CONNECTING & INFLUENCING THE USER

Developing a good understanding of the user is paramount to good design. When it comes to the testing and deployment of transport technology applications, Council will consider the needs of the Ipswich community and will aim to keep user outcomes front of mind. When developing targeted initiatives, the main user groups will be identified, and their needs and expectations recognised. Transport technology initiatives must meet these needs, ultimately enabling Council to deliver a safe, reliable and sustainable transport system for the future, whilst ensuring that these initiatives are well aligned with Council's Smart City goals and are financially sustainable.

People respond differently to change. Some are more adaptive and embrace new initiatives whereas others are slow movers and continue with behaviours they are used to. When an innovation is introduced onto the market, it generally takes time to 'diffuse' until the innovation is widely adopted – refer to the adoption segmentation outlined in Figure 12. When considering the introduction of new technology initiatives, Council will reflect upon the perceived value attributable to the end user and people's willingness to adopt such initiatives.

User behaviour is also dictated by the existing transport network and services that they have access to. Furthermore, their demographic and mobility needs have a strong influence on their responses to technology initiatives. It is important to ensure that initiatives aimed at influencing mode shift and behaviour change are done in a strategic and targeted way to ensure that they have the strongest possible impact.

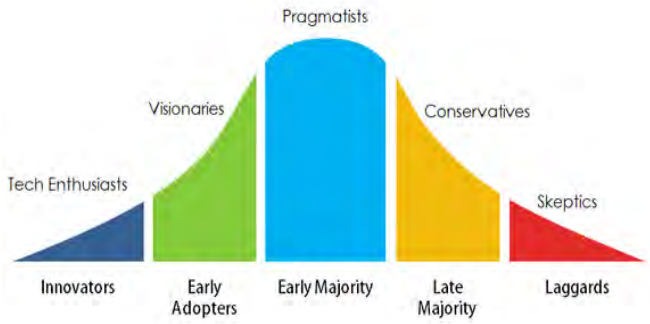


FIGURE 12: Generic Technology Adoption Segmentation

Source: "Diffusion of Innovation", Everett Rogers (1962)

SERVICE OWNERSHIP & AFFINITY

Technology driven initiatives are rarely shaped by a single entity or public authority.

Rather, successful outcomes often depend on several stakeholders coming together to deliver on a unified strategy. These stakeholders can be broadly categorised into three main segments, as outlined in Figure 13 - each with their own users and requirements.

PUBLIC SECTOR	COMMUNITY	BUSINESS
ICC	School transport users	Commercial / business travel
TMR	Leisure and shopping travel	Customer pick ups
BCC	Special events	Private transport schemes
Emergency Services	Commuters	Customer service
Translink	Active Travel	Freight and couriers
Other SEQ Councils	New mobility services	Private & public partnerships

FIGURE 13: Stakeholder Segments with Transport Technology Initiatives

Source: Stantec (2018)

To deliver a successful ITS program, Council will work together with other organisations and users within the public, community and business sectors. A shared vision between stakeholders is critical on such projects to ensure that service ownership and expectations are clearly outlined and understood between partners.

In many instances, Council will not be able to undertake projects in isolation and in other cases failing to work together with other important stakeholders could result in some missed opportunities and failed outcomes. The advent and fast-paced nature of such technological initiatives could also result in some user groups working on their own initiatives (such as on-demand mobility, UBER or school transportation services), leading to Council not having an opportunity to respond to such change. It is therefore important that Council is proactive in working positively in shaping such outcomes.

ASPIRATIONS

TACTICAL ALIGNMENT

The aspirations of the iGO Intelligent Transport Systems Strategy align with the overarching framework and charter of iGO as outlined in the Figure 14.

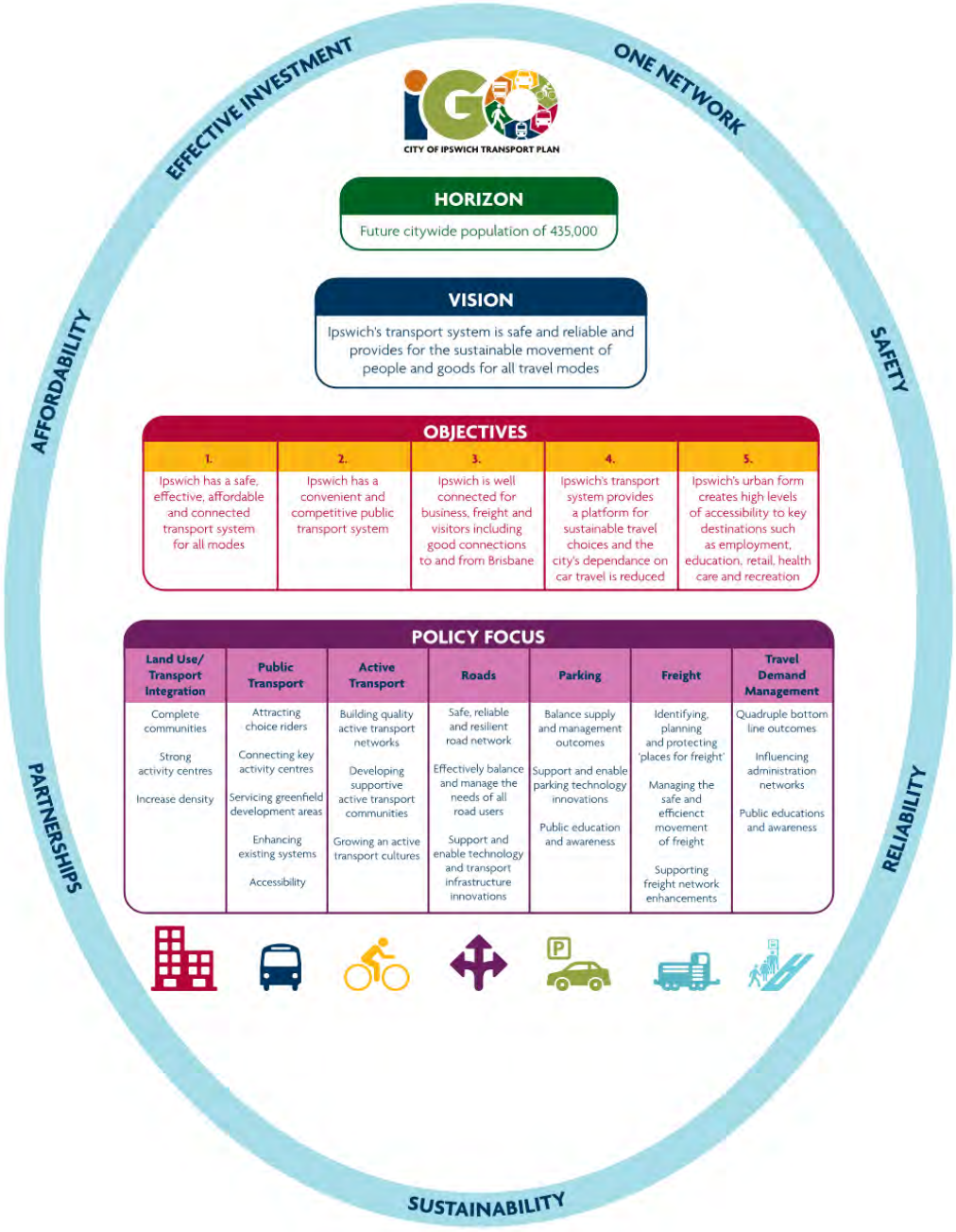


FIGURE 14: iGO Framework & Charter

Source: iGO City of Ipswich Transport Plan, Ipswich City Council (2016)

VISION

Council's vision for the deployment of ITS is outlined in the Figure 15 and aligns with the vision of iGO.

Ipswich City Council harnesses the **use of smart technology** to assist with achieving a transport system for Ipswich that is **safe** and **reliable** and provides for the **sustainable** movement of people and goods for **all travel modes.**

FIGURE 15: ITS Vision

OBJECTIVES

Council's objectives of the deployment of ITS are outlined in Table 13 and align with the objectives of iGO.

TABLE 13: Objectives

iGO Transport Objectives	**1** Ipswich has a safe, effective, affordable and connected transport systems for all modes.	**2** Ipswich has a convenient and competitive public transport system.	**3** Ipswich is well connected for business, freight and visitors including good connection to and from Brisbane.	**4** Ipswich's transport system provides a platform for sustainable travel choices and the city's dependence on car travel is reduced.	**5** Ipswich's urban form creates high levels of accessibility to key destinations such as employment, education, retail, health care and recreation.
ITS Objectives	Deploy and embed ITS technology and digital tools to deliver a safe, effective, affordable and connected transport system for all people and modes.	ITS technology is used to augment the awareness, accessibility and viability of public transport in Ipswich.	Partner with stakeholders to enable ITS to enhance opportunities for economic growth and inter-city and regional connections.	ITS and digital platforms are provided that promote and enable sustainable travel choices.	The planning and design of Ipswich's urban form is adaptable and responds to advances in technology and transport systems.

DESIRED OUTCOMES

The desired outcomes and values used to develop the Strategy, and its subsequent delivery, are outlined in Table 14 and align with the principles of iGO and the Smart City Program.

TABLE 14: Desired Outcomes / Values

iGO Transport Plan	
 **ONE NETWORK**	Using technology applications to manage the movement of people and goods based on an integrated, mode-neutral and bipartisan approach.
 **SAFETY**	Using technology applications to improve transport user safety.
 **RELIABILITY**	Using technology to improve dependability and resilience of travel within the network to deliver consistent travel times.
 **SUSTAINABILITY**	Using technology to reduce emissions and encourages more sustainable and active modes of transport.
 **PARTNERSHIPS**	Work with public and private sector partners and the community to enable efficient use of data and technology to deliver an affordable, reliable, efficient, accessible and seamless transport service in the region.
 **AFFORDABILITY**	Use of transport technology to deliver a more equitable and affordable transport system, lowering costs to transport authorities and providers.
 **EFFECTIVE INVESTMENT**	Use of the transport technology to assist with making sustainable investment choices at the right time to deliver on long term strategic objectives for the transport system.
Smart City Program	
 **JOBS, GROWTH & LIVIBILITY**	Use of transport technology applications to promote economic development and / or liveability outcomes.
 **BUSINESS AS USUAL INNOVATION**	Use of transport technology applications to enhance Council operations, business processes and customer services from a cost, time and convenience perspective.
 **OPEN & INTEROPERABLE DATA**	Use of data infrastructure underpinning transport technology applications must be open and interoperable across platforms and enable competition and innovation, while ensuring privacy, security and accountability.

OPPORTUNITIES

STRATEGIC PROSPECTS

Around the world, multiple cities and regions have set in place strategies and visions on how they plan to take advantage of the benefits enabled through the adoption of new technology solutions.

With a well-educated population, strong academic research focus and home to many successful technology-driven organisations, Australia has the building blocks to become a world leader in the development and deployment of ITS.

Several state and local governments in Australia are preparing to better cope with the anticipated change in mobility and transport. For example, the NSW Government has developed a *Future Transport Technology Roadmap* that outlines how emerging technologies will deliver better transport services in their region.

Similarly, Brisbane City Council (BCC) have set in place a connected strategy considering smart city initiatives where they use ITS to monitor traffic volumes, speeds and performance in real time to help residents get home quicker and safer with more travel options. No two strategies are the same and it important that Ipswich taps into its strengths as a city whilst also collaborating with its partners to ensure the regions' initiatives are well aligned and sustainable.

Ipswich is already the fastest growing city in Queensland and is recognised to have competitive start-up advantages and a younger population compared to the national average. Closer to home, Council is also delivering a bold, ambitious plan to become Australia's most liveable and prosperous Smart City. Ipswich is also leading the way in Australia when the city was chosen to be the home of the largest on-road test bed for C-ITS.

The quick pace of emerging technology means that implementers are often in a state of flux, with continual change often hampering more widespread adoption and benefits realisation. As a city, Ipswich cannot afford to wait for change to come upon it but must embrace an agile approach of encouraging and managing such change. This involves an approach to projects that is iterative, where requirements and solutions evolve as they are developed. It will be ever more important to focus on the outcomes Council are looking for and the values to drive forward. This will require Ipswich to reflect upon itself and set in place a roadmap to enable the building blocks required to get there.

OPPORTUNITY OUTCOMES

The opportunities presented by smarter infrastructure as identified through research by the Queensland Government are outlined in Figure 16. The biggest opportunities relate to better use of existing assets, improved decision making and keeping people connected.

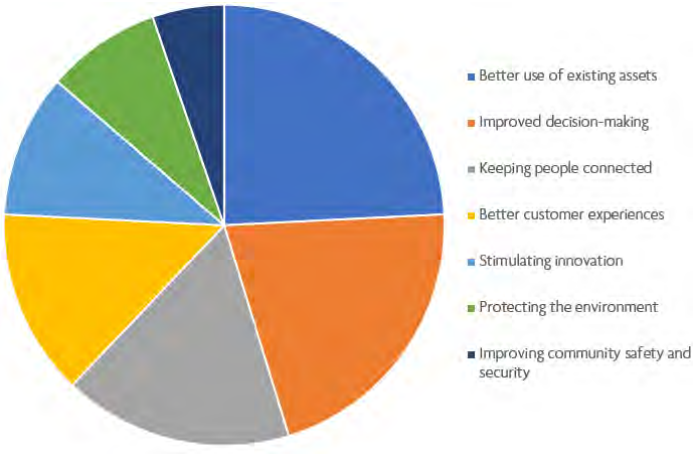


FIGURE 16: Smarter Infrastructure Opportunities

Source: Smarter Infrastructure for Queensland Directions Paper, Queensland Government, May 2018

PLATFORMS OF POSSIBILITY

There are many ITS applications currently available or emerging onto the market. Listed below are some possible opportunities worthy of further consideration that could provide Council, residents and business operators of Ipswich with tangible benefits in achieving the outcomes of iGO and the Smart City Program. It should be noted that this list is not exhaustive but rather provides ideas that help frame the Strategy.

TRANSPORT NETWORK OPERATIONS

The operation of Ipswich's local road network is a core responsibility of Council. This includes the management of, and investment in, the following portfolio elements:

- User safety and mobility (cars, freight, bicycles, people walking and other mobility devices)
- Network performance reliability;
- Traffic flow resilience during incidents and special events;
- Access to road reserves and adjacent land uses / properties;
- Streets as 'places' for social and economic interactions, civic pride and leisure pursuits;
- On-street parking and the loading of passengers and goods;
- Strategic asset management and rehabilitation; and
- Routine maintenance;

In terms of ITS initiatives, Council's short-term attention will be on exploring prospects around the smart operation of the Ipswich's road system including traffic, parking, data analytics and performance monitoring. Focussed around the elements outlined above, there are ITS solutions that could help Council to more effectively perform its road network operation.

This includes the establishment of a central road operations team driven by technology to intelligently manage all aspects of the road network including traffic flow, bus services, and incident responses. A framework for Council's potential future intelligent road operations portfolio is outlined in Figure 17.

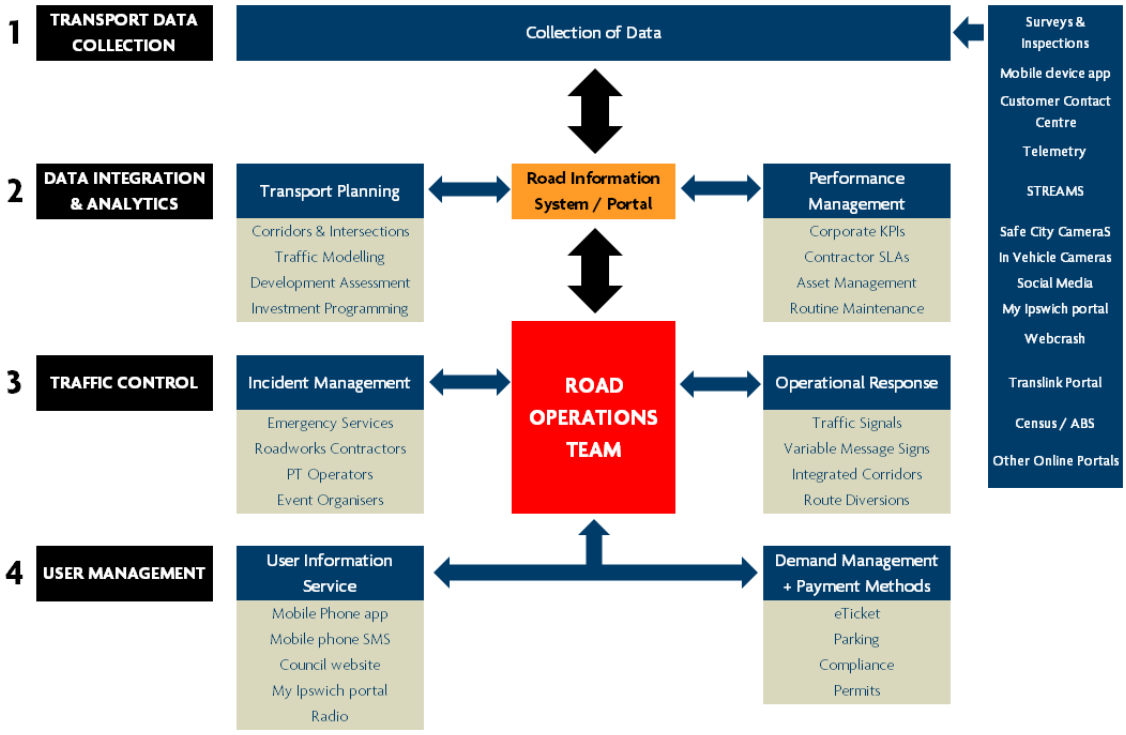


FIGURE 17: Council's Future Intelligent Road Operations Framework

Road Operations Team

The vision of cities where everything is connected and operated with maximum efficiency is on the near horizon. Holistic citywide transport monitoring and control systems are evolving rapidly, and the individual component parts are available today.

Opportunities exist for Council to pursue the latest generation of ITS applications to establish an Ipswich 'scale' road operations team that is driven by technology and works collaboratively with the TMR regional scale *Brisbane Metropolitan Transport Management Centre* (BMTMC).

