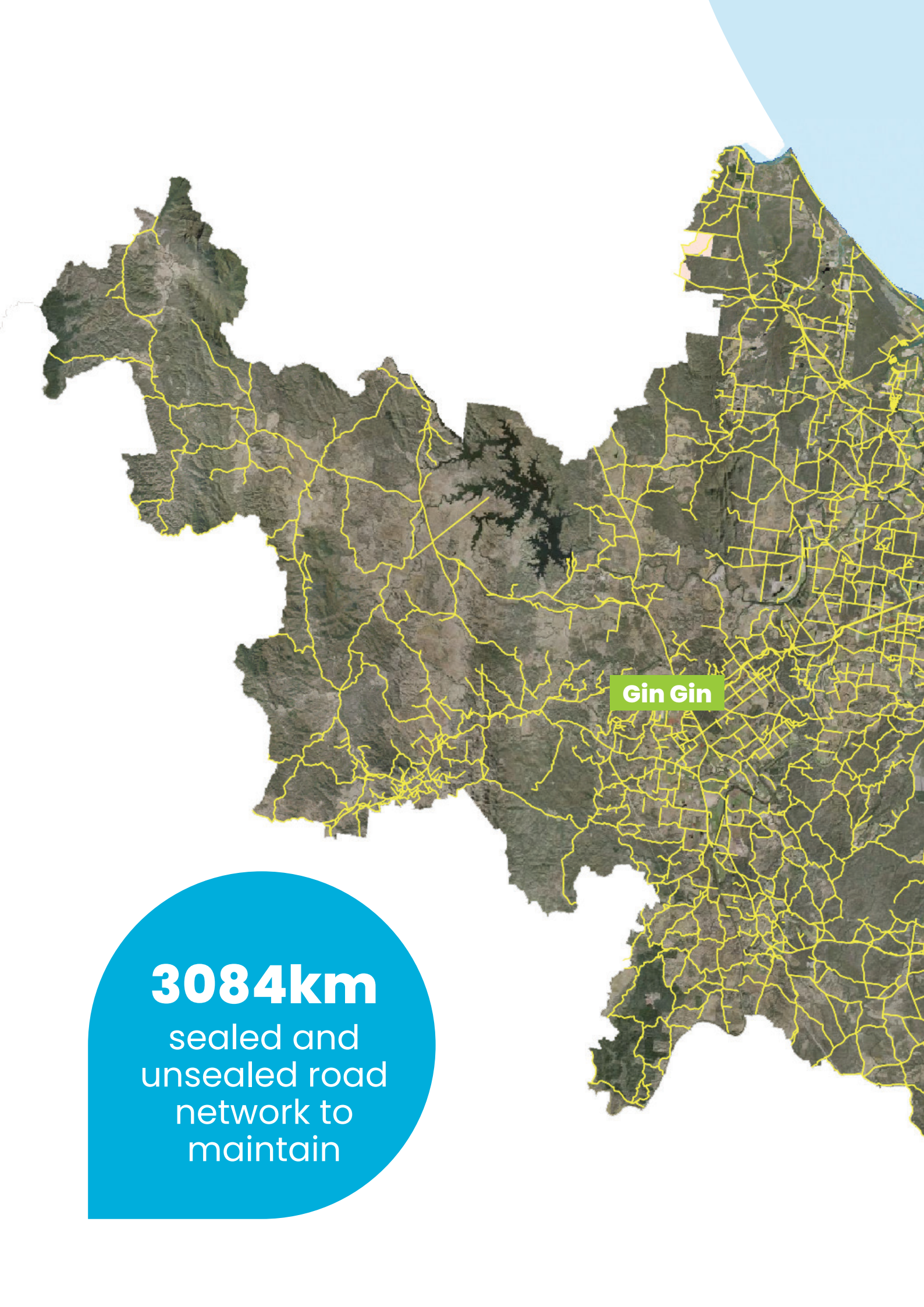
## **Vision**

Council is proactively managing and improving our road network in a safe, sustainable and holistic manner that is valued by the community.