Council's smart road operations team could have the following characteristics:

- **Master planned** in accordance with the framework outlined in Figure 17 and the ***National ITS Architecture;***
- **Staged** in its deployment over a several years with an initial focus on road use data collection and analysis and performance monitoring;
- Originally funded in **partnership** with a higher level of government and/or with private sector sponsorship;
- Based around a central **road information system / data portal** (that could be incorporated as part of a corporate data repository) using a single over-arching system handling all feeds from and to the monitoring and control (and potentially even enforcement) systems. Not only does this single joined-up system approach allow a complete city-wide overview, it will also allow Council to drill-down to check and adjust individual components of the road network;
- Located at **Council premises** within a regular office space as part of an integrated transport function;
- Development of a **'Concept of Operations'.**

Integrated Corridor Management (ICM)

The ICM concept focuses on maintaining the greatest mobility benefits along a road corridor or series of corridors in the same geographical area through the application of innovative technologies that maximise network safety and reliability.

As outlined in Figure 18, ICM includes changeable electronic signs, alternate route signs and coordinated and adjustable traffic signal and motorway on-ramp meters.

"Now traffic management decisions are based on both current and predicted traffic conditions, a capability that has created one of the most comprehensive and intelligent decision support tools in the industry today"

Alex Esrella
Project Manager
San Diego ICM System

FIGURE 18: Integrated Corridor Management Concept

Source: San Diego Association of Governments (SANDAG)

The ICM concept:

- Enables multiple platforms and service providers to communicate with each other to coordinate operations and detect incidents in real time regardless of who owns or operates the infrastructure or system.
- Monitors changing conditions and congestion based on real-time information;

- Generates automated response plans and re-evaluates and generates new response plans as traffic conditions change.
- Travelers receive actionable multi-modal information on their mobile device or in-car navigation system resulting in more personally efficient mode, time of trip start and route decisions.

ICM projects have been trialled and implemented in many locations across the world including Germany, Ontario in Canada and California and Texas in the United States.

Opportunities exist for the Queensland Government, in partnership with Council, to trial an ICM project in Ipswich for the corridor / journey between:

(1) Ipswich and Brisbane ;

(2) Ipswich City Centre and Springfield Town Centre; and

(3) Ipswich City Centre – Yamanto - Ripley

This will include using technology to dynamically manage demand, redistributing travel to less congested times or routes and next-generation traffic control, including predictive analytics dynamic speed management, dynamic signal control and managed lanes.

PARKING MANAGEMENT

A core responsibility of local governments is the provision and management of parking in activity centres and at municipal facilities, primarily on-street parking but also emerging off-street amenities, with the objective of facilitating quality city life for residents and business operators (economic activity, social interactions, leisure pursuits and access to jobs, education, goods and services).

The use of kerbside allocation for various forms of on-street parking (passenger and goods loading, short stay, long stay and special needs) and associated time, duration, vehicle type and permit restrictions and the use of parking meters is the traditional form of parking management used by local governments. Through smart technology and data, there is an evolution in the way that local governments can manage city parking going forward.

With a focus on delivering user-centric services, it is important that Council recognises the pain-points in the existing parking experience and how a technology solution could make it a more seamless interaction, whilst still using pricing to manage demand.

FIGURE 19: On-street Parking Sensors

Source: www.energyin.gr

Sensors

Sensor-based innovation heralds the future of public parking (at least for the short to medium term before the full deployment of connected vehicles) and is the fundamental element of modernising parking management processes for local government.

Infra-red and magnetic sensors can be flush mounted on the road surface (refer to Figure 19) or kerb at individual parking spaces, or intelligent video analytic sensors using cameras, that then detect whether the space has been occupied by a vehicle. Real time data is sent back to a main system (preferably one that is integrated with a road operations centre) that informs a motorist of nearby parking availability via a mobile device app, in-vehicle navigation system and electronic signs around the city. There are also examples where additional user identification (e.g. Bluetooth tiles) can be used to verify eligibility to park in certain zones, such as disabled bays, carshare bays or loading zones.

Utilisation and transactional data can also be used to identify vehicles that have overstayed or not paid, 'hot spots' of non-compliance and areas with high or low demand that would benefit from adjustments to time and duration restrictions and pricing.

Demand Responsive Parking

The City of Gold Coast (CoGC) is trialling demand responsive parking in Burleigh Heads and Broadbeach. The utilisation data from the sensors is used to inform a quarterly review of parking pricing that is adjusted up or down to achieve an average utilisation of between 60% and 80%.

Payment

Council's current parking meters use a 'pay and display' type system. Other local governments use a pay by plate' system. Both systems have their positives and negatives. Mobile device apps have now entered the market that allow motorists to pay electronically. In fact, mobile device apps are likely to make parking meters redundant in the longer term. It is also likely that vehicles will act as an "e-wallet" in the foreseeable future, removing the need for apps or parking meters altogether.

Compliance

It is always a negative experience for customers to receive a parking fine and it causes much angst toward Council and its staff. Parking enforcement is always seen as inequitable by the public because:

- The fine amount is the same irrespective of the extent of the infringement. For example, an overstay of five minutes receives the same fine as an overstay of 30 minutes.
- A Penalty Infringement Notice (PIN) is only issued if a parking officer happens to be in the vicinity. Since most local governments cannot afford 100% coverage of their boundary or even their activities centres, there is a high probability that most parking infringements won't result in a PIN being issued.
- The public often perceive parking enforcement as a 'revenue raising' exercise that unfairly targets motorists based on subjective and illogical time limits.

The customer experience of enforcement can be significantly improved by implementing measures to increase the ease with which motorists can comply with parking regulations and avoid parking fines.

Some local government now provide smart parking solutions through dynamic time and duration restrictions in activity centres and during special events (based on performance data collected from sensors) and a mobile device app that allows users to pay for and extend their parking duration remotely.

Customer Information

Surveys of on-street parking and some off-street parking facilities in 2013 and 2015 across the Ipswich City Centre have indicated that the average parking space occupancy is around 60-70 percent regardless of the time of day. Contrary to what people might believe, the Ipswich City Centre has enough parking resources, it is just that people can't always find it. Technology can rectify that.

Smart parking solutions include the provision of real time information to customers on the location, type and availability of on-street and off-street parking services. This will allow customers to plan their trip, find and pay for a parking space, reduce vehicles circulating in activities centres and ensure customers arrive at the destination or appointment on time. The medium through which the information is communicated, and the time at which people consume that information, needs further research to make sure people are made aware of availability at the right points on their journey (e.g. VMS, in-vehicle, in-app).

Data Collection & Analytics

Council undertakes regular parking surveys of the Ipswich City Centre that provides data that can be cumbersome to analyse and soon becomes out of date. With the use of sensor technology, real-time data on parking utilisation and duration of stay as well as analytics to predict availability and scenario testing of altered time restrictions and demand-pricing can be introduced. The use of a mobile device app can also be used to undertake regular qualitative surveys to obtain customer feedback and thus tailor better parking solutions that meet user needs and manage travel demand.

Opportunities exist for Council to take the next step in modernising its parking management services by the **staged trialling and deployment** of an integrated **smart parking solution** in the Ipswich City Centre to:

- Improve the customer experience,
- Enhance economic development and social interaction opportunities in activity centres and
- Provide more effective monitoring and compliance capabilities.

It is recommended that any smart parking solution for Ipswich have the following characteristics:

1) Integrated with an update to Council's overall **Parking Strategy** (2011) and subsequent **parking hierarchy** and **Precinct Plans;**
2) Incorporated as part of Council's **road operations team** (refer above);
3) **Interoperable** with Council's existing systems;
4) Open technology resembling a broker architectural pattern (**interchangeability**);
5) Aligns with **Australian National ITS Architecture**;
6) Can work with independent management modules across **multiple vendor technologies**;
7) Provides a real-time **performance monitoring** platform in a 'dashboard' format;
8) Offer a **variety of payment methods** that can possibly lead to a reduction or even removal of parking meters in the future;
9) Be able to implement Council's preferred parking management arrangement (e.g. via mechanisms such as **dynamic pricing** and **variable timing and duration** capabilities);
10) **Mobile device app** to find and pay for parking;
11) **Customer information** abilities including on-line and outdoor guidance; and
12) **Intuitive parking permit issuing** and management of (e.g. residents, disability, special events).
13) More **transparent issuing of PINs** and subsequent user-friendly payment

SAFE CITY PROGRAM

Council's Safe City Program is a network of over 200 cameras across the Ipswich City Centre and ten other suburbs that are actively monitored 24 hours per day, seven days per week to deter crime and anti-social behaviour. Additionally, the monitoring facility has contact with a range of other services in Ipswich to assist in addressing strategies for community safety and policing.

Opportunities exist to expand the capabilities of Council's **Safe City Program** to monitor road operations, traffic conditions, pedestrian and cycling movements and parking surveillance both in terms of technology capabilities and geographical reach.

REAL TIME TRAVELLER INFORMATION

The effective provision of information between the three elements of the transport system (users, vehicles and infrastructure) provides the platform for smart mobility in the future.

The provision of real time information to users about travel conditions, route selection, travel times and duration, journey start and end times, and even whether to travel at all, is paramount to a successful transport technology system. There are many applications available in this space, from mobile device apps to dynamic roadside signage and display boards (refer to Figure 20).

Opportunities exist for Council to **partner** with the Queensland Government, bus service providers and the private sector to **test** and **deploy digital passenger information solutions** such as wireless and solar powered screens and displays at **key bus stops**, **major destinations** and **places of employment** located across the city (e.g. Bell Street, shopping centres, universities and railway stations).

FIGURE 20: A dynamic real time passenger information screen at a bus stop at Sydney airport.

Source: Stantec (2018)

CONNECTED and AUTOMATED VEHICLES

Connected and automated vehicles (CAVs) include all types of vehicles such as cars, trucks, buses, trains and unmanned aerial vehicles that can sense their environment and navigate with some, little or no human input. CAVs are sometimes referred to as driverless or self-driving vehicles but also include driver assist and connected vehicles.

CAVs combine a variety of techniques to perceive their surroundings, including radar, LIDAR, GPS, odometry and computer vision and recognition. Advanced control systems in CAVs interpret sensory information to identify appropriate navigation paths, obstacles, speed limits, signage and others traffic control devices.

Levels of Autonomy

The five levels of vehicle autonomy, as defined by the Society of Automotive Engineers, are outlined in Figure 21.

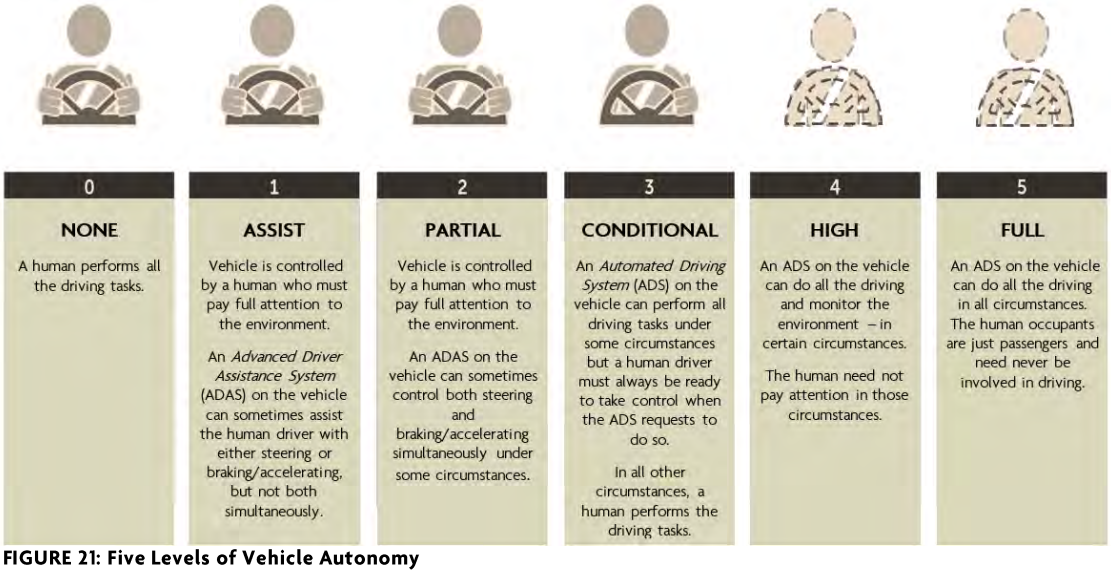


FIGURE 21: Five Levels of Vehicle Autonomy

Source: "Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems", Society of Automotive Engineers (2014)

Fully automated (Level 5) train systems have been in operation across the world for many years in cities such as Singapore and Hong Kong.

In recent years, some manufacturers have released new on-road vehicles onto the market with Level 1 levels of autonomy. These vehicles include camera and sensor technologies to control vehicle speeds (cruise control), detect and warn the driver on possible safety matters such as the vehicle's speed, proximity to other vehicles and objects, lane departure and vehicle malfunction and maintenance issues and control the vehicle when parking.

On-road CAV's with higher levels of automation are currently being tested but full deployment of Level 5 CAVs on public roads is still some time away as there are unresolved issues around technology reliability and integration, insurance and liability, public safety perceptions and a general resistance of people (particularly motoring enthusiasts) forfeiting the control of their vehicle. Figure 22 outlines a possible growth scenario for the growth in CAVs over the next few decades.

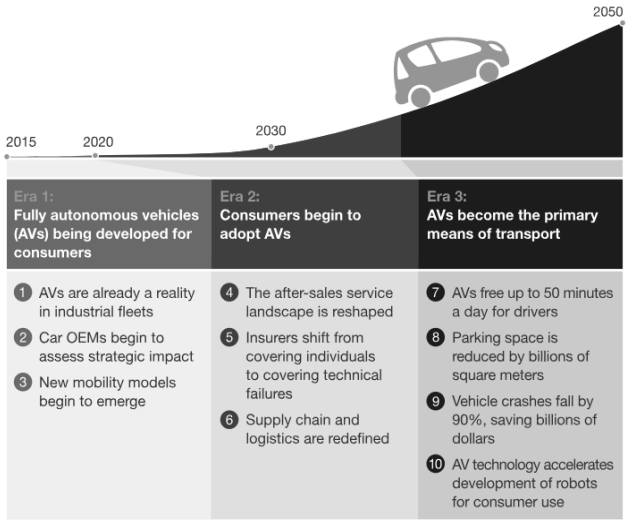


FIGURE 22: Self Driving Vehicles – Timeline of Potential Growth in Uptake *Source: McKinsey & Company (2018)*

Benefits

The biggest benefit of CAVs will be improvements to public **safety** with the ideology that removing human error and inattentiveness will reduce crashes and road trauma. For this reason, governments are focusing their attention to the safety outcomes of CAVs.

Along with the safety benefits, CAVs might also:

- Reduce traffic congestion (they will be able to travel much closer together than human controlled vehicles and predict and avoid incidents);
- Improve user convenience (on-demand, no need to find and pay for parking and passengers can pursue leisure activities when travelling);
- Lower transport costs (no need to own and operate a car if the CAV is part of the shared mobility service and no need to pay for a driver); and
- Promote efficiency and productivity gains (a CAV can always be in use [24/7] if part of a shared mobility platform without the need for a driver and associated fatigue issues).

Risks

If not managed properly, CAVs have the potential to promote urban sprawl and very low density living in Ipswich as travel will become less costly and time consuming so people may choose to live in rural and outlying areas and in bigger houses on larger parcels of land.

If not part of a shared fleet, privately owned CAVs may also cause more trips on the road network by through 'dead running' (when the CAV is travelling with no passengers back to its 'base)'.

Council Position

Council supports CAVs as a major way of travel, lifestyle and productivity for Ipswich residents and business operators in the future much like the introduction of motorised vehicles did to the world in the early 1900s.

But due to their transformational potential, it is essential that all CAVs are part of shared mobility services and fleets, are well-regulated and have zero emissions. Shared mobility services and fleets will:

- Provide more affordable access to all;
- Maximise public safety, emission and data benefits;
- Ensure that maintenance and software upgrades are managed by trained professionals;
- 'Dead running' is minimised; and
- See a reduction in vehicles, parking and traffic congestion in line with iGO's policy goals.

CAV's as part of shared mobility platform also have the potential to form part of a diversified and integrated public transport system as outlined in Figure 23 and will fill the gaps in the current system from both a network and accessibility perspective.

Cooperative Intelligent Transport Systems Pilot

The largest component of TMR's Cooperative and Autonomous Vehicle Initiative (CAVI) is the *Cooperative Intelligent Transport Systems (C-ITS) Pilot* that is planned to take place on public roads in and around Ipswich from 2019.

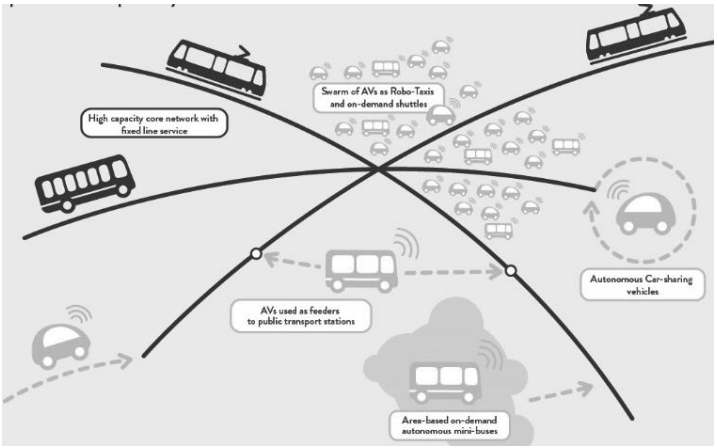


FIGURE 23: Possible application of CAVs as part of a diversified public transport system. *Source: UITP(2017)*

The Department of Transport and Main Roads (TMR) and Council have signed a Memorandum of Understanding (MoU) to work together to bring the pilot to fruition. Council is providing in-kind support to TMR for the project through road access permits, use of Council road and fleet assets, knowledge sharing, employee time and public engagement and education.

The Pilot will include testing vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V) applications – in essence, Level 2 autonomy as outlined in Figure 21). This will include retrofitting technologies to 500 public and fleet vehicles and roadside devices on major roads in Ipswich. These devices will allow vehicles and infrastructure to talk to each other to share real-time information about the road and to generate safety-related warnings and messages for drivers as outlined in Table 15 (over).

TABLE 15: C-ITS Pilot Warning Types

WARNING	TYPE	DESCRIPTION
Emergency braking	V2V	Alerts drivers to a cooperative vehicle braking hard some distance ahead.
Speeding	V2I	Provides drivers with information about active, static or variable speed limits and alerts them if they are exceeding that speed limit.
Cyclists and pedestrians	V2V	Alerts drivers to pedestrians or bicycles crossing at an upcoming signalised intersection.
Back of queue	V2I	Alerts drivers about an upcoming traffic queue
Red light violator	V2I / V2V	Alerts drivers that another cooperative vehicle is likely to run a red light across their path at the signalised intersection ahead.
Red light	V2I	Alerts drivers if it's likely that they'll drive through a red light ahead, unless they brake.
Stopped or slow vehicle	V2V	Alerts drivers of an impending rear-end collision with another cooperative vehicle ahead of them.
Hazard warning	V2I	Alerts drivers to upcoming hazards, such as water on the road, road closures, or a crash.

Source: www.tmr.qld.gov.au

Turning Impacts into Opportunities

The emergence of CAVs, combined with e-commerce and the shared economy, will have major impacts on cities and society at large. CAVs are likely 'game changers' for urban mobility that will disrupt traditional approaches to our daily commute to jobs and education and how we access goods and services. But CAVs will not simply be a transport issue. They will affect land use planning, real estate, property values, parking, house and building design, urban form, public domain design and road configurations (refer to Figure 24).

FIGURE 24: CAVs have the potential to impact a variety of urban elements.
Source: Stantec (2018)

CAVs will also affect a large range of industries, business models and jobs ranging from insurance and financial lending, energy, vehicle manufacturer, maintenance and repair, parking, house design and driver licencing. In urban areas, land and facilities used for parking will need to re-purposed and road areas reconfigured to make way for pedestrian friendly zones because CAVs, if part of a shared fleet) will reduce the need for parking and road space.

Along with the uncertainty as to when Level 4 and 5 CAVs will be fully deployed, these implications could end up being the largest obstacles to their deployment, particularly regarding the disruption and the direct backlash their deployment will create. This highlights the importance of all levels of governments to be on the front-foot with regards to their CAV standards, service and regulatory frameworks and policy responses.

With regards to CAVS, the ***National League of Cities*** recommends that local governments do the following now with regards to CAVs:

- Participate – Do not wait;
- Baby Steps – Plan infrastructure needs, build data and computing capacity to position your agency;
- Experiment and test;
- Track Federal and State government developments and make your voices heard; and
- Gain stakeholder and public confidence.

As such, Council acknowledges that its operating frameworks, policy positions and land use planning instruments relating to CAVs need to be examined and hypothesized in the short term to ensure Ipswich can be at the forefront of these transport revolutions when they come to market and thus turn impacts into opportunities.

Opportunities exist for Council to undertake **scenario testing** and **uncertainty planning activities** to prepare for the upcoming revolutionary nature of CAV deployment and thus position Ipswich at the forefront and better position Council's functional responsibilities and service delivery.

This includes elements such as transport and land use planning, traffic and parking operations, urban design, economic development, community development and investment prioritisation.

SHARED MOBILITY

Shared mobility includes all modes of travel that offer short-term access to a vehicle to transport people and/or goods on an as needed / on demand basis. This can include buses, taxis, cars, vans, bikes and other personalised mobility devices such as Segways and scooters (sometimes referred to as 'rideables').

Shared mobility services have started to disrupt our traditional approaches to travel and have the potential to change urban form and transport system design. As such, Council acknowledges that policy positions, standards and land use planning instruments relating to shared mobility services should be established in the short term to ensure Ipswich is at the forefront of the shared transport revolution.

Imagine a future Ipswich where Council offers or supports a subscription to a fleet of vehicles ranging in size and types that are shared between multiple owners.

For a small investment, drivers buy into shared ownership or mobility as a service membership and can customise their ride by selecting from an array of connected car features and services offered as a software package. With a smart phone app, drivers can select the vehicle of their choice, preferred entertainment features, favoured services providers and specify the level of concierge support they would like to receive.

This outcome will radically improve Ipswich's sustainability and transform the city's transport system with fewer cars on the road, optimised traffic patterns and shared rides in addition to shared vehicles.

FIGURE 25: Car sharing schemes can include many types of vehicles including small and large cars, vans, utes and light trucks.

Source: Go Get

Car Sharing

Car sharing (sometimes referred to as 'car clubs') is a car rental scheme where people can hire cars for short periods of time, often by the hour. They are attractive to people who only need an occasional use of a motorised vehicle, as well as others who would like occasional access to a vehicle of a different type than they use day-to-day (e.g. removal van – refer to Figure 25).

Car sharing schemes can be operated by a commercial business (e.g. Go Get), as a cooperative (e.g. run by a body corporate of an apartment complex for residents to use) or as a corporate fleet.

The functionality and accessibility of these services is key to their success. The scale and distribution of the fleet, and the type of operating model will dictate adoption levels. Whether the service operates "base-to-base" or free-floating will need careful planning.

Opportunities exist for Council to encourage the deployment and uptake of car sharing schemes through the inclusion of **alternative parking codes** in the Ipswich Planning Scheme and the provision of **dedicated on-street parking spaces** for car sharing vehicles in activity centres and in medium and higher-density residential areas (refer to Figure 26).

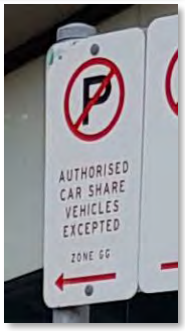


FIGURE 26: An on-street parking space for car share scheme vehicles outside an apartment complex in Redfern, Sydney *Source: Stantec (2018)*

Ride Sharing

Ride sharing (sometimes referred to as 'ride sourcing' and 'ride hailing') is an evolution of the traditional taxi model, and to some degree car-pooling. The user hails a ride in real-time or pre-booked and is allocated the most appropriate vehicle. Uber is the market leader in ride sharing services in Australia however there are new global entities entering the market such as Ola, Lyft and Grab. Ride sharing schemes have disrupted the taxi industry and have forced governments to adjust insurance, licencing and training regulations accordingly.

The traditional carpooling model is also evolving. The traditional off-line model was very community-based and hard for individuals and organisations to manage and scale. Smartphone enabled solutions match riders with drivers and can be tailored to only provide access to known contacts, thus mitigating some of the safety concerns of travelling with random people.

Opportunities exist for Council to encourage the deployment and uptake of ride sharing schemes through the provision of **codes** in the Ipswich Planning Scheme and **on-street kerbside allocation** in activity centres and in medium and higher-density residential areas.

On-Demand Bus Services

Like on demand movies, food delivery and taxis, there are now on-demand bus services (sometimes referred to as 'micro-transit') being trialled across the world with the aim of filling gaps in the public transport network that standard buses and trains services do not fill.

On-demand bus services do away with a timetable with passengers using an app on their mobile device to book and pay for a bus that comes to or near their place of residence and connects them with a nearby activity centre, transport hub or health / education precinct. Some on-demand bus programs typically centre on improving 'first mile / last mile' connections by using smaller vehicles and mini-vans ('shuttles') that pick up multiple passengers going in the same direction as opposed to traditional train and bus services that run on a fixed route. They are particularly useful for improving mobility options for older residents and people with disabilities.

The vehicles associated with the service are usually new, dedicated and branded and have many innovative features such as Wi-Fi and mobile device charging points as well as being easily accessible for a wide variety of patrons. Users can plan their journey accordingly by booking a service for a window of time (including near real-time) and know exactly when the bus will arrive to pick them up through information provided by the app.

This is particularly relevant in servicing new greenfield urban growth suburbs and urban fringe / semi-rural areas where the introduction of traditional bus services is not operationally practical and meaningful and/or economically feasible.

The NSW Government has recently launched its first permanent on-demand bus services in Sydney (refer to Figure 27) and the Queensland Government are currently undertaking a demand responsive transport trial in Logan using shuttle buses and maxi-taxis.

Opportunities exist for Council to investigate the merits, and advocate for, the introduction of on-demand bus services in Ipswich in:

- Greenfield development areas such as Ripley and Deebing Heights and in
- Growing urban fringe areas such as Chuwar, Karalee, Kholo, North Tivoli and Pine Mountain.

Users of such a service could be linked to activity centres in Ipswich, Springfield and Yamanto and to transport hubs at Springfield Central, Ipswich Central and Dinmore and major employment generators such as the RAAF Base at Amberley.

FIGURE 27: The NSW Government recently launched its first permanent On Demand bus service in Sydney to fill gaps in the PT network

Source: Transport for NSW (2017)

Bicycle Hire Schemes

FIGURE 28: Bicycle at Waterloo, Sydney as part of privately-run Bicycle Hire Scheme
Source: Stantec (2018)

Bicycle hire schemes are a service where members of the public can hire a bicycle for a short period of time. They are usually located in principal activity centres and use technology to connect the user with the bicycle including access and payment. Some schemes are organised by local governments using contractors to provide the service (e.g. Brisbane, Gold Coast) and other schemes are fully privately operated (e.g. Sydney – refer to Figure 28, and Melbourne).

The Brisbane 'City Cycle' scheme uses a suite of docking stations located across the Brisbane CBD using an on-line system for access and payment. The Gold Coast 'Mobike' scheme uses a dock-less system with a mobile phone app for access and payment. There have been problems with litter and clutter associated with the privately-run bicycle hire schemes in Sydney and Melbourne that are causing community amenity and operational issues for councils.

There has been recent backlash against some schemes, but this is more down to poor planning and service operation than a lack of market demand.

Opportunities exist in the future for Council to **deploy** or **support** a **bicycle hire scheme** in the Ipswich City Centre and Springfield Town Centre. Careful consideration of the scale, service type and vendor support will ensure that any scheme will be a success.

With reducing prices and better battery technology, the advent of the electric bicycle (referred to as 'e-bikes' for short) is the next evolution of personalised transport – refer to Figure 29. With assisted torque power whilst the rider pedals, e-bikes will encourage more people to cycle more often with less effort. E-bikes are ideal for the hotter climate and hilly terrain of Ipswich.

FIGURE 29: Electric bikes are being come more assessible for everyone. An e-bike can be purchased from around $1000 with batteries lasting up to 60 kilometres.
Source: Stantec (2018)

Opportunities exist for Council to purchase a **small fleet of E-bikes** for staff to use when making small trips to test and showcase their capabilities and benefits.

DATA

"In the past, ITS were often infrastructure reliant. Today, greater emphasis is placed on data collection, analytics and the availability of relevant information on the move.

Chew Hock Yong
CEO
Singapore Land Transport Authority

The 'currency' of transport technology is information/ data. This is evident for ITS applications that link vehicles, infrastructure, users and transport system managers to make timely and informed decisions.

A core value of Council's Smart City Program is that the use of data infrastructure underpinning smart city and transport technology applications must be open and interoperable across platforms and enable competition and innovation, while ensuring privacy, security and accountability.

Open Data

Open Data is where government data assets are made publicly accessible, for interrogation and monetisation with limited restrictions such as copyright.

Historically governments, corporations and individuals alike have held their data close to themselves, disclosing as little as possible with others. Privacy concerns and fear of security breaches have far outweighed the perceived value of sharing information.

"A modern transport system that does not stream data is inconceivable. He who wants to build the world's most modern infrastructure must envisage, plan and build roads, rails and digital capability all as one"

Alexander Dobrindt
German Minister for Transport
& Digital Infrastructure (2013 – 2017)

However, a key enabler of Smart Cities is that all participants in the complex ecosystem share information so informed decisions can be made in real time. Multiple transport sectors need to cooperate to achieve better, sustainable outcomes through the analysis of contextual real time information that is shared among government transport authorities, service providers and the travelling public.

The objective of Open Data is to use Council information to:

- Create opportunities for local business operators, schools, entrepreneurs and policy makers to innovate and enable new business models and services
- Foster an open and collaborative culture within Council, breaking down silos and enabling better information sharing and decision making; and
- Deliver better and more efficient services for the people of Ipswich.

Not all data held by Council can be made available as open data. Some data sets may contain personal information, information that is commercially sensitive or information that is owned by a third party. In addition, Council may have access to data sets owned by third parties which have been licensed to them. These data sets can only be shared in accordance with the conditions of the licence they've been made available to the Council under.

However, Council has made available, through a public portal, 72 data sets. These primarily relate to geography and land use data.

Opportunities exist to include transport related data sets onto the Council open data portal in the future.

Interoperability

Interoperability is the ability of different information technology systems and software applications to communicate, exchange data, and use the information that has been exchanged. There are three levels of technology interoperability as outlined in Table 16.

TABLE 16: Level of Technology Interoperability

LEVEL	DESCRIPTION
Foundational (low)	Exchange of data between one application / system and another No interpretation of data
Structural (intermediate)	Exchange and interpretation of data between one applications / system and another
Semantic (high)	Ability of two or more systems to exchange information and to use the information that has been exchanged for a meaningful result. Takes advantage of both the structuring of the data exchange and the codification of the data including vocabulary so that the receiving information technology systems can interpret the data.

Source: https://innovatemedtec.com/digital-health/interoperability

Data Collection & Analytics

An important use of technology is the collection and analysis of travel related data to discover useful trends and patterns and support decision making.

There are a variety of location intelligence solutions now available to collect and analyse transport system data to help transport authorities optimise traffic flow and make important investment prioritisation decisions.

For example, Bluetooth sensors have been deployed by BCC to recognise individual Bluetooth devices as they pass by and provide accurate real time information such as travel time and speeds across the road network. This information is used by BCC transport practitioners to locate traffic congestion 'hot spots' and then scope, plan, prioritise and measure mitigation works.

Service providers such as Google, Here, Inrix and TomTom also have transport data products that present anonymised, aggregated trends of transport performance, leveraging smartphone location services and data coming from navigation and fleet management platforms.

Council recently installed permanent pedestrian and cyclist user counters on the Brassall Bikeway and has plans to expand these to other commuter bikeways and key pedestrian links in Ipswich.

Opportunities exist for Council to establish better capabilities in road use data collection and analysis to inform decision making, respond to incidents and provide better services. As part of the initial rollout of a road operations centre, this includes:

- Implementation of a network of permanent traffic counters on strategic roads
- Deployment of a travel time / speed measuring solution on roads and bikeways
- Establishment of a dedicated data analytics and performance monitoring function with Council's transport and traffic team.

Opportunities also exist for Council to expand the use of permanent pedestrian and cyclist counters and install real-time public facing user counter 'panels' (refer to the example in Figure 30 & 31) on key commuter bikeways to promote their use, active lifestyles, sense of community pride and ownership.

FIGURE 30: User counter display on the Bicentennial Bikeway in Brisbane

Source: Brisbane City Council (2018)

FIGURE 31: Public facing user counter display on a bikeway in Seattle, USA

Source: Seattle Times (2018)

Data Integration / Aggregation

The key element of Council's future intelligent road operations framework (refer to Figure 20) includes the development of a central **Road Information System / Portal** where road and travel data from disparate sources is aggregated into one common operating picture (sometimes referred to as a 'data fusion engine') using an exchange network and decision support tool to provide road users and managers enhanced situational awareness and the ability to make more informed decisions (refer to Figure 32).

This not only includes Council information but data from the Queensland Government (e.g. TMR, Queensland Rail, Queensland Police Service and Emergency Services) and service providers (bus, taxi, ride share and tow truck operators, Royal Automobile Club of Queensland).

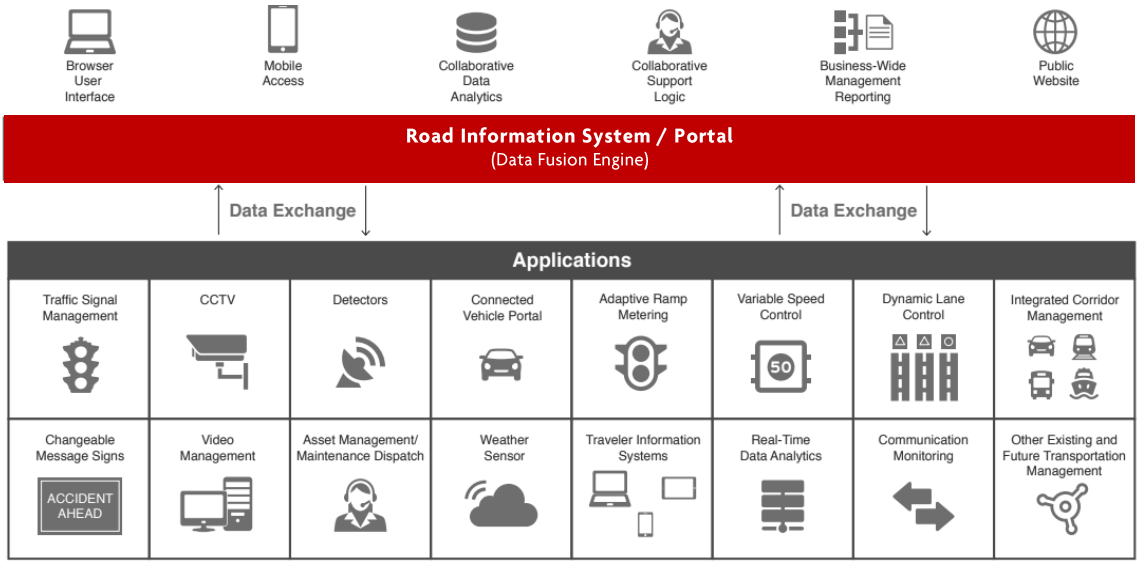


FIGURE 32: Road Information System / Portal

Source: Cubic (2018)

FLEET MANAGEMENT

Company and government fleets (light vehicles, trucks, small and heavy plant) is a form of shared mobility that is being modernised with transport technology applications.

Council has commenced the deployment of a GPS based in-vehicle telematics system to better administer its vehicle fleet in terms of utilisation and fuel tracking, booking, driver, speed and security management and maintenance diagnostics. Workplace health and safety, productivity and cost reductions are the key drivers behind this.

Newer fleet management platforms can lead to more sustainable outcomes and present opportunities for Council to leverage their own fleet and the operators in the region to share their data, creating a comprehensive data asset that can provide network performance, safety and asset condition insights (refer to Figure 33).

FIGURE 33: Technology applications can help with the tracking and reporting of a variety of fleet management activities. *Source: Bhutan Telecom (2018)*

INTEGRATED & CONTACTLESS PAYMENT

Public transport ticketing is being revolutionised across the world with patrons able to seamlessly pay for their trips via a range of media, including mobile devices across various modes and service providers.

The Queensland Government is updating the Go Card system to enable open loop payment, meaning users can pay for access to public transport services using mobile phones, smart watches (refer to Figure 34), debit / credit cards as well as allow greater use of the existing Go Card across various platforms, operators and applications. Trials are expected to begin in 2019 after $371 million was committed over four years to refine the service.

Opportunities exist in the future to incorporate access to Council related transport services (e.g. payment of parking fees, bike hire scheme, shared and fleet vehicles) via both the Queensland Government's Go Card system as well as an app on a personal mobile device.