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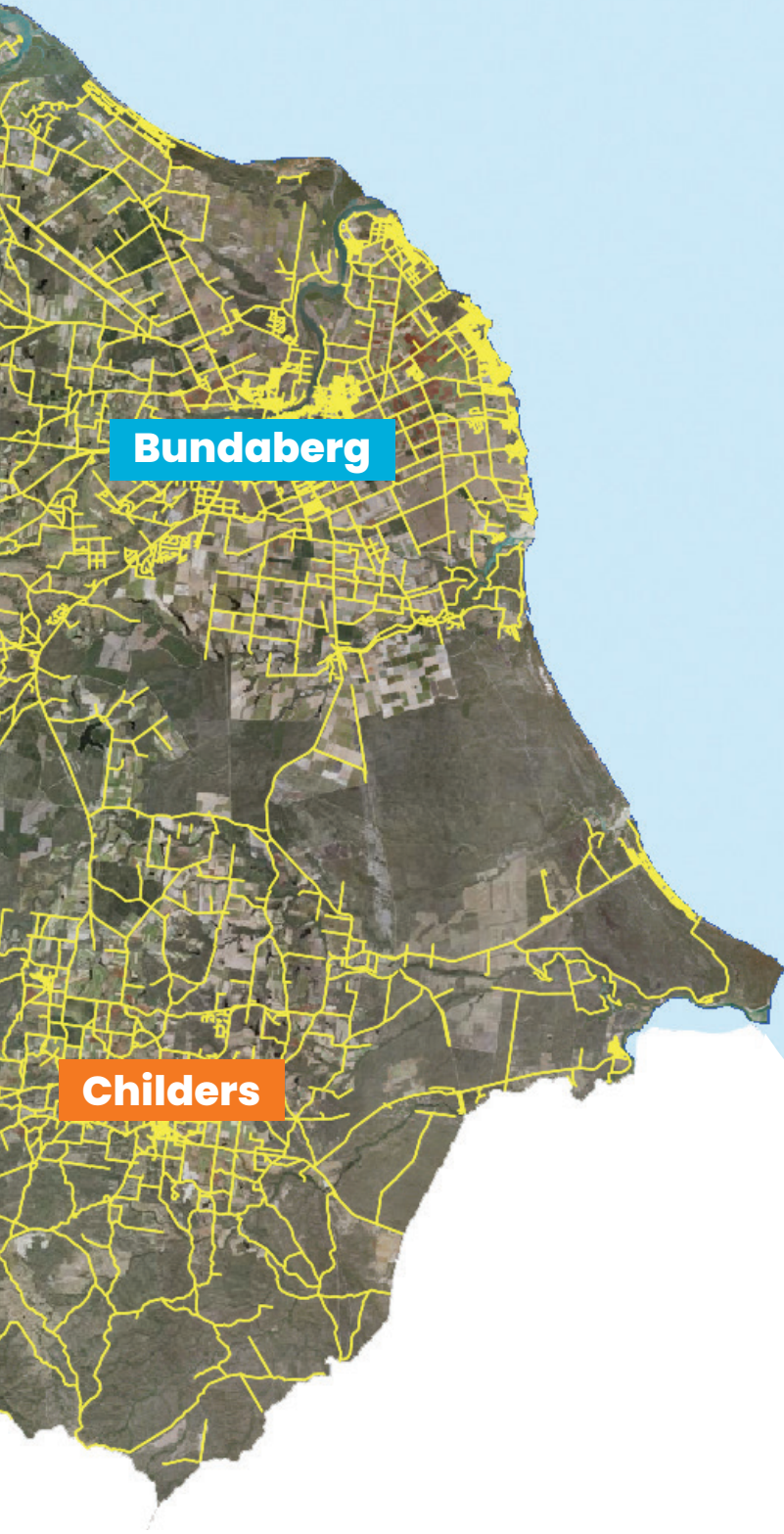
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**3084km**

sealed and  
unsealed road  
network to  
maintain



## 1. Overview

Within the Bundaberg region, Council is responsible for 3084 kilometres of sealed and unsealed road network. Council's management of periodic maintenance and capital (new and upgrade) investment in this road network has historically followed a largely reactive approach.