FIGURE 34: Public transport patrons in Queensland will soon be able to pay for their trip using a variety of options including smart watches. *Source: www.iotgadgets.com*

MOBILITY AS A SERVICE

Mobility as a Service (MaaS), sometimes referred to as *Mobility on Demand* (MoD), is a concept where various transport services are integrated into a single mobility touchpoint on a mobile device (as conceptualised in Figure 35).

To meet a customer's request, a MaaS operator facilitates a diverse menu of transport options from public transport, ride / car / bike-sharing, taxi or car rental/lease or a combination thereof. MaaS offers the user a seamless "one experience / one payment" approach to transport services and will help solve the inconvenient parts of individual journeys as well as the entire system of mobility services.

Opportunities exist for Council to advocate for the Queensland Government to lead and promote MaaS and explore prospects for new MaaS business partnerships and functional models that will complement their line haul public transport offerings currently operated by Translink and Queensland Rail.

A successful MaaS service also brings new business models and ways to organise and operate the various transport options, with advantages for transport operators including access to improved user and demand information and new opportunities to serve unmet demand. The aim of MaaS is to provide an alternative to the use of the private car that may be as convenient, more sustainable, help to reduce congestion and constraints in transport capacity, and can be even cheaper.

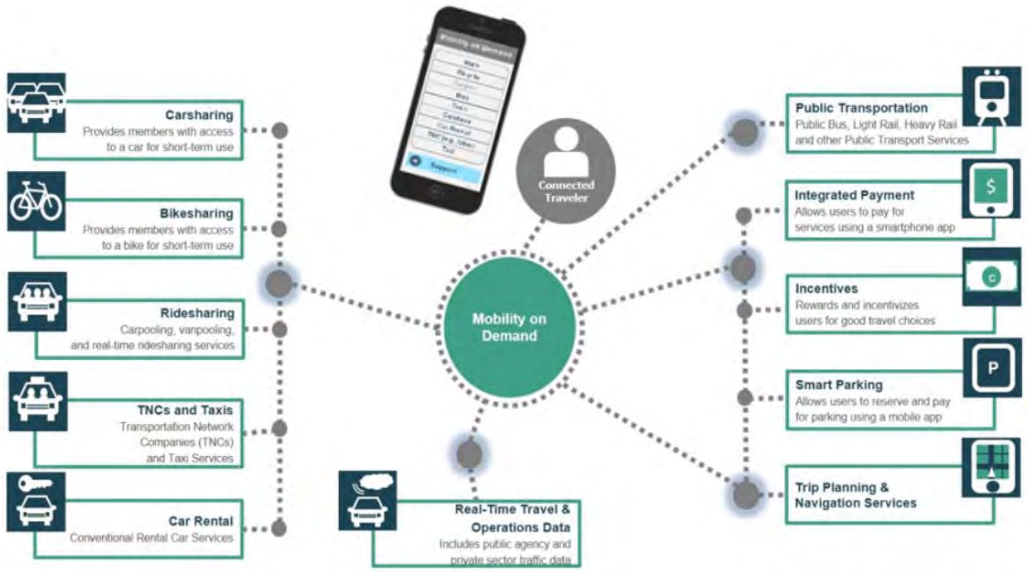


FIGURE 35: MaaS / MoD is the integration of user-centric travel options

Source: USA Department of Transportation (2018)

MOBILITY HUB

A *mobility hub* is a concept of places where people can make seamless connections between a range of public, shared and active transport options in areas where there is a concentration and mixture of activity (employment, retail, commercial, educations, health and leisure). They provide an integrated suite of mobility services, amenities and technologies to bridge the gap between high-frequency public transport services and an individual's origin or destination.

As conceptualised in Figure 36, the services, facilities and technologies of a Mobility Hub include:

- Enhanced passenger waiting areas and loading zones;
- Real-time traveller information;
- Bikeshare, carshare and neighbourhood electric vehicle hire schemes;
- Bicycle parking stations and cycle centres;
- Dynamic parking management and flexible kerb space allocation;
- Real-time ridesharing, shuttle / micro PT services;
- 'Rideables' (scooters and Segways);
- Cycling and pedestrian improvements;
- Electric vehicle (EV) charging stations;
- Dynamic wayfinding, signage, route markers and information kiosks;
- Urban design enhancements; and
- Universal contactless payment systems.

These features help travellers connect to/from inter-city and suburban public transport services and make short trips within the activity centre and beyond. Integration of information technology helps travellers find, access and pay for services. In the future, connected and automated transport services may enhance mobility for travellers of all ages and abilities while fostering a safer environment for all mobility hub users.

Mobility hubs may result in several benefits including increased transport choices, promote the use of sustainable modes of transport and reduced traffic congestion and parking demand in major activity centres.

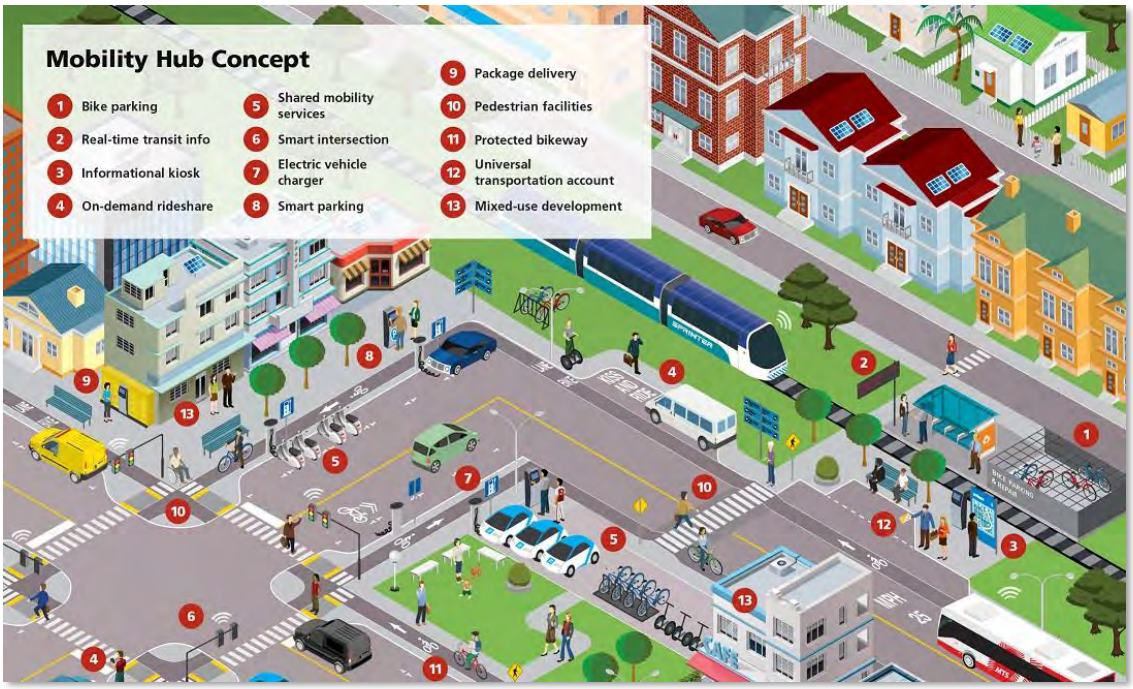
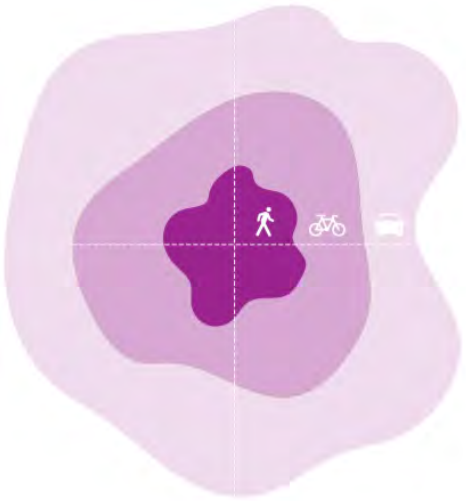


FIGURE 36: Mobility Hub Concept

Source: San Diego Forward – Regional Plan 2019-2050, San Diego Association of Governments (SANDAG)

Each mobility hub can be designed specifically for the activity centre it serves and can include not just the major public transport node itself but all those services and destinations that are accessible within a five-minute drive, walk or ride (refer to Figure 37).



Opportunities exist for the staged design, trial and delivery of the **mobility hub** concept as part of the economic and civic revitalisation of the **Ipswich City Centre**. The mobility hub concept could also be looked at for the **Springfield Central, Ripley** and **Goodna** town centres.

FIGURE 37: Mobility Hub Service Area

Source: San Diego Forward – Regional Plan 2019-2050, San Diego Association of Governments (SANDAG)

ELECTRIC VEHICLES

An *electric vehicle* (EV) uses one or more electric motors for propulsion. An EV may be powered through a collector system by electricity from off-vehicle sources (e.g., the Brisbane passenger railway system operated by Queensland Rail) or may be self-contained with a battery, solar panels or an electric generator to convert fuel to electricity. For the context of this Strategy, EVs relate to road going vehicles.

EVs have been in existence since the mid-19th century and on the edge of mainstream acceptance since the late 1980s with a cult following, particularly in North America. Interest has boomed in recent years for several reasons including better vehicle batteries and incentives or rebates for 'green' vehicle ownership. In fact, global EV sales have increased substantially over the last six years as outlined in Figure 38.

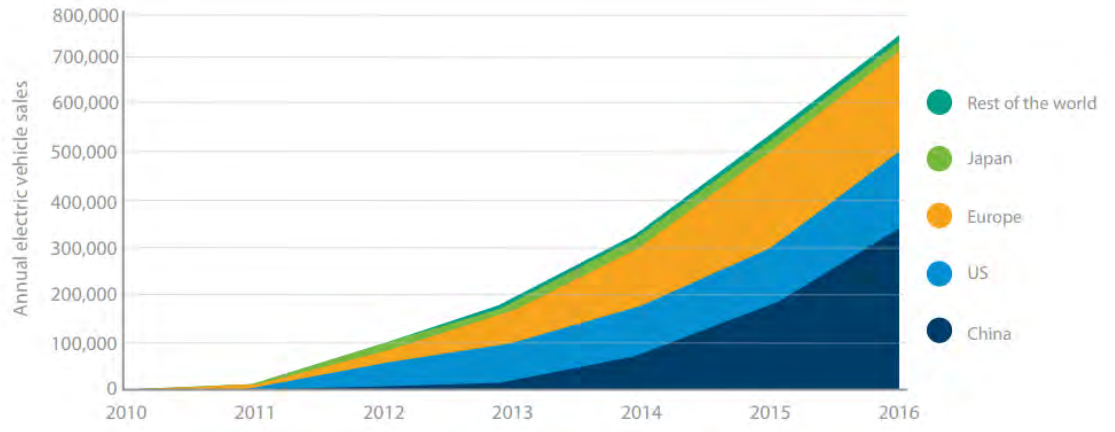


FIGURE 38: Global EV Sales 2010 to 2016

Source: Queensland Electric Vehicle Strategy (2017)

The public acceptance and uptake of EVs will expand over the coming decades and will be a dynamic process as the technology improves and the market conditions continues to develop.

EV Charging Stations

One of the major barriers for the uptake of EVs is the lack of public recharging stations (refer to Figure 39) that can give users (or potential user) 'range anxiety'. The widespread adoption of EVs will require a cultural shift in the way we think about our own mobility needs, how we meet these needs, and in turn, how we recharge EVs.

The Queensland Government is rolling out a network of EV rapid charging stations across Queensland as part of their *Electric Super Highway* initiative – refer to Figure 40.

FIGURE 40: Queensland Electric Super Highway Network

Source: Queensland Government 2017

FIGURE 39: An EV rapid charging station recently installed at Yarrabilba in Logan City

Source: Stantec (2018)

Opportunities exist for Council to support the uptake of EV's through:

- Development of **policies, design standards, signs** and **development incentives**
- Advocacy for EV charging stations to be included at key locations in Ipswich as part of **Phase 2** of the Queensland Government's Electric Super Highway initiative.

'Rideables'

FIGURE 41: Electric scooters are a form of personalised transport referred to as 'rideables'

Source: www.consumeraffairs.com

Other electric personalised devices, referred to as 'rideables', are on the market that can transport individuals without much effort at speeds up to 25km/h. Rideables include Segways, scooters (refer to Figure 41), skateboards, unicycles and wheel- chairs.

As prices reduce and battery technology continues to improve, these types of devices will become more widespread on Ipswich road reserves and public spaces, and will become popular with younger and older residents, people with disabilities and those people who do not have access to a car or driver's licence. Given their compact nature, they provide an opportunity to provide first mile / last mile solutions for public transport journeys as well as being part of a shared mobility scheme in activity centres and large employment zones.

Opportunities exist for Council to support the uptake and safe and effective operation of **'rideables'** as a sustainable and active forms of transport by advocating for a **regulatory framework** to be established and providing **infrastructure** and **promotional initiatives**.

Unmanned Aerial Vehicles

The uptake and use of unmanned aerial vehicles (UAVs - or commonly referred to as 'drones') has entered the mainstream with their technological capabilities increasing and their costs reducing significantly over the last few years.

Council has a drone that it uses to take high quality images of open space and road projects. Other agencies use drones fitted with advance cameras and LiDAR sensors to undertake digital terrain surveys of roads and other public assets in rural and remote areas. However, drone use in urban areas is currently restricted due to air space safety and privacy concerns.

Opportunities exist for Council to build capacity in the use UAVs to more effectively undertake Council business. This includes the following transport related activities:

- Digital surveying for road and bikeway design (refer Figure 42)
- Construction site and safety inspections
- Marketing, promotion and community consultation (including 3D modelling for animated visualisations and promotional videos)
- Aerial photometrics
- Road and traffic condition monitoring (refer to Figure 42)
- Parking and road reserve management and compliance
- Before and after evaluation of road projects
- Advocate for CASA to finalise use and privacy regulations to use UAVs for local government activities in urban areas.

Once regulatory frameworks are sorted, and UAV technology architectures are standardised, drones will also be used in the future for micro-deliveries (parcels, groceries etc.) and for automated passenger travel ('flying taxis').

FIGURE 42: Drones can be used to undertake digital surveys for municipal infrastructure design.

Source: www.creedla.com

5G MOBILE NETWORK

5G is the term for the next generation of radio systems, mobile communication architecture. Whilst 5G technology is still in the development phase with a global architecture standard currently being prepared, it promises extreme broadband with large gains in speed, lower levels of latency, ultra-low energy consumption and overall smoother and more reliable operation (refer to Figure 43).

5G will support many different cases and business models. For 5G, transport will evolve from a static, linear connection to a programmable mesh that dynamically interconnects all mobile and cloud elements and will be particularly suitable for time sensitive transport technology applications such as CAVs and UAVs, traffic and parking monitoring and CCTV public surveillance.

> "5G will one day open up applications we don't anticipate but will eventual take for granted. While 4G was used to primarily connect people, 5G will also be used to connect a growing number of internet-enabled devices and machines as the internet of things takes off. Think everything from smart phones to autonomous trucks. It's a new industrial revolution. There is almost no industry that won't benefit"
>
> **Mike Wright**
> Telstra Managing Director – Networks (2018)

5G will be the foundation of large-scale internet of things (IoT) deployments that will be the significant driver of smart city projects of the future and revolutionise existing transport technology initiatives and business models. 5G will require the dense deployment of millions of 'small cell' antennas across urban areas on infrastructure such as poles, buildings and bridges connected to a network of macro base antennas. The small cells could be combined with other applications such as micro air quality and weather monitoring systems and traffic counters.

While worldwide commercial launch of 5G is expected in 2020 (once a global standard is ratified), Telstra have recently deployed 5G technology in parts of the Gold Coast to test 5G pre-commercial devices in real world conditions with plans to have more than 200 5G capable sites up and running across Australia in 2019. Optus also have plans to deploy its 5G network in key metropolitan areas in 2019.

Opportunities exist for Council to provide support for the **testing** and **deployment of 5G technology in Ipswich** using public assets and municipal facilities such as street light poles (where appropriate).

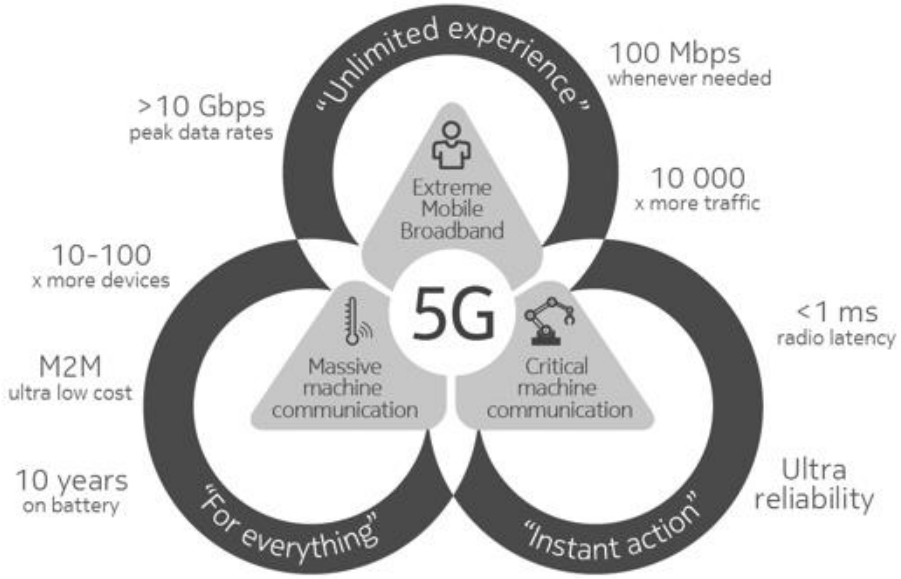


FIGURE 43: Overview of 5G Technology

Source: Nokia (2018)

ACTIONS

The suite of prioritised actions is outlined in Table 18 (over) and include linkages to iGO actions.

ACTION AREAS

The action plan has been developed based around three action areas as outlined in Table 17.

TABLE 17: Actions Areas

ACTION AREA	DESCRIPTION
PROJECTS	These actions will be led and facilitated by Council with supporting partners and include 'on the ground' trials and pilot projects with the view of further investment and deployment if proven practical and feasible.
PROTOCOLS	These actions relate to Council protocols including policies, procedures, systems, standards and specifications.
PARTNERSHIPS	These actions will be led by others but supported by Council either directly and indirectly and includes advocacy, public awareness, promotional and sponsorship activities.

TIMEFRAMES

Each action is given a timeframe that outlines Council's ITS priorities. They are defined as:

- **Signature** (resource focus over the next two years)
- Short (within the next 5 years)
- Medium (6-10 years)
- On-going (already underway and/or will occur across all timeframes)

The timeframes have been established based on need, opportunities and alignment with Advance Ipswich, iGO and the Smart City Program. The actual delivery of each action will be subject to resourcing, the establishment of investment and expertise partnerships and the outcomes of prototype design, testing and evaluation processes. Due to the evolutionary nature of technology, with the continual emergence of new and updated platforms, there are no longer term (10+ years) actions.

TABLE 18: Action Plan

NO.	ACTION	ACTION AREA	TIMING	iGO LINK
ROAD & TRAFFIC MANAGEMENT				
Road Operations				
ITS 1	Establish a road operations data analytics and performance monitoring team that is driven by technology and works in collaboration with TMR to better manage traffic, improve network reliability, enhance the customer experience and inform transport investment decisions. Execution will be over several years as resourcing becomes available and capabilities and partnerships with TMR emerge. The initial rollout will include: (a) Assessment of existing systems, gaps and future needs; (b) Preparation of a *'Concept of Operations';* (c) Development of system protocols (operations, security, privacy, communications and maintenance); (d) Development of a resourcing plan (human, capital, expertise and training); and (e) Establishment of a central road data system / portal.	Project	**Signature**	R1, R5, R7, TDM4
Integrated Corridor Management (ICM)				
ITS 2	Advocate for, and partner with, the Queensland Government to trial an ICM project in Ipswich for the corridor / journey between: (a) Ipswich and Brisbane; (b) Ipswich City Centre and Springfield Town Centre; and (c) Ipswich - Yamanto – Ripley.	Partnership	Short	R1, R2, R5, R7, AT9, LU7
Advanced Traffic Management Systems (ATMS)				
ITS 3	In line with ITS1 (above) identify, design and deploy ATMS technologies on the road network. This may include: (a) Permanent traffic counters on major roads; (b) Travel time / speed measuring system on roads and bikeways (e.g. Bluetooth 'ping' readers); (c) Variable message signs; (d) Traffic cameras; (e) Incident monitoring; (f) Integrated work zone management; and (g) Weather and flood information monitoring.	Project	Short	R5, R7, ATAP 3.5
Smart Road Safety Treatments				
ITS 4	Investigate and implement low cost smart road safety initiatives across Ipswich including: (a) Vehicle actuated dynamic signs (e.g. curve and crest warning signs); (b) Traffic signals pedestrian count down timers at key activities centres; (c) Enhanced speed limit signs; (d) Interactive pedestrian crossings in high activity locations; and (e) Pathway delineation lighting.	Project	Short	R5, R6, R7, AT13

Continued over...

NO.		ACTION	ACTION AREA	TIMING	iGO LINK
Traffic Signal Improvements					
ITS	5	Investigate and implement coordinated traffic signal timing optimisation along major road corridors in line with road function and adjacent land uses.	Project	Short	R5, R7, ATAP 3.5
ITS	6	Install Next Generation SMART traffic signals controllers.	Project	Short	R5, R7
ITS	7	Investigate pedestrian protection technology initiatives at traffic signals to improve pedestrian safety.	Project	Short	R5, R7, AT13, ATAP3.5
ITS	8	Investigate and implement bus priority infrastructure at signalised intersections (e.g. bus lanes, queue jumps) to improve journey time reliability and efficiency.	Project	Short	R5
ITS	9	Investigate and implement alternative connection and communication methods for the effective operation of traffic signals.	Project	Short	R5
Road & Freight Planning					
ITS	10	Consider and incorporate transport technologies into the planning, design, funding and construction of strategic roads and road upgrades including ITS, shared mobility services and EV and AV applications.	Protocol	On-going	R1, R2, F1, F5, AT9, LU7
ITS	11	Consider how AV, EV and shared mobility might influence the design of roads and street in new communities.	Protocol	On-going	R5, LU7, PT3, F1
ITS	12	Support the development and deployment of integrated corridor management techniques, connected and autonomous trucks and innovative fleet management and smart logistics tools.	Protocol	On-going	R5, F1, F5
PARKING					
Smart Parking Solution					
ITS	13	Investigate the feasibility, develop and implement a smart parking solution. Solutions should include allowance for various pricing methods and kerbside allocation, intelligent payment and ticketing systems and more sophisticated compliance, revenue monitoring and customer information systems about parking locations, types and availability. Potential delivery method may involve starting small-scale by testing a range of sensor types across a 'pilot area' and scaling up as performance and benefits are proven. As part of the development and deployment of the smart parking solution: (i) Consider the use of a customer information platform that provides information on parking locations and availability using both mobile device apps, in car navigation tools and on-street dynamic signs; (ii) Provide a platform that allows Council to undertake qualitative surveys to obtain customer feedback and thus make informed decisions on parking management; (iii) Undertake a coordinated public awareness and user education campaign; and (iv) Provide a platform that allows Council to remove time restriction in some areas and allows various pricing methods.	Project	**Signature**	R5, P2, P3, P4, P7, P9, P10, P11, P14, TDM4
Parking Data					
ITS	14	Use the data obtained from the deployment of the Ipswich smart parking solution to inform the preparation of: (a) New and updated **Precinct Parking Plans** for the Ipswich City Centre considering the use of various pricing and kerbside allocation methods; and (b) An updated **Parking Pricing Strategy** considering the use of various innovative pricing, kerbside allocation, parking revenue monitoring and use methods;	Protocol	Ongoing	P5, P6, P7, P13, P14, R5

Continued over...

NO.	ACTION	ACTION AREA	TIMING	iGO LINK
SHARED MOBILITY				
Mobility Hubs				
ITS 15	Prepare a mobility hub strategy for:	Protocol		LU7, ATAP7.4, R5
	(a) Ipswich City Centre (for deployment as part of its economic and civic revitalisation);		Short	
	(b) Springfield Town Centre (as part of its densification and associated development of a Transport Master Plan and infrastructure charging regime);		Short	
	(c) Ripley Town Centre; and		Medium	
	(d) Other activity centres as they mature including Goodna, Booval, Redbank Plains and Yamanto.		Medium	
ITS 16	Leverage opportunities to stage the implementation of these mobility hub strategies in partnership with developers, business operators and industry.	Partnership	Ongoing	LU7, ATAP7.4, R5
Parking				
ITS 17	Encourage the deployment and uptake of car and ride sharing schemes through the:	Protocol	Medium	LU4, LU&, PT3, P8
	(a) Inclusion of alternative parking codes and development incentives the Ipswich Planning Scheme, particularly for higher and mixed land uses to reduce on-site parking supply; and			
	(b) Provision of dedicated on-street parking spaces in activity centres and in medium and higher density residential areas where appropriate.			
Bicycle Hire Scheme				
ITS 18	Support the deployment of a bicycle hire scheme in:	Partnership	Medium	LU7
	(a) Ipswich City Centre;			
	(b) Springfield Town Centre; and			
	(c) Ripley Town Centre.			
	These could be electric bikes and the first stage of a Mobility Hub Strategy for each activity centre.			
Rideables				
ITS 19	Support the uptake, and safe and effective operation, of 'rideables' as sustainable and active forms of transport by:			AT4
	(a) Advocating for a regulatory framework to be established'	Protocol	Short	
	(b) Providing infrastructure (facilitated through the Mobility Hub Strategy); and	Project	Medium	
	(c) Undertaking promotional initiatives.	Project	Medium	
Special Events				
ITS 20	Consider how on-demand shared mobility options can provide a service capacity "top-up" for special events.	Protocols	Medium	PT20
Planning & Design				
ITS 21	Investigate how and where on-demand and shared mobility services might support and enhance the core PT network including the provision of supporting infrastructure and policy.	Protocol	Short	PT7, PT14, PT15
ITS 22	Support on-demand shared and micro-transit solutions to fill the gap in Ipswich's public transport network.	Protocol	On-going	TDM7, TDM9

Continued over...

NO.		ACTION	ACTION AREA	TIMING	iGO LINK
MOBILITY AS A SERVICE (MaaS)					
ITS	23	Advocate for the Queensland Government to: (a) Lead and promote MaaS; and (b) Explore prospects for new MaaS business partnerships and functional models in Ipswich that will complement their line haul public transport offerings currently operated by Translink and Queensland Rail. *This could include a MaaS product for the RAAF Base Amberley.*	Partnership	Short	R5, TDM3
ITS	24	Advocate for the **City Heart Cabs** Program and other community transport services to be included in the Queensland Government MaaS solution.	Protocol	Short	PT4, PT5
ITS	25	Understand and advocate the opportunity coming with MaaS as tools when travelling to and from schools and other large trip generators.	Protocol	Short	R5, TDM5, TDM6
ELECTRIC VEHICLES					
Electric Super Highway					
ITS	26	Advocate for EV charging stations to be included at key locations in Ipswich as part of Phase 2 of the Queensland Government's Electric Super Highway initiative.	Partnership	Short	R5
Parking and Infrastructure					
ITS	27	Encourage the deployment and uptake of electric vehicles through: (a) Inclusion of alternative parking codes and development incentives in the Ipswich Planning Scheme; and (b) Investigate, plan and provide dedicated on-street and off-street parking spaces and associated infrastructure in activity centres and in medium and higher density residential areas.	Protocol	**Signature**	R5, P8
E-Bikes					
ITS	28	Investigate the concept of purchasing a small fleet of E-bikes for Council staff to use when making small trips to test and showcase their capabilities and benefits.	Project	Medium	R5
CONNECTED & AUTOMATED VEHICLES					
C-ITS Trial					
ITS	29	Actively support the Queensland Government's C-ITS trial in Ipswich.	Partnership	**Signature**	R5
ITS	30	At completion of the C-ITS trial take learnings and potentially roll out infrastructure throughout the city for connected vehicles.	Project	Short	R5
ITS	31	Support ongoing C-ITS testbeds in Ipswich.	Partnership	Ongoing	R5
Autonomous Vehicles					
ITS	32	Support the use of Ipswich's road network as a testbed for Autonomous Vehicle trials.	Partnership	Ongoing	R5

Continued over...

NO.		ACTION	ACTION AREA	TIMING	iGO LINK
Uncertainty Planning					
ITS	33	Undertake **uncertainty planning** activities and scenario testing to prepare for the upcoming revolutionary nature of Connect and Automated Vehicles and thus position Ipswich at the forefront and better position Council's functional responsibilities and service delivery. This includes settings associated transport and land use planning, traffic and parking operations, development assessment, urban design, economic development and jobs, community development and investment prioritisation. *Activities could include:* *(i) Scenario testing;* *(ii) Discussion and research papers;* *(iii) Expert panel 'think tanks';* *(iv) Workshops with industry bodies and 'futurists'; and* *(v) Summits / Symposiums / Enquiry by Design forums.*	Protocol	Medium	R5, LU7
PUBLIC TRANSPORT					
Bus Stop Information					
ITS	34	Partner with the Queensland Government, bus service providers and the private sector to test and deploy digital passenger information solutions (such as wireless and solar powered screens and displays) at key bus stops and in major destinations and places of employment located across the city (e.g. Bell Street, shopping centres, universities and railway stations).	Partnership / Project	Short	PT2
On-demand Bus Services					
ITS	35	Investigate the merits, and advocate for, the introduction of on-demand bus services in: (a) New communities in greenfield areas such as Ripley, Deebing Heights and southern Redbank Plains; and (b) Growing urban fringe areas such as Chuwar, Karalee, Kholo, North Tivoli and Pine Mountain. *Users of such a service could be linked to:* *(i) Activity centres in Ipswich Central and Springfield Central;* *(ii) Public transport hubs at Ipswich Central, Springfield Central, Dinmore, Redbank and Goodna; and* *(iii) Major employment generators such as the RAAF Base Amberley.*	Partnership	Short	TDM8, PT15
ITS	36	Consider the use of an on-demand shared shuttle bus service linking periphery commuter car parks (e.g. Limestone Park) and the Ipswich City Centre core.	Protocol	Short	P12
ITS	37	Investigate how on-demand bus services could provide feeder bus services rather than fixed route/timetable.	Protocol	Short	P14, P15
ITS	38	Consider the role of ICC in 'first/last mile' on demand community transport services, particularly in existing urban fringe and new greenfield communities.	Protocol	Short	PT21
Railway Station Accessibility Design					
ITS	39	Consider CAV, EV and shared mobility services in the accessibility design of all railway station types and functions including: (a) Dinmore, Redbank & Karrabin Railway Stations (key park 'n' ride stations); and (b) Future stations along the Ipswich to Springfield Public Transport Corridor;	Protocol	 Short Medium	PT1, PT18, PT19, PT23

Continued over...

NO.	ACTION	ACTION AREA	TIMING	iGO LINK
ACTIVE TRANSPORT				
Data Collection				
ITS 40	Expand pedestrian and cyclist counters and install dynamic user counter display 'panels' on key commuter bikeways to promote their use and active lifestyles as well as a sense of community pride and ownership.	Project	Short	AT9, ATAP 9.1
ITS 41	Leverage public Wi-Fi, Safe City surveillance and future 5G platforms to understand pedestrian movement patterns in the Ipswich City Centre, Springfield Town Centre and other activity centres to plan and design pedestrian priority zones.	Protocol	Short	ATAP 2.1
Bikeway Lighting				
ITS 42	Trial the use of innovative lighting solutions on commuter bikeways including smart lighting and LED pathway lighting to improve delineation.	Protocol	Short	AT9, ATAP 6.5
Public Information				
ITS 43	Consider the development and deployment of a mobile device app and web-based solution to provide information on safe walking and cycle practices. This could be incorporated into the My Ipswich app or put through the Smart City Program's Healthy Living Lab and Digital Studio for development as the early makings of a MaaS product for Ipswich.	Protocol	Short	ATAP 9.1 & 9.2
Planning & Design				
ITS 44	Incorporate ITS applications in the planning and design of strategic commuter bikeways including delineation lighting, signs, route markers, public facing user counters and end of trip facilities.	Protocol	On-going	AT4, AT9, AT15, ATAP7.4
ITS 45	Investigate how cyclists and pedestrians can have priority and 'green by default' at signalised intersections, particularly at cycle track intersections and town centre environments.	Protocol	Short	AT13
ITS 46	Consider technology applications such as gamification, activity tracking tools, 'wearables' and end of trip facilities to promote sustainable travel behaviour.	Protocol	On-going	AT16
ITS 47	Use transport technology solutions as part of the planning, design and delivery of Active Town projects including wayfinding signage, interactive pedestrian crossings, delineation lighting and mobile device apps to enhance the user experience and active travel environment.	Protocol	Medium	ATAP 8.2
COUNCIL OPERATIONS				
5G Mobile Network				
ITS 48	Support appropriate deployment of 5G technology in Ipswich using public assets and municipal facilities such as smart street light poles.	Partnership	Short	R5
Safe City Program				
ITS 49	Explore avenues to potentially expand the capabilities of Council's Safe City Program to monitor road operations, traffic conditions, pedestrian and cycling movements and parking surveillance both in terms of technology capabilities and geographical reach.	Project	Short	R5
Waste Services Fleet				
ITS 50	Investigate the merits of installing sensors on Council's Waste Services fleet to measure and record road asset data and conditions.	Project	Medium	R5

Continued over...

NO.		ACTION	ACTION AREA	TIMING	iGO LINK
Light Vehicle Fleet					
ITS	51	Trial and evaluate EVs as part of Council's light vehicle fleet and if successful look at expanding EVs across the entire fleet. This will include the provision of supplementary infrastructure (workplace charging station) and enhancing Council's operational and maintenance expertise.	Project	Short	R5
Seamless & Contactless Payment					
ITS	52	Explore opportunities to incorporate access to Council related transport services (e.g. payment of parking fees, City Heart Cabs Program, bike hire scheme, shared and fleet vehicles) via: (i) Queensland Government's Go Card system; and (ii) Personal mobile devices	Partnership	Medium	R5
Unmanned Aerial Vehicles (UAVs)					
ITS	53	Build capacity in the to use UAVs (drones) for undertake Council business. This could include the following transport related activities: (a) Digital terrain surveying for road and bikeway design; (b) Construction site and safety inspections; (c) Marketing, promotion and community consultation (including 3D visualisations); (d) Aerial photometrics; (e) Road and traffic condition monitoring; (f) Parking and road reserve management and compliance; and (g) Before and after evaluation of road projects.	Project	Medium	R1, R2, R5, P3, F1 D5
CORPORATE					
Planning & Operational Frameworks					
ITS	54	Incorporate the outcomes of ITS Strategy, and transport technology generally, into the upcoming development of the following Council planning and operational frameworks:	Protocol	Short	
		(a) iGO Resourcing Strategy;			D1
		(b) iGO Risk Management Strategy;			D12
		(c) iGO Performance & Data Strategy;			D1
		(d) Annual 10 Year Transport Infrastructure Investment Plan;			LU7, ATAP7.4
		(e) iGO Way Finding Strategy;			AT5, ATAP6.1
		(f) iGO Road Safety Action Plan;			R10, AT14
		(g) iGO Freight Action Plan;			F1, F6, F14
		(h) iGO Direction Sign & Route Marker Action Plan;			R11, AT5
		(i) iGO Local Area Traffic Management Action Plan; and			R12
		(j) Parking Pricing Strategy.			P6

Continued over...