As the community grows and the road network ages, earlier practices are not adequate to protect people and property, and support growth. Therefore, Council has developed the Road Investment Strategy, which adopts a proactive approach to responding to the challenge of servicing future growth while making provision for the maintenance and improvement of existing road infrastructure.

Road Investment Strategy is the term used to describe a strategy that outlines the long-term optimised approach to the management of road assets, derived from, or consistent with, the organisational strategic plans. The aim, through this strategy, is to improve current road asset management processes to:

- adopt a proactive rather than reactive approach to asset management, and in doing so achieve good value for money outcomes for the community
- ensure an objective, transparent and consistent approach to prioritisation applied to a needs based forward plan
- provide a better response to customer requests through a clearly defined service level framework
- ensure appropriate risk management and asset performance is balanced with financial sustainability of the organisation, and
- focus on continued improvement of asset management practices.

## 2. The need for a strategy

This strategy will enable Council to deliver a service that caters for future growth while maintaining and improving existing road infrastructure. Council's aim is for the Strategy to help set future direction with actions that will:

- manage the road network with consideration of road safety, level of service, asset life, community wellbeing and the environment
- balance the challenge of servicing future growth while making provision for the renewal and upgrade of the existing road network in addition to the provision of new assets
- ensure Council follows a targeted approach to road infrastructure investment, with works timed to minimise the life cycle cost of maintaining assets, and
- demonstrate that Council is actively taking measures to manage road network issues.



### 3. Understanding the challenges

Some of the key challenges in managing the road network which this strategy addresses are:



#### Population growth and demand

- The management of assets to meet the current and future needs of continued population and demand growth.

#### Customer requests

- Responding to large numbers of customer requests and/or complaints.

#### Impact of freight vehicles

- Assessing the impacts of heavy vehicles on the road network and planning for future growth in this area to support economic growth, local businesses and the community.

#### Infrastructure pipeline and planning

- Development of a mature infrastructure pipeline which considers periodic maintenance works as well as upgrades and new assets.

#### Prioritisation of maintenance and capital works

- Prioritisation of all works based on transparent and objective criteria.
- Defining intervention criteria to trigger upgrades and allow for the optimal timing for works.
- Achieving consistency in road hierarchy and function when using multiple road standards.

#### Economic considerations

- Balancing budgets, performance and risk across the road network.



#### Public safety

- Reducing road and public safety risks through crash reduction and upgrade works.

#### Level of service provided by the road network

- Understanding the level of service that the current road network provides, and how this compares to the target levels of service and with community expectations.

#### Sustainability

- Considering the environmental impacts of delivering road infrastructure assets, and how this relates to the level of service provided.

## 4. The strategy

### 4.1 Strategic objectives

The objectives of the strategy are as follows:



To provide clear prioritisation of future projects, based on measurable and defined criteria, through a transparent and repeatable process.



To increase community capacity to adapt to disaster events by ensuring the provision of resilient infrastructure.



To ensure the delivery of Council's long-term and annual Capital Works Program on time and on budget.



To ensure the delivery of network infrastructure maintenance to meet Council's approved plans and standards.



To manage the road network to ensure the safety and wellbeing of users.



To achieve a high level of community satisfaction.



To manage the road network in an integrated way to provide the sustainable use of existing and future infrastructure that responds to natural hazards and climate risk.



To ensure that periodic maintenance of road assets are proactively managed to reduce risk, using current condition data and agreed levels of service.



To understand and meet the demands of growth through the management of infrastructure investment, and in doing so, support the growth of local industry and the community.



To undertake continuous monitoring, review and subsequent enhancement of this strategy and all related strategies.