NO.		ACTION	ACTION AREA	TIMING	iGO LINK
ITS	55	Incorporate the outcomes of Strategy, and transport technology generally, into the next update to the following Council planning & operational frameworks: (a) Ipswich City Centre Commuter Parking Master Plan; (b) Ipswich Planning Scheme (particularly shared mobility services); (c) Ipswich Local Government Infrastructure Plan (including a benchmark cost for ITS infrastructure); (d) iGO Active Transport Action Plan; (e) iGO Public Transport Advocacy & Action Plan; and (f) iGO Parking Strategy.	Protocol	Ongoing	 TDM2 LU6, LU7, LU11 LU9 D1, LU7 PT7 P15, TDM2
ITS	56	Research, benchmark and include appropriate monetary amounts for the maintenance (routine and programmed) and rehabilitation of ITS infrastructure in future Council budgets. This includes on-going software licence fees, telemetry, computing and data storage costs.	Protocol	Ongoing	n/a
Governance					
ITS	57	Convene a cross functional and multi-disciplinary **Technical Working Group** to oversee the planning, design and staged implementation of: (a) Road operations technology and team (including the Road Information System / Portal); (b) Ipswich Smart Parking Solution; (c) Car and ride sharing infrastructure and parking specification, standards and design; and (d) EV infrastructure and parking specification, standards and design *The Terms of Reference of the technical working group will be to guide the following activities:* *(i) Project feasibility investigations;* *(ii) Design & specification;* *(iii) Market sounding & procurement;* *(iv) Trials and evaluation; and* *(v) Benefits realisation.*	Protocol	Short	n/a
ITS	58	Investigate and establish an appropriate formal governance structure for the planning, design and deployment of ITS initiatives, trials and activities. This includes both strategic, operational and technical decision-making frameworks to ensure transparency, accountability and collaboration.	Protocol	Short	n/a
Procurement					
ITS	59	Use the Smart City Program's procurement framework where practical for the execution of the ITS Strategy and associated initiatives. This could include: (i) Testing of performance-based specifications (not prescriptive); (ii) Market sounding techniques; (iii) Liaison with industry bodies including briefings, expression of interest and reverse briefs; (iv) Pilot projects and trials; and (v) Evaluation (technical and user effectiveness).	Protocol	Ongoing	n/a

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NO.		ACTION	ACTION AREA	TIMING	iGO LINK
Standard Drawings					
ITS	60	Prepare, and regularly update, a suite of standard drawings relating to road based ITS applications using best practice innovation in design and specification. This could include the configuration of EV charging stations and bike scheme docks on verges to ensure a quality pedestrian environment and streetscape.	Protocol	Ongoing	R1, R5, LU6
Urban Planning & Design					
ITS	61	Investigate ITS applications that can assist Council in achieving the **Complete Communities** urban model ("10- minute neighbourhood" & "20-minute city").	Protocol	Short	LU3, TDM1
ITS	62	Consider how services like EV charging, bike share docks etc are designed and implemented in streetscape and urban design to maintain quality pedestrian environments.	Protocol	Short	LU6, PT3, R5
ITS	63	Advocate for TMR to enhance the **Land Use and Public Transport Accessibility Index** (LUPTAI) tool by including shared mobility and on-demand transport options.	Protocol	Medium	LU10
iGO Delivery					
ITS	64	Use the ITS Strategy to help advocate the 'clever new thinking' and 'proper investment' mantras as part of a sustainable transport agenda for Ipswich.	Protocol	Ongoing	D1, R5
ITS	65	Use the ITS Strategy as an advocacy tool to attract investment and funding partnerships.	Partnerships	Ongoing	D4
ITS	66	Use ITS and modern technologies to assist with stakeholder engagement to ensure informed transport decisions can be made.	Protocol	Ongoing	D5
ITS	67	Use the iGO 'brand' as part of the delivery of the ITS Strategy.	Protocol	Ongoing	D6
ITS	68	Capture opportunities to partner with universities, research organisations (e.g. ARRB), the Smart City Program's Healthy Living Lab and Digital Studio and industry bodies (e.g. ITS Australia, Austroads, AITPM, ASCA) to undertake and sponsor research and development of transport technology initiatives. This should focus on an integrated road and travel data platform; road operations centre and smart parking solution in the short term. Other research elements could be the impact of AVs on urban function and form and the development of a MaaS product for Ipswich.	Partnership	Ongoing	D7
ITS	69	As part of the ITS Action 1 (Road Operations), collect real time data on transport system use and performance to assist with the prioritisation and programming of network investments and the development of the annual **10 Year Transport Infrastructure Investment Program.**	Protocol	Ongoing	LU7, D8, ATAP7.4
ITS	70	Include the execution of the ITS Strategy in the production of the **iGO Annual Report Card.**	Protocol	Ongoing	D10
ITS	71	Undertake a minor review and adjustments to the ITS Strategy every two years.	Protocol	Ongoing	D11
ITS	72	Incorporate ITS and transport technology risks in the development of the iGO Risk Management Plan to ensure it integrates with other identified risks and the associated mitigation strategy for the execution of iGO. This should include risk associated with data security and privacy, redundancy in technology, integration and interoperability.	Protocol	Ongoing	D12
ITS	73	Incorporate the outcomes of the ITS Strategy into the next major review of iGO.	Protocol	Short	D15

DELIVERY

The tools that Council will use delivery the Strategy to accomplish strategic results is outlined below. This chapter aligns with the overall iGO delivery framework and Smart City Program model. Figure 44 outlines the tactical steps in bringing a strategic vision to reality:

Step 1: Formulation of this Strategy in alignment with Council's transport and smart city aspirations;

Step 2: Operational and institutional processes to position Council to be ready for effective implementation; and

Step 3: Implementing the recommended actions

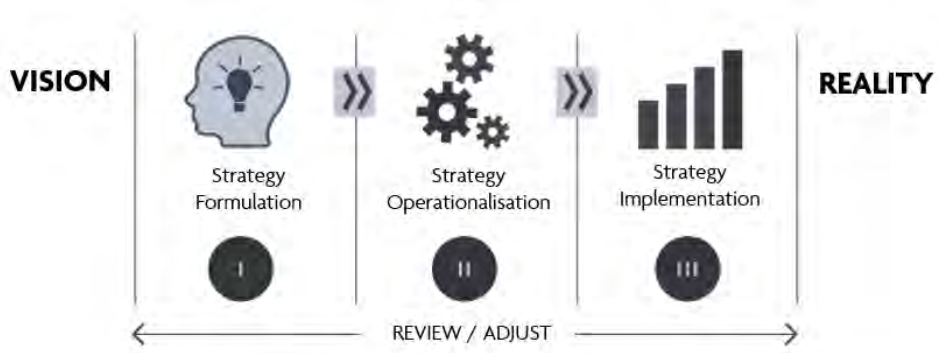

FIGURE 44: Tactical steps in bringing the vision to reality

Source: Stratecon-group.com/en/model

PROCESS

The deployment of ITS initiatives will involve complexities across a range of different systems, processes and platforms. This will make Council investment decisions difficult for both capital and operational funding. As outlined previously, Council is actively seeking partnerships with government, industry and the community to explore, test and deploy the various ITS actions outlined in the Strategy.

Figure 45 outlines the delivery lifecycle that Council will employ internally to guide activities of the ITS program and projects. It shows Council's bottom up approach to ensure that investment decisions and actions are well considered, are made on sound judgement and are transparent, justifiable and accountable.

FIGURE 45: ITS Program & Project Delivery Lifecycle

A program or project must pass through a resourcing 'gate' at the end of each phase before continuing onto the next phase.

The **Exploration** phase is to understand the key foundation elements that will govern a well-designed ITS product. It covers ideas and research into areas such as system requirements, security and management, identification of desired outcomes and potential funding sources, concept design and specification.

If the program or project proceeds to the **Development** phase, activities such as marketing sounding, the formulation of performance measures, prototype design, trials and testbeds.

If the trial proves effective, the ITS program or project will proceed to the **Adoption** phase for wider-scale deployment. This will include procurement and contracts, model design and the facilitation of operational and maintenance protocols.

Both the Exploration and Development phases are iterative and include evaluation along the way. Discoveries may feed back into the previous stages of Exploration and Development as new technology emerges and challenges of the technology are identified.

Throughout the lifecycle, Council will continually address resourcing and capability issues (human and capital), engage with industry stakeholders, work with testing partners and government agencies and track technology trends. This will ensure Council takes an agile approach to technology and change.

PROCUREMENT

Effective procurement is one of the key enablers of this Strategy to ensure Council can engage with innovative opportunities while maintaining its legislative procurement obligations.

Council has adopted the *Smart City Innovative Proposals Policy* to streamline relevant procurement and encourage the market to bring innovative proposals, products and services to Ipswich. Council will also engage with the ITS industry and undertake market sounding activities for various ITS programs and projects before prototype design takes place and formal partnerships are established

As part of its Smart Infrastructure policy agenda, the Queensland Government will soon be establishing an *Infrastructure Innovation Taskforce* whose terms of reference will include examining and making recommendation on the efficiency of procurement processes relating to innovation. For more effective procurement of ITS applications, Council supports a less prescriptive, more outcomes and performance-based process and using trials and pilot projects to test and evaluate initiatives before wider deployment.

RESOURCING

The current reality of a globally constrained fiscal environment presents a significant challenge for government investment to keep pace with growth. However, there are many benefits of transport investment and there is also a high cost (an economic, social, environmental and cultural price) of doing nothing.

The introduction of ITS applications has the potential to assist governments in addressing safety, reliability and resilience issues on their transport system in a cost-effective manner and may even lead to the delay or avoidance of funding major transport infrastructure projects in the future.

As part of the execution of iGO, Council will develop an **iGO Resourcing Plan** that will evaluate the resources (human, operational and capital resources) needed to facilitate the outcomes aspired by iGO and deliver on its recommended actions. The *iGO Resourcing Strategy* will include assessment, benchmarking and recommendations on corporate capacity including organisational structure and personnel, business processes, skills, expertise, people development, affordability, funding and financing.

The role ITS will play in filling the gap between available resources and future needs is critical in this regard. As part of the development of the iGO Resourcing Strategy, a benchmarking exercise will be undertaken that considers the merits of establishing a dedicated and expert transport technology team within Council's transport and traffic program with a focus on transport system data analysis and performance monitoring and the coordination of trials and actions outlined in the Strategy.

RISKS

While ITS applications will provide new opportunities to deliver a safer, more reliable, resilient and sustainable transport system, some of the underlying risks that accompany such digital initiatives are outlined in Table 20. Through an understanding of these risks together with robust operating frameworks and processes, some of these risks can be mitigated and minimised.

TABLE 20: Some Potential Transport Technology Risks

CATEGORY	COMMENT
User Privacy, Data Security and Legislation	As digital systems continue to advance, the user data that they collect becomes ever more personal. The connected nature of such systems also means that, much of this data is often collected, stored and processed through sensors via the internet. Such data helps to drive forward evidence-based policy and analysis while helping to influence improvements in the overall transport system. However, this collection, processing and storing of data also raises concerns around ensuring such systems are secure and user privacy is treated with upmost importance. Council will ensure privacy aspects are clearly understood and appropriate mitigation and management strategies are put in place to protect against data breaches and unauthorised access. The widespread collection of user data through connected infrastructure also brings to light the roles and responsibilities of the governing public service authority. The General Data Protection Regulation (GDPR) and the updated Australian Privacy Act of 1988 are two of the more recognised pieces of legislation that control the collection, storage, processing and reporting of data. Such digital initiatives often bring together many stakeholders across all levels of government, the private sector and from the community. With uncertainty surrounding the way in which such technologies will be regulated, it is important to ensure that public interests are protected, and appropriate safeguards are in put in place. Concurrently, Council will work together with other stakeholders to ensure such legislation is well shaped to protect the Ipswich community against such vulnerabilities. Projects will be based on sound legal frameworks and governance that sets a strong foundation to prevent the misuse of such technology within our transport system.
Reliability and Dependency of Technology	When city transport systems have critical data and infrastructure linked into single, controlling technology driven systems, they are often at risk for breaches and systems failures. It becomes ever more important to ensure that such systems account for this and have appropriate safety and operational mechanisms to provide the required reliability that is needed. This is further underpinned when such systems are inter-connected with other systems, where such inter-dependencies raise the possibility of unforeseen system failures as well as unauthorised security breaches. When considering the design, procurement and implementation of transport technology initiatives, Council will develop a framework that enhances reliability and security of such technology and carefully considers consequences of failure and appropriate redundancy in operations.
Commercial and Procurement	As Council looks to advance transport technology and digital systems on a citywide scale, we will need to work and partner with other public and private sector organisations to deliver such projects. Whilst these partnerships will be mutually beneficial, bringing together considerable collaborative benefits, Council also understands there may be potential commercial and procurement barriers and pitfalls. With the ever-changing technology and digital landscape, there are risks associated with making large capital investments on technologies that might become redundant quickly. Similarly, market led proposals and complicated commercial agreements on such projects may risk Council being locked into proprietary technology or software services, opening the door to exploitive pricing and control imbalances. Whilst Council will look at the merits of establishing an outcome and performance-based procurement framework for smart city projects, an expert, well-informed internal team will help safeguard against some of these risks. Where possible, open source alternatives can help reduce the reliance on proprietary software and services. All projects must be carefully considered on their own merit to understand the value they deliver and how they align with the overall strategic roadmap for Council.

The **iGO Risk Management Strategy** has identified risks associated with its delivery and outline a risk mitigation and monitoring strategy. This includes narrative on transport technologies integrated with other transport risks. Components of the ITS Strategy will be included in the annual review of the risk management strategy.

EVALUATION

Both the Strategy itself and its individual initiatives will be evaluated as part of the overall iGO assessment and reporting processes. The various elements of Councils evaluation, as outlined in Table 21, will be used to gain insights into how the Strategy is tracking. The evaluation will identify areas for change, improvement and provide insight on the performance and derived benefits of each initiative. This assessment will ensure that investment decisions are made using justification and are accountable.

> "However beautiful the strategy, you should occasionally look at the results"
>
> **Sir Winston Churchill**
> British Prime Minister
> (1940-1945 & 1951-1955)

TABLE 21: Evaluation Elements

ELEMENT	COMMENT
Benefits Realisation	There is no value in investment in a transport technology application if it cannot or does not deliver the benefits that were promised. Council will undertake a 'benefit realisation' process at the front and back end of every pilot project to identify the potential benefits (both tactical and technical) and then evaluate their realisation or otherwise. Through this framework Council will: • Map the intended benefits and broader success factors at the front end at both the tactical and technical levels; • Track the benefits during the pilot project including establishing performance baselines; and • Evaluate the benefits at the back end against those mapped at the front end.
Strategy Monitoring	The Strategy's implementation will be monitored as part of the overall iGO process to track progress towards achieving its vision, objectives, mode share targets, policy focus areas and actions. This will involve the production of an **iGO Annual 'Report Card'** that will provide a snapshot of the achievements of delivering iGO over the previous year and the key actions for the next year. Further narrative on Council's monitoring process will be determined as part of the development of the overarching **iGO Performance and Data Strategy**. From here, planning, funding, infrastructure and service delivery priorities will be adjusted where required in response to technology changes and the introduction of new applications as they emerge onto the market.
Strategy Review	Given the current rate of development and introduction of new transport technologies onto the market, minor reviews to the Strategy will be undertaken continuously. Incorporated in the iGO Performance and Data Strategy will be the requirement to undertake a major review of iGO every five years (the next being 2021) to assess progress and the 'value for money' achieved during the previous five-year period. Major reviews will involve an assessment of the identification of the impacts on Ipswich residents travel behaviour and trends relative to monetary investment and progress towards each policy focus, the mode share targets, objectives and vision. The outcomes of this Strategy will be incorporated into the next major review of iGO. A major review of this Strategy will be undertaken every five years. This will provide an opportunity to identify any 'lessons learned', adjust priorities for the next five-year period where required and be responsive to further planning work undertaken by the Queensland Government, new technical documents and legislative changes.
Performance Indicators	iGO's monitoring and review processes will be undertaken with the assistance of performance indicators including such measures as parking availability, public transport patronage, network usage, crash and incident analysis, household travel patterns and network connectivity. As part of the development of the **iGO Performance and Data Strategy**, the required performance indicators, evaluation measures and data types required (including its collection and analysis) will be identified and implemented.

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RDV:NVB

H:\IPA Planning Scheme Draft Amendments\2019 - Implementation Guideline No. 18 - Estate Signage\Committee Report

Growth and Infrastructure Committee	
Mtg Date: 19/02/19	OAR: YES
Authorisation: Brett Davey	

8 February 2019

M E M O R A N D U M

TO: ACTING CITY PLANNER

FROM: STRATEGIC PLANNING MANAGER

RE: PROPOSED AMENDMENT OF IMPLEMENTATION GUIDELINE NO. 18 – ESTATE AND DIRECTIONAL SIGNAGE

INTRODUCTION

This is a report by the Strategic Planning Manager dated 8 February 2019 concerning the proposed amendment of Implementation Guideline No. 18 – Estate and Directional Signage.

RELATED PARTIES

The related parties are primarily the developers of the housing estates for which temporary external directional signage has been erected (following application for the signage and approval by Council).

The following table details the applications that have been received and approved.

Table 1 - Temporary Land Sale Sign Details

Application Number	Estate Name	Applicant
5087/2009	Parklands	Kordan (Aust) Pty Ltd
3902/2010	Cunningham Rise	Custodian Rise Syndicate Ltd
2032/2011	Cunningham Rise	Custodian Rise Syndicate Ltd
4968/2009	The Springs	Springfield Land Corporation
5954/2003	Augustine Heights	Stockland Development Pty Ltd
8646/2008	The Springs	Australand Holdings Ltd
4353/2014	Brentwood Forest	THG
5090/2009	Edens Crossing Sanctuary Fernbrooke Ridge Mountview	Urban Pacific Limited

6780/2016	Edens Crossing Sanctuary Fernbrooke Ridge Mountview	Marquee Projects Pty Ltd
4603/2009	Wildflower Ridge Central Walk Tea Trees	Delfin Lend Lease
6909/2015	Woodlinks	Canberra Estates Consortium No 36 Pty Ltd
6955/2018	Torhaven Estate	Defence Housing Australia
5704/2012	Sovereign Pocket	RPS
2114/2017	Verona Estate	Marquee Projects Pty Ltd

ADVANCE IPSWICH THEME LINKAGE

Whilst the removal of the content relating to directional signage from the implementation guideline is not a specific action in Advance Ipswich, it is aligned with the increasing use of online and digital communication to deliver and promote services and information to the community (Caring for the Community – Goal 3, Strategy 2, Action 25).

PURPOSE OF REPORT/BACKGROUND

Implementation Guideline No. 18 – Estate and Directional Signage was adopted by Council on 15 August 2007, with the guideline taking effect on and from 31 August 2007. The guideline was prepared to promote a consistent approach to the management and assessment of estate signage for land releases in new estates (particularly those that were harder to find within larger developing areas) in response to an increasing number of development applications and developer enquiries for advertising and directional signage. The guideline was developed to assist with the design, placement, content and timeframes for advertising and directional signage. The guideline provides the basis for the application for and assessment of external estate signage, which is limited to temporary directional signage, as well as other aspects of estate such as on-site (internal) signage, permanent entry walls and display office and village signage.

The guideline was reviewed and updated in 2009 to provide additional signage options with amendments to the guideline adopted by Council on 28 April 2009.

Since the guideline was introduced in 2007, a total of 14 applications for external directional signage for estates have been received and determined by Council, of which only two were made in the last two years. An audit of external estate signage was undertaken in November 2018. The audit identified that of the 14 applications made, the signage relating to 11 applications/approvals has expired and may now be removed, whilst the signage relating to three applications/approvals remain current.