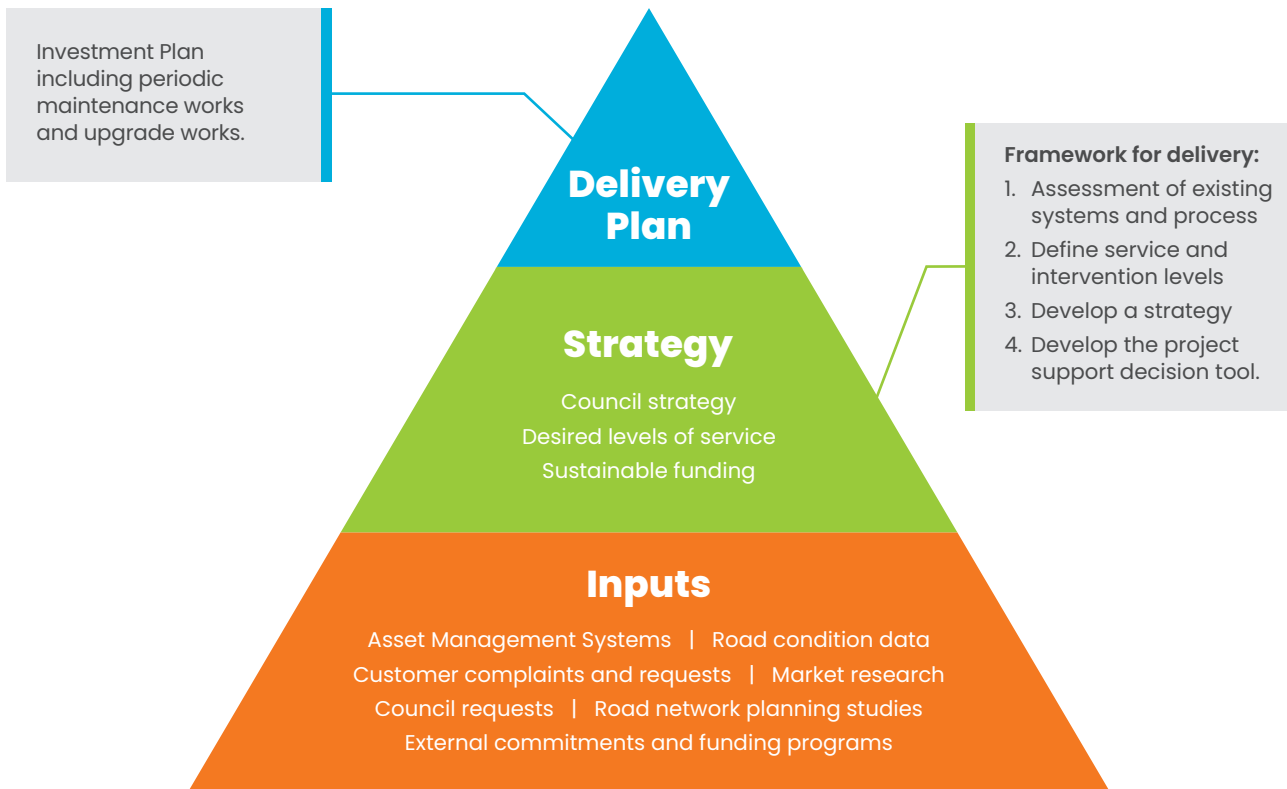


## 4.2 Framework of the strategy

This road investment strategy was developed in three phases, namely:

1. Development and application of a decision support system to inform the Road Investment Strategy.
2. Preparation and implementation of a Delivery Plan (forward works programs) which investigates potential maintenance and construction plans based on various budget scenarios.
3. Development of performance criteria which can be used to assess the effectiveness of investment.

The conceptualisation of the Road Investment Strategy framework is shown below. The framework relies on Council's existing processes, systems, and available data as inputs, and builds on these to form a Strategy which sets a desired level of service. A decision support system tool is used to assess service level and funding gaps, in addition to informing prioritisation of needs-based infrastructure investment within the available budgets. The outputs of the Strategy then form the basis of the Delivery Plan.



At the top of the pyramid is the **Delivery Plan**, this is the outcomes of the Strategy outlining the short (1-year), medium (3-year), and long-term (10-year) investment plans to address both Capital Investment (new or upgraded assets) as well as the Periodic Maintenance Program.

The next level is the **Strategy** framework. Council recognises the need to have a decision support system that provides clear prioritisation of future projects, based on measurable and defined criteria. Therefore, a Decision Support System was developed as the framework that provides a transparent and repeatable process.

Assessing the total road infrastructure needs for both capital (new and upgrade) investment and periodic maintenance investment was the approach taken in developing the Decision Support System. Having a desired (target) level of service in maintenance means that Council is taking a proactive step in ensuring roads are maintained before deteriorating to a condition that is more costly to maintain or unsafe. In order to understand the Level of Service being provided, there are several inputs into the Strategy which are required. These are summarised by the **Inputs** on the pyramid.

### 4.3 How we will deliver the strategy

This Strategy outlines how Council intends to manage investment into the road network, for both maintenance and capital investments, into the future. This strategy will support Council in developing a mature plan for investment in road infrastructure to deliver value to the community.

There are two main types of works which are assessed through the use of this strategy, these are known as Periodic Maintenance works and Capital works. **Periodic Maintenance works** refer to asset renewal works which improve the service level and/or extend the life of existing assets. This can be regular maintenance completed on a routine basis, or maintenance works

requested through customer or Council requests. **Capital works** refers to new constructions or infrastructure upgrade works.

In order to manage road investment in a risk-based and cost-effective manner, Council developed **Levels of Service**. These Levels of Service are criteria which act as a guide for investment and are relevant for both maintenance and capital works. They are considered in conjunction with economics and the expectations of the community to assist with decision making and prioritisation of funding, as shown in the figure below.



### 4.3.1 Capital works

The desired level of service for capital works is provided by set criteria specific to each type of work. The categories considered in this road investment strategy include:

- **Sealing of unsealed roads**
  - Provides road users with a more consistent surface to drive, an improved skid resistant surfacing and eliminates the dust issues associated with unsealed roads.
  - Sealing is determined by the upfront investment cost determined by the amount of work involved to bring the existing state of the unsealed road to sealed road standards and the traffic demand.
- **Upgrade drainage structures**
  - In considering the risk from climate impacts recognising these are projected to increase, Council acknowledge the risk associated with flooding by planning for the upgrade of drainage structures.
  - There are three options to increase flood resilience:
    - low-cost solutions such as installing kerb and channel works
    - replacement of culverts
    - major improvement works such as a timber bridge replacement, road raising, levee provision, etc.
  - Criteria used to identify potential projects include the inspection recorded defects associated with drainage at the locations that are prone to flood, as well as consideration of emergency evacuation routes.
- **Widening of sealed roads**
  - Adopting standard width requirements along Heavy Vehicle and Bus routes within the network.
  - Key considerations are savings from reduced crash rates, savings in travel time and vehicle operating costs, and support of active travel initiatives.
- **Intersection upgrades**
  - Improvement of intersections can provide cost savings arising from a reduced risk of crashes.
- **Urban shoulder sealing**
  - Provides the added amenity of a better surface for parking, better surface drainage and extra distance away from traffic for other road users such as pedestrians and cyclists.

### 4.3.2 Periodic maintenance works

In order to proactively manage road asset maintenance, Council is introducing a set of road condition thresholds that:

- a. supports the use of automatically collected condition assessment data**
- b. is comparable to those used by other local or state road authorities.**

The results are used to generate the periodic maintenance works program. This marks a significant change in the planning approach moving away from a reactive worst-case-first approach.

For sealed roads, assessment factors include the time since previous maintenance, the ride quality and driver comfort experience on the road, the presence and severity of defects in the road surface (such as cracking and potholes), the condition standards required for driver safety, and the life cycle cost of maintaining the asset.

For unsealed roads, maintenance needs are determined through the frequency of resheeting (which is when a new layer of gravel material is laid on the road) and regrading (when the road surface is reshaped and compacted). These frequencies are determined based on minimising total transport costs with respect to engineering estimates, traffic volumes (both light and heavy vehicles), road hierarchy, material quality and environmental factors (specifically rainfall and subgrade conditions).