Advances in technology and telecommunications mean that most people are able to quickly look up information relating to land sales and obtain directions online or on mobile devices to locate and navigate to new estates quickly and efficiently. A trend of reducing signage applications/approvals over the last two years also supports the view that there is a declining need for temporary external directional signage. The removal of the need for the provision of directional land sales signage would also result in improved amenity through removing signage across the city and removing the need for ongoing maintenance of the signage.

It is therefore proposed that all content relating to the provision of directional signage (primarily section 6) of the guideline is removed (refer to Attachment A for 'track changes' copy and Attachment B for a 'clean skin' copy incorporating the changes).

It is also proposed that the existing temporary external directional signage as identified in Table 1 that has 'expired' is removed by Council, and that the other directional signage is removed as the approvals expire. It is also proposed that any further requests for extensions to any extant approvals for temporary directional signage no longer be accepted.

The remaining content of the guideline will continue to guide the assessment of applications for other estate signage.

RESOURCE IMPLICATIONS

The guideline provides the basis for the assessment and regulation of external directional signage. Removal of this content from the guideline will remove this process and the ability to apply for temporary external directional signage. This will remove the administrative requirements for the assessment and management of applications for temporary external directional signage for estates. It will also remove any ongoing maintenance requirements for temporary directional signage which becomes the property of Council upon installation.

The removal of the existing temporary directional signage will require administration resources to notify applicants (the 'related parties') and subsequent removal and disposal costs. Given the limit number of signs, it is proposed that notification is undertaken by the Engineering and Environment Branch (who have responsibility for the application process) and removal and disposal be managed by the City Maintenance Branch as part of the management and maintenance of the city's road network.

RISK MANAGEMENT IMPLICATIONS

The retention of the content relating to the provision of external directional signage may result in negative community perception that Council is unnecessarily promoting new land estates. There will also be ongoing administration and maintenance implications should the guideline not be amended.

It is noted that some developers may object to the removal of the content relating to the provision of directional signage and the subsequent removal of temporary land sales signage. Given the limited number of signs currently in place, this may be managed through

the initial removal of only those signs that have expired, timely removal of further signs as approvals expire, and by ensuring that extension requests are no longer accepted.

LEGAL/POLICY BASIS

This report and its recommendations are consistent with the following legislative provisions:
Transport Operations (Road Use Management) Act 1995
Planning Act 2016

The implementation guideline is produced pursuant to Section 2.3(2) of the Ipswich Planning Scheme and there is no legislatively prescribed process to amend the guideline.

COMMUNITY AND OTHER CONSULTATION

The proposed amend of the Implementation Guideline does not require any external consultation.

It is proposed that each of the applicants identified in Table 1 will be individually notified of the changes and that the temporary directional signage will be removed after the expiry date as part of the management and maintenance of the city's road network. It is also proposed that an eAlert be issued upon adoption of the amendments to the guideline to inform the community and development industry.

Internal consultation was undertaken with the relevant areas within Council in preparing the proposed amendments.

CONCLUSION

It is proposed that Implementation Guideline No. 18 – Estate and Directional Signage be amended as detailed in Attachment A, to remove the provisions relating to external temporary directional signage and to rename the guideline to Estate Signage, with the amendments to come into effect on and from 4 March 2019.

ATTACHMENTS

Name of Attachment	Attachment
Proposed Amendments to Implementation Guideline No. 18 - Estate and Directional Signage (track changes)	Attachment A
Proposed Implementation Guideline No. 18 - Estate Signage ('clean skin' copy)	Attachment B

RECOMMENDATION
That the Interim Administrator of Ipswich City Council resolve:

A. That the amended Implementation Guideline No. 18 - Estate Signage, as detailed in Attachment B to the report by the Strategic Planning Manager dated 8 February 2019, be adopted with an effective date of 4 March 2019.

B. That the Strategic Planning Manager be requested to attend to all relevant matters associated with amending Implementation Guideline No. 18 - Estate Signage, including:

1. amending the relevant documents and Council databases; and
2. issuing an eAlert advising that the guideline has been amended.

C. That the Engineering and Environment Manager be requested to notify each applicant as identified in Table 1 of the report by the Strategic Planning Manager dated 8 February 2019 about the amendments to Implementation Guideline No.18 – Estate Signage.

D. That the City Maintenance Manager be requested to attend to all relevant matters associated with the removal and disposal of the temporary directional signage.

Nick Vass-Bowen
STRATEGIC PLANNING MANAGER

I concur with the recommendations contained in this report.

Brett Davey
ACTING CITY PLANNER

"Together, we proudly enhance the quality of life for our community"

IMPLEMENTATION GUIDELINE NO. 18

Ipswich Planning Scheme

Estate ~~and Directional~~ Signage

Date of Council Resolution

These guidelines were originally adopted by Council on 15 August 2001 ~~28 April 2009~~ and took effect from the 31 August 2007 ~~from that date~~ in accordance with section 2.3(2) of the Planning Scheme. The guidelines were amended by Council on:

- 28 April 2009 and took effect on that date; and
- 26 February 2019 and took effect on 4 March 2019.

Purpose of the Guideline

These guidelines are intended to assist with:

(a) the design, placement, content and timeframes for advertising ~~and directional~~ signage associated with land releases in new estates; and

(b) the design, placement and content of permanent estate entry walls.; ~~and~~

~~(c) directional signage for major shopping centres.~~

~~Estate signage may involve internal (on-site) and external (off-site) signage. External signage should be limited to signage that provides directions to an estate or major shopping centre, rather than advertising.~~

Council's Implementation Guidelines are intended to apply a standard approach to the interpretation and implementation of relevant aspects of the Planning Scheme. They offer a degree of certainty and formality to applicants, Council and the community. Where an applicant is proposing a variation to the guidelines the onus is on the applicant to demonstrate the facts and circumstances to support the variation.

Guidelines

1. Internal (on-site) signage overview

(1) Internal estate signage may be used to advertise the sale of land and the location of the stage currently being sold. This may include 'branding' of the estate and the location of facilities such as a sales office or a display village.

(2) It is anticipated that internal signage would normally be provided at the entry to the estate or as part of a display office or display village.

(3) Additional temporary internal directional signage may be allowed where it is reasonably required to assist customers to find their way to access current stages from the estate entry or display facilities / sales office.

(4) All estate signage is to be designed, constructed and installed in a manner which:-

(a) enhances the overall visual amenity of the estate and its surrounds; and

(b) does not cause nuisance or disturbance or affect the safety of people accessing the estate or other nearby persons.

(5) Accordingly, estate signage should:-

(a) maintain a high quality, attractive appearance;

(b) avoid visual clutter, particularly avoiding a proliferation of signs. (Signs should be no closer than 50 metres apart, unless otherwise specifically approved);

(c) include secure fittings to avoid storm or wind damage;

(d) not constitute a pedestrian or vehicle hazard;

(e) not distract, or obstruct the view of, drivers; and

(f) be located within land parcels unless otherwise specifically approved.

(6) Council may require the removal of any estate signage which it considers has an adverse impact on amenity or public safety.

(7) Where permanent or semi permanent signs or entry walls are provided, the official suburb name is to be provided in the same font and orientation and not less than half the size of the estate name.

(8) Incorrect use of official place names also contravenes the Place Names Act.

2. Permanent Entry Walls

(1) Permanent entry walls are sometimes utilised as an identifier for an estate.

(2) These walls can create confusion through residents and visitors believing that the name on the entry wall is the formal suburb name.

(3) This can result in problems with mail delivery and more importantly, with emergency service provision owing to confusion between estate names and official place names in computerised response systems.

Figure 1

(4) Permanent entry walls are to be located wholly within lots and will generally not be accepted within public land so as not to become a maintenance burden for Council.

(5) Where a lot contains a permanent entry wall, the developer will be required, as a condition of approval, to notify a purchaser that the wall is located on the subject land.

(6) Permanent entry walls are to be designed and constructed to ensure that they do not compromise safety (i.e. clear sight lines and appropriate sight distances need to be maintained).

3. Display Office Signage

(1) Signage associated with a display office is to be provided in accordance with the building signage provisions as contained in the Advertising Devices Code (Refer to Part 12 Division 14 of the Planning Scheme).

(2) Such signage should be of a scale consistent with the display office and provide for estate branding and site information such as the site layout.

(3) Relevant signage details should be lodged at the same time as the Development Application for the display office.

(4) An example of appropriate display office signage is shown in Figure 2 below.

(5) All signage associated with the display office is to be removed upon substantial cessation of the use of the display office or as otherwise determined by Council.

Figure 2

4. Display Village Signage

(1) Signage for a display village may include estate branding opportunities and the advertising of builders/construction companies working on the site.

(2) Branding banner signs or flags may be allowed within the approved display village area provided they are erected in a manner that does not cause visual clutter and that they maintain an appropriate scale in respect to their surroundings.

(3) Banner signs will generally be limited to one banner per property.

(4) Builder's signage will generally be limited to one sign per construction site and be of a scale and design compatible with the site and the display village as a whole.

(5) Appropriate examples of display village signage are shown in Figure 3.

(6) All signage associated with the display village is to be removed upon substantial cessation of the use of the display village, or as otherwise determined by Council.

~~(7) Approval may also be obtained pursuant to Clauses 6 and 8 for temporary directional signage (refer to Figures 5, 6 and 7).~~

~~(8) Such temporary directional signage may involve the substitution of the words 'Land Sales' with 'Display Village' or such other derivative or variation as approved by Council.~~

Figure 3

5. General Branding Signage and Internal Direction Signage

(1) These signs should be small in scale (i.e. less than 2 square metres in area) and used to promote the projected image of the estate and may include developer logos and slogans.

(2) Appropriate sign types may include banners, flags and freestanding pole signs, as illustrated in Figure 4 below.

(3) Specific approval may be granted for attractive pole signs (see Figure 4) in median strips or footpath areas, where Council considers they do not:-

(a) cause visual clutter;

(b) have an adverse impact on the visual amenity of the area; and

(c) have an adverse impact on pedestrian or vehicle safety.

(4) Internal directional signs may be used to assist in way finding to the sales office, display village or current selling stages from the entry to the estate.

(5) Signs are to be removed from the estate upon substantial completion of lot sales or such other time as required by the relevant development approval, or as otherwise determined by Council.

(6) Signage for each stage is to be located wholly within the stage unless otherwise approved by Council and is to be moved to the next stage (if applicable) upon the substantial completion of the sales for that stage or such other time as required by the relevant development approval, or as otherwise determined by the Council.

(7) Signage in close proximity to occupied dwellings (e.g. within 20 metres) is generally not supported.

Figure 4

~~**6. External (off-site) signage for difficult to locate estates**~~

~~(1) External signage should:~~

~~(a) be limited to the provision of temporary directional signage in accordance with Figures 5, 6 or 7;~~

~~(b) generally be limited to one sign per estate, provided at a single location to indicate the most convenient route to the land sales site from the nearest major road (i.e. typically Council's strategic road network);~~

~~(c) generally be located within the same suburb as the land sales site (except where the site is close to a suburb boundary); and~~

~~(d) generally not be provided where a land sales site abuts a major road and the land sales area (current stage) is visible from that road.~~

~~(2) Wherever possible, estates should 'share' the same land sale directional sign, as demonstrated in Figure 7 in order to avoid the overall proliferation of signs at major intersections.~~

~~(3) The developer should provide all relevant signage details, inclusive of the location and specifications at the time of making the application for the sign.~~

~~(4) Unless otherwise determined by Council, the temporary directional signage should :-~~

~~(a) provide a minimum 2.4m head clearance from the lowest point of the sign; and~~

~~(b) be set back a minimum of 2.0m and maximum of 5.0m from the nearest traffic lane.~~

~~(5) The developer shall be responsible for the installation and removal of the signage with the signage to be removed once estate land sales are substantially complete, or as otherwise determined by Council.~~

~~(6) The developer shall lodge a bond with Council to adequately cater for the removal of the signage.~~

~~(7) Council has complete discretion as to whether or not it will permit the erection of these signs and their design, size and location, particularly in order to:-~~

~~(a) avoid the proliferation of such signs along key routes and at key intersections; and~~

~~(b) maintain public safety for road users and nearby residents.~~

~~(8) Where the sign indicates an estate name, it is also to include the official place name (i.e. suburb name) under the Place Names Act (see Figures 5, 6 and 7).~~

~~(9) Once the sign is erected, it becomes the property of Council and remains so thereafter.~~

(10) Unless otherwise determined by Council , the signage shall conform with the standard sizing identified in Figures 5, 6 and 7.

(11) **The use of external advertising signage (e.g. billboards) erected for the purposes of advertising the estate is generally not supported.**

7. Directional Signs - Major Shopping Centres

(1) Directional signs to major shopping centres (i.e. greater than 10,000m^2) are permitted, subject to approval.

(2) Such signage is generally limited to shopping centres which are remote from the major road network and are difficult to locate without a sign.

(3) Unless otherwise determined by Council , the signage shall conform with the standard sizing identified in Figures 5 and 6.

86. Approvals Required

(1) Please contact Council's Development Counter on 3810 6888 or visit Ipswich City Council's website: www.ipswich.qld.gov.au and click on 'PD Online' to ascertain what approvals are required for estate signage.

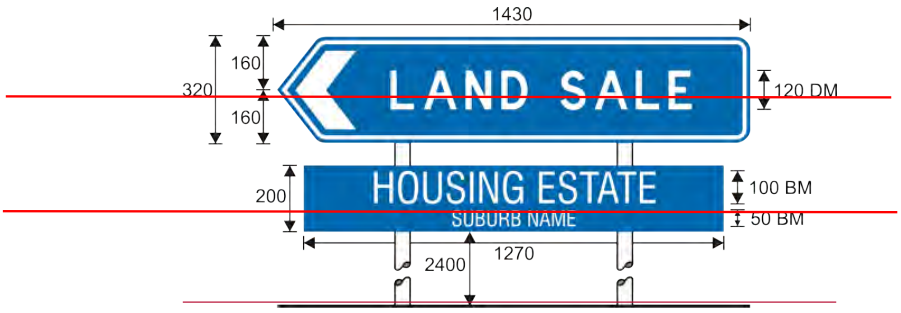
(2) In most cases approval will be required under the planning scheme and depending on the type and size of the sign, a building works approval may also be required.

(3) Approval will also be required from the Engineering and Environment Manager (Development Branch) regarding the installation of directional signage within road reserves.

(4) The application will be assessed on its merit taking into account existing adequate provision of directional signage within the immediate area.

(5) In conjunction with approval for external estate directional signage the applicant is required to include clear and accurate road names in its marketing and advertising package to complement this signage policy.

Figure 5 – Type A Land Sales and Estate Name Sign involving a Single Estate



Land Sale Sign:

(1) Sign to be Class 1 WA White Reflective Legend, Arrow and Border on Class 1 Blue Reflective Background.

(2) Legend: AS1744 Series D, Medium Spacing, 120 font size.

Estate Name Sign:

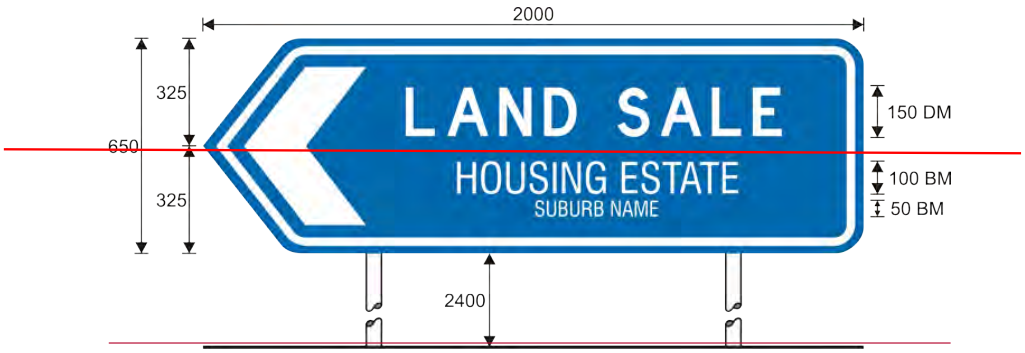
(3) Sign to be Class 1 WA White Reflective Legend on Class 1 Blue Reflective Background.

(4) Legend: AS1743.2 Series B, Medium Spacing, 100 font size.

(5) Legend:AS1743.2 Series B, Medium Spacing, 50 font size.

Note: Generally a single estate solution suitable for Collector and Trunk Collector Roads.

Figure 6 –Type B Land Sales and Estate Name Sign involving a Single Estate



Land Sale Sign:

(1) Sign to be Class 1 WA White Reflective Legend, Arrow and Border on Class 1 Blue Reflective Background.

(2) Legend: AS1744 Series D, Medium Spacing, 150 font size.

Estate Name Sign:

(3) Sign to be Class 1 WA White Reflective Legend on Class 1 Blue Reflective Background.

(4) Legend: AS1743.2 Series B, Medium Spacing, 100 font size.

(5) Legend:AS1743.2 Series B, Medium Spacing, 50 font size.

Note: Generally a single estate solution suitable for Trunk Collector and Sub Arterial Roads.

Figure 7 –Land Sales and Estate Name Sign involving Multiple Estates

Land Sale:

(1) Sign to be Class 1 WA White Reflective Legend, Arrow and Border on Class 1 Blue Reflective Background.

(2) Legend: AS1744 Series D, Medium Spacing, 150-180 font size.

Estate Name:

(3) Sign to be Class 1 WA White Reflective Legend on Class 1 Blue Reflective Background.

(4) Legend: AS1743.2 Series B, Medium Spacing, 100-120 font size.

(5) Legend:AS1743.2 Series B, Medium Spacing, 50-80 font size.

Notes:

~~(1) Generally a multiple estate solution suitable for Sub Arterial and Arterial Roads.~~
~~(2) These signs may be progressively replaced to add additional estate names as approved by Council.~~

IMPLEMENTATION GUIDELINE NO. 18

Ipswich Planning Scheme

Estate Signage

Date of Council Resolution

These guidelines were originally adopted by Council on 15 August 2001 and took effect from the 31 August 2007 in accordance with section 2.3(2) of the Planning Scheme. The guidelines were amended by Council on:

- 28 April 2009 and took effect on that date; and
- 26 February 2019 and took effect on 4 March 2019.

Purpose of the Guideline

These guidelines are intended to assist with:

(a) the design, placement, content and timeframes for advertising signage associated with land releases in new estates; and

(b) the design, placement and content of permanent estate entry walls.