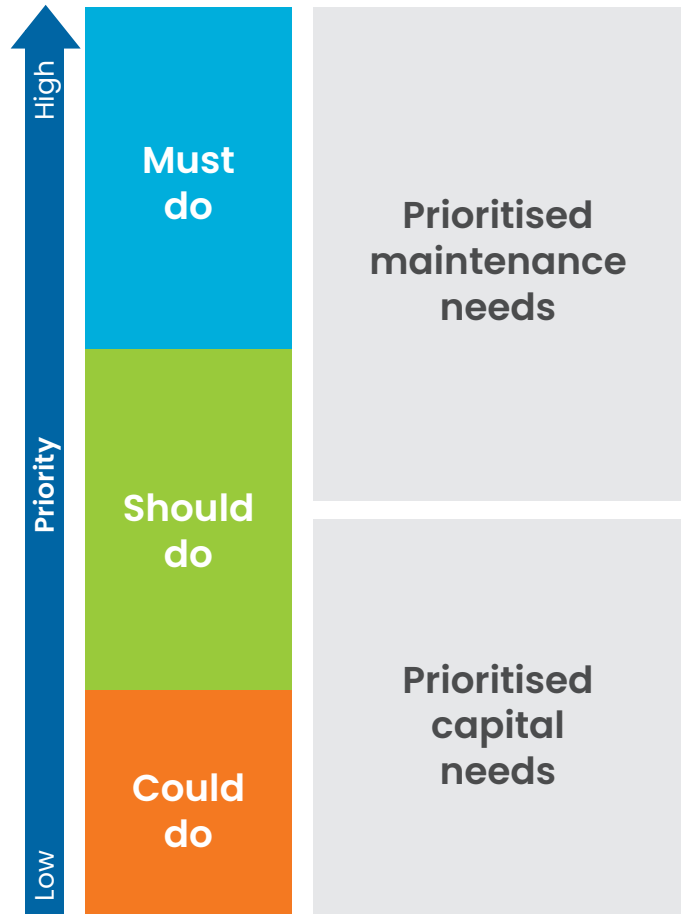
### 4.3.3 How are the needs of the network prioritised

Prioritisation of road infrastructure investment is done through consideration of an economic 'Cost-Benefit' assessment. This allows for direct comparison of projects of varying type and complexity in a consistent and objective manner. Works are further divided into three risk-based criteria, to ensure that all assets meet a minimum standard and funding is distributed equitably to very low traffic roads which may indicate limited economic benefit.

**Must do** works are periodic maintenance works required to meet the minimum safety needs of the network, which must be prioritised over all other works.

**Should do** works include both periodic maintenance works and capital works types which deliver the best value for money outcomes for Council and the community. Maintenance works which maintain the level of service provided by existing assets, targeted to reduce the whole of life cycle cost of maintaining the asset as well as the total transport costs associated with its use. As well as Capital works, which target upgrades of key importance for the community, or which offer low-cost solutions which deliver a considerable benefit to the community.

**Could do** works include those Capital works which have a lower cost benefit ratio but which Council would like to undertake to bring the entire road infrastructure network up to the desired levels of service. Funding for these projects is prioritised on a cost-benefit basis with any available budget, and where possible through grants from external funding sources. This could also be considered to form the basis of future 'Should Do' projects in the pipeline, as higher priority works are completed and population and industry growth in the region increases the



A number of factors are considered in the assessment of cost benefit of works, with a focus on prioritising investment which aligns with community values. Some of the key factors include:

- Asset use - traffic volumes, freight use and active travel.
- Safety of the community, including crash history and condition-based risk assessments.
- Supporting local industry and economic growth through prioritisation of works on roads of significance to local industry, identified through land use zoning e.g. prioritisation of sealing of unsealed roads in areas of agricultural significance to the region.
- Vehicle operating costs including travel time costs associated with asset condition and congestion.
- Emergency evacuation routes and other roads of key significance to the community.
- Life cycle costs of providing the asset.
- Hierarchy of the asset, which takes into consideration the rural or urban setting, speed zone, traffic volumes and regional significance of the road.

#### 4.4 Spotlight on key improvement areas

Throughout the process of the Road Investment Strategy development, Council engaged with key stakeholders and considered historic trends in customer requests in identifying a number of key areas for improvement. The outcomes of this were to adopt proactive strategies for managing these assets and delivering improved outcomes for the community. Some key examples of this are highlighted below.

##### Sealing of Unsealed Roads

Council has developed a proactive strategy for identifying and prioritising the need for sealing of unsealed roads across the road network.

- Council will assess all unsealed road segments across the network based on objective and clearly defined service level requirements.
- Road segments shall be prioritised for upgrade in accordance with the principles of the strategy, with specific consideration given to factors such as traffic volumes, emergency evacuation routes, and routes of industrial or community significance.
- Projects will be prioritised with consideration of the total network needs, including all other projects and work types. Those projects which have the highest priority and associated community benefit relative to cost, will be funded each year.

- Council aims to reduce the number of unsealed road assets on its network, as funding allows.

##### Promotion of Active Travel

Council has developed a proactive Active Transport Strategy to support active travel initiatives in the local community.

- Council will utilise low-cost upgrade strategies to allow existing road infrastructure to provide safe active transport options (e.g. urban shoulder sealing for bicycle lanes) to encourage community participation in active travel.
- Council aims to improve the safety of all road users through increased road widths and separation of vulnerable road users.



## 4.5 Our levels of service

Council provides essential services to its community through the provision of road infrastructure assets. The goal in managing these road infrastructure assets is to meet the defined Levels of Service in a cost-effective and sustainable manner whilst managing appropriate levels of risk, both today and into the future. Levels of Service inform Council's key investment decision making frameworks, facilitating the delivery of infrastructure projects and services in line with stakeholder expectations.

As a result, Council has developed a Level of Service Framework for road assets based on community values and current practice within the industry.



### Safety

*The road network is becoming safer to use*

- Safety risks are proactively managed in accordance with a risk assessment process, suitable for road function.
- Investment in more forgiving road surface conditions and roadsides and increased separation and protection of vulnerable road users.
- Targeted treatment of high-risk road sections and identified black-spots.



### Accessibility

*Disruptions to road network access are reducing*

- Improved resilience of emergency evacuation and access routes.
- Strategic routes, including designated heavy vehicle routes and bus routes, provide high levels of access for transporting people or goods.
- All other routes provide appropriate levels of access when transporting people or goods to properties, private businesses and production facilities under typical operating conditions.
- Upgrading of unformed roads to ensure access to the road network is prioritised to facilitate growth.



### Reliability

*Travel times on the road network are becoming more consistent*

- Users can expect consistency in travel times between origin and destination, to enable journeys to be completed efficiently. Council acknowledges exceptions where peak periods on densely used routes and mobility is disrupted by extreme events due to natural hazards.



### Condition and rideability

*Road condition across the network is improving*

- Road surface condition/rideability is suitable for road function.
- Provision of an acceptable driver comfort (otherwise known as ride quality) when travelling on both sealed and unsealed roads.



### Sustainability

*Financial and environmental sustainability outcomes are improving*

- Road investments are shown to reflect financial sustainability principles.
- Road investment practices and options selected with intent to minimise carbon footprint where feasible.
- Ensuring the protection of rare and threatened species and prevention of land degradation through best practice vegetation management and erosion control.



### Responsiveness

*Council responsiveness and performance is improving*

- Provide prompt, accountable responses to community enquiries in a transparent manner.
- High community satisfaction with customer service and Council's overall performance

## 4.6 Our action plan

The key actions Council will adopt in taking the Road Investment Strategy forward include:

1. Implementation of the first round of outcomes of the Road Investment Strategy including the Delivery Plan.
2. Ongoing periodic assessment of road assets condition, use, and performance, both as an input to the Road Investment Strategy and to assess the outcomes and performance of the organisation in managing its road assets.
3. Ongoing monitoring and periodic revision of the Road Investment Strategy, ensuring it is achieving the desirable outcomes and strategic directives continue to align with Council's Corporate Plan and stakeholder expectations.
4. Annual updating of network needs and priorities in line with the Road Investment Strategy and all available data.
5. Using outputs of the decision support system tool to inform applications to external funding bodies i.e. identifying high priority projects which may be eligible for funding from external sources e.g. Black Spot safety funding.
6. Annual updating of the Delivery Plan to inform Council's short (1-year), medium (3-year), and long-term (10-year) investment plans based on the available funding.

Council is committed to continuous improvement in its asset management processes, practices and outcomes.