Council's Implementation Guidelines are intended to apply a standard approach to the interpretation and implementation of relevant aspects of the Planning Scheme. They offer a degree of certainty and formality to applicants, Council and the community. Where an applicant is proposing a variation to the guidelines the onus is on the applicant to demonstrate the facts and circumstances to support the variation.

Guidelines

1. Internal (on-site) signage overview

(1) Internal estate signage may be used to advertise the sale of land and the location of the stage currently being sold. This may include 'branding' of the estate and the location of facilities such as a sales office or a display village.

(2) It is anticipated that internal signage would normally be provided at the entry to the estate or as part of a display office or display village.

(3) Additional temporary internal directional signage may be allowed where it is reasonably required to assist customers to find their way to access current stages from the estate entry or display facilities / sales office.

(4) All estate signage is to be designed, constructed and installed in a manner which:-

(a) enhances the overall visual amenity of the estate and its surrounds; and

(b) does not cause nuisance or disturbance or affect the safety of people accessing the estate or other nearby persons.

(5) Accordingly, estate signage should:-

(a) maintain a high quality, attractive appearance;

(b) avoid visual clutter, particularly avoiding a proliferation of signs. (Signs should be no closer than 50 metres apart, unless otherwise specifically approved);

(c) include secure fittings to avoid storm or wind damage;

(d) not constitute a pedestrian or vehicle hazard;

(e) not distract, or obstruct the view of, drivers; and

(f) be located within land parcels unless otherwise specifically approved.

(6) Council may require the removal of any estate signage which it considers has an adverse impact on amenity or public safety.

(7) Where permanent or semi permanent signs or entry walls are provided, the official suburb name is to be provided in the same font and orientation and not less than half the size of the estate name.

(8) Incorrect use of official place names also contravenes the Place Names Act.

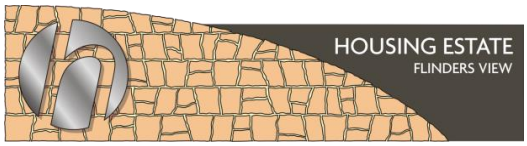
2. Permanent Entry Walls

(1) Permanent entry walls are sometimes utilised as an identifier for an estate.

(2) These walls can create confusion through residents and visitors believing that the name on the entry wall is the formal suburb name.

(3) This can result in problems with mail delivery and more importantly, with emergency service provision owing to confusion between estate names and official place names in computerised response systems.

Figure 1



(4) Permanent entry walls are to be located wholly within lots and will generally not be accepted within public land so as not to become a maintenance burden for Council.

(5) Where a lot contains a permanent entry wall, the developer will be required, as a condition of approval, to notify a purchaser that the wall is located on the subject land.

(6) Permanent entry walls are to be designed and constructed to ensure that they do not compromise safety (i.e. clear sight lines and appropriate sight distances need to be maintained).

3. Display Office Signage

(1) Signage associated with a display office is to be provided in accordance with the building signage provisions as contained in the Advertising Devices Code (Refer to Part 12 Division 14 of the Planning Scheme).

(2) Such signage should be of a scale consistent with the display office and provide for estate branding and site information such as the site layout.

(3) Relevant signage details should be lodged at the same time as the Development Application for the display office.

(4) An example of appropriate display office signage is shown in Figure 2 below.

(5) All signage associated with the display office is to be removed upon substantial cessation of the use of the display office or as otherwise determined by Council.

Figure 2

4. Display Village Signage

(1) Signage for a display village may include estate branding opportunities and the advertising of builders/construction companies working on the site.

(2) Branding banner signs or flags may be allowed within the approved display village area provided they are erected in a manner that does not cause visual clutter and that they maintain an appropriate scale in respect to their surroundings.

(3) Banner signs will generally be limited to one banner per property.

(4) Builder's signage will generally be limited to one sign per construction site and be of a scale and design compatible with the site and the display village as a whole.

(5) Appropriate examples of display village signage are shown in Figure 3.

(6) All signage associated with the display village is to be removed upon substantial cessation of the use of the display village, or as otherwise determined by Council.

Figure 3

5. General Branding Signage and Internal Direction Signage

(1) These signs should be small in scale (i.e. less than 2 square metres in area) and used to promote the projected image of the estate and may include developer logos and slogans.

(2) Appropriate sign types may include banners, flags and freestanding pole signs, as illustrated in Figure 4 below.

(3) Specific approval may be granted for attractive pole signs (see Figure 4) in median strips or footpath areas, where Council considers they do not:-

(a) cause visual clutter;

(b) have an adverse impact on the visual amenity of the area; and

(c) have an adverse impact on pedestrian or vehicle safety.

(4) Internal directional signs may be used to assist in way finding to the sales office, display village or current selling stages from the entry to the estate.

(5) Signs are to be removed from the estate upon substantial completion of lot sales or such other time as required by the relevant development approval, or as otherwise determined by Council.

(6) Signage for each stage is to be located wholly within the stage unless otherwise approved by Council and is to be moved to the next stage (if applicable) upon the substantial completion of the sales for that stage or such other time as required by the relevant development approval, or as otherwise determined by the Council.

(7) Signage in close proximity to occupied dwellings (e.g. within 20 metres) is generally not supported.

Figure 4

6. Approvals Required

(1) Please contact Council's Development Counter on 3810 6888 or visit Ipswich City Council's website: www.ipswich.qld.gov.au and click on 'PD Online' to ascertain what approvals are required for estate signage.

(2) In most cases approval will be required under the planning scheme and depending on the type and size of the sign, a building works approval may also be required.

Growth and Infrastructure Committee
Mtg Date: 19.02.19
Authorisation: Bryce Hines

sas: sas
H:\Departmental\Commitee Reports\1902sas wpr quarterly report.docx

4 February 2019

M E M O R A N D U M

TO: CHIEF OPERATING OFFICER (WORKS PARKS AND RECREATION)

FROM: BUSINESS SYSTEMS AND SUPPORT COORDINATOR

RE: WORKS PARKS AND RECREATION QUARTERLY ACTIVITY REPORT - OCTOBER TO DECEMBER 2018

INTRODUCTION

This is a report by the Business Systems and Support Coordinator dated 4 February 2019 concerning the Works Parks and Recreation quarterly activity report for October to December 2018.

RELATED PARTIES

There are no related party matters associated with this report.

ADVANCE IPSWICH THEME LINKAGE

Caring for the community
Caring for the environment
Managing growth and delivering key infrastructure
Listening leading and financial management

PURPOSE OF REPORT/BACKGROUND

Works Parks and Recreation (WPR) is the lead agency in the Ipswich community providing management, maintenance and operational services and activities relating to roads, streetlights, drainage, parks, reserves, sporting areas, aquatic facilities, urban forest, conservation, corporate buildings, depots and former landfills, waste management services solutions, strategically planning the open space network, activating and delivery of sport and

recreation opportunities within the City, proactive planning, management and response to natural disasters.

The quarterly activity report for October to December 2018 is shown in Attachment A.

RESOURCE IMPLICATIONS

There are no resourcing or budget implications.

RISK MANAGEMENT IMPLICATIONS

There are no risk management implications associated with this report.

LEGAL/POLICY BASIS
This report and its recommendations are consistent with the following legislative provisions:
Local Government Act 2009

COMMUNITY AND OTHER CONSULTATION

The contents of this report did not require any community consultation.

CONCLUSION

The Works Parks and Recreation Department are responsible for the management, maintenance and operational services and activities relating to roads, streetlights, drainage, parks, reserves, sporting areas, aquatic facilities, urban forest, conservation, corporate buildings, depots and former landfills, waste management services solutions, strategically planning the open space network, activating and delivery of sport and recreation opportunities within the City, proactive planning, management and response to natural disasters.

This quarterly activity report provides a snapshot of the activities undertaken.

ATTACHMENT/S

Name of Attachment	Attachment
Works Parks and Recreation quarterly activity report – October to December 2018	 Attachment A

RECOMMENDATION

That the report be received and the contents noted.

Sharon Smith
BUSINESS SYSTEMS AND SUPPORT COORDINATOR

I concur with the recommendation/s contained in this report.

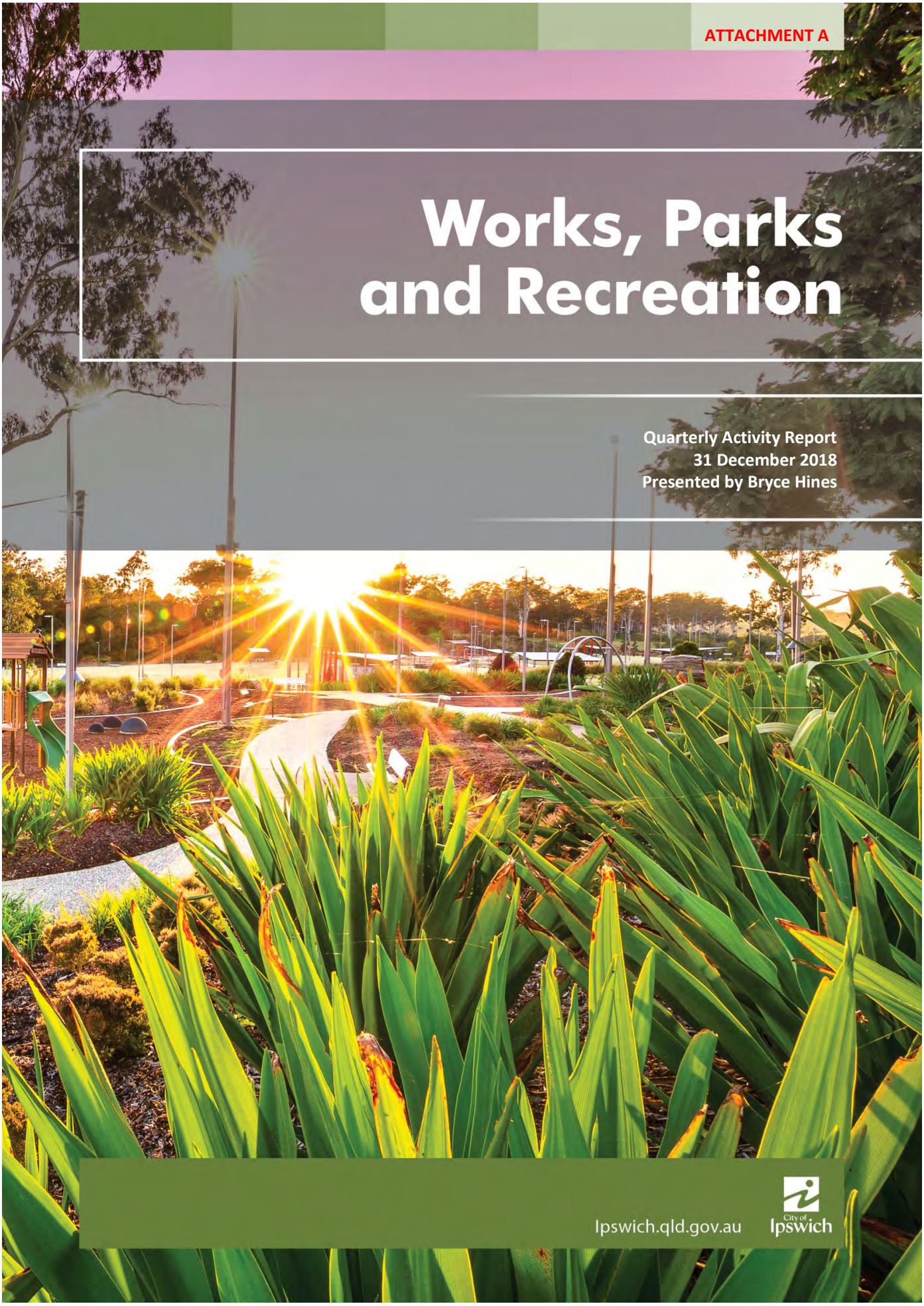
Bryce Hines
CHIEF OPERATING OFFICER (WORKS, PARKS AND RECREATION)

"Together, we proudly enhance the quality of life for our community"

ATTACHMENT A

Works, Parks and Recreation

Quarterly Activity Report
31 December 2018
Presented by Bryce Hines



Ipswich.qld.gov.au

City of Ipswich

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Introduction

Council's Department of Works Parks and Recreation (WPR) is the lead agency in the Ipswich community providing management, maintenance and operational services and activities relating to roads, streetlights, drainage, parks, reserves, sporting areas, aquatic facilities, urban forest, conservation, corporate buildings, depots and former landfills, waste management services solutions, strategically planning the open space network, activating and delivering sport and recreation opportunities within the City, proactive planning, management and response to natural disasters.

This activity report for October-December 2018 provides a snap shot of activities undertaken by the Department during the quarter.

Community Delivery Status

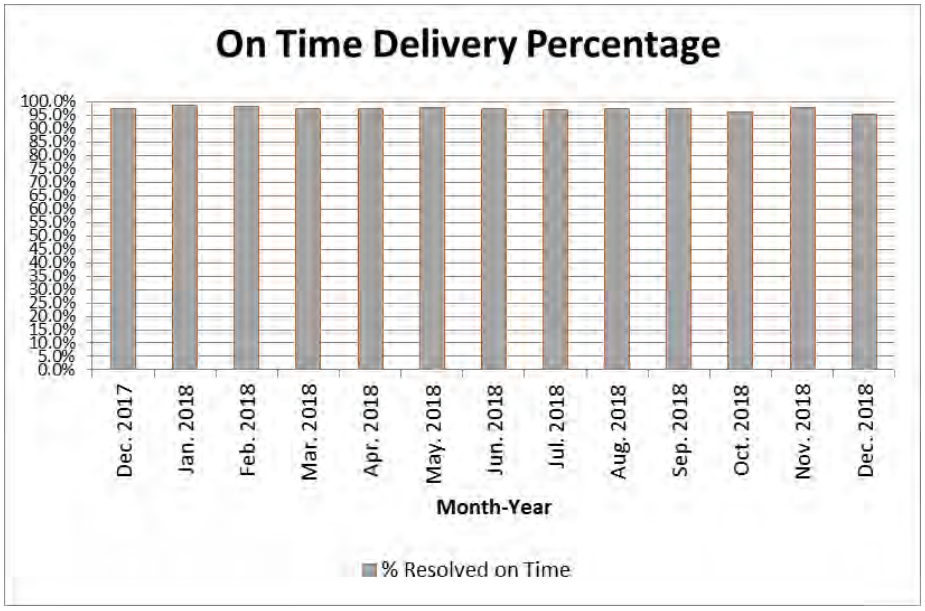
Customer Service Requests

The WPR Department receives service requests from the community in relation to a diverse range of matters including but not limited to potholes, waste management services, maintenance of parks, illegal dumping and management of trees. WPR monitors the volumes and types of service requests to identify trends and allocate resources accordingly to provide a high level of customer service to the community.

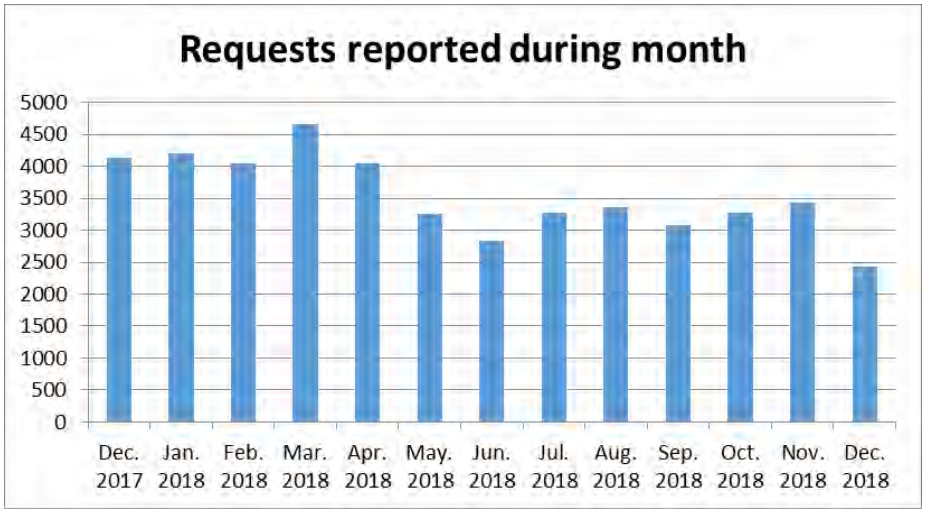
WPR Customer Service Activity - Ongoing

The below graphs illustrate the monitoring of customer service requests that are processed, investigated and resolved by WPR staff. The Department continues to monitor the 85% target to resolve requests in accordance with the adopted service levels. The graphs illustrate the following:

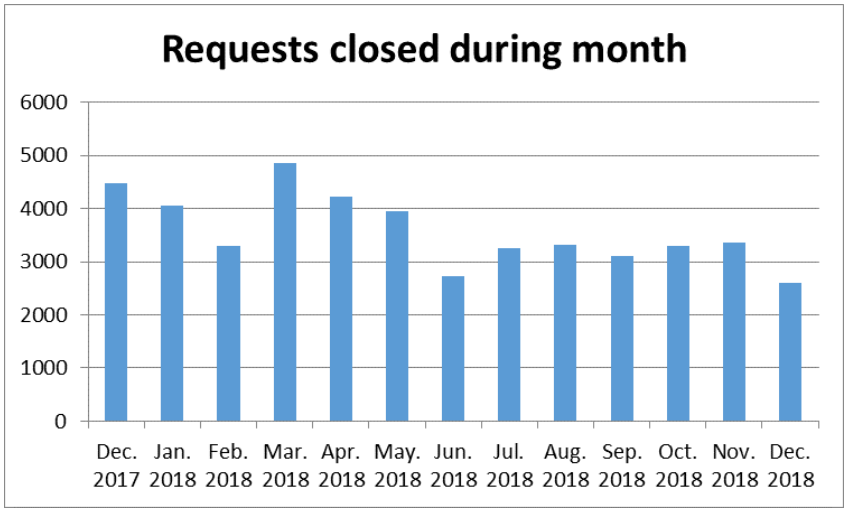
- Total requests completed within the adopted service delivery (OTD)
- Total requests reported
- Total requests closed



%	97.3	98.5	98.4	97.6	97.6	97.8	97.4	97.1	97.4	97.7	96.3	97.7	95.5
Month	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	June 18	July 18	Aug 18	Sept 18	Oct 18	Nov 18	Dec 18



No. Reported	4131	4199	4052	4668	4046	3252	2838	3272	3365	3083	3271	3427	2434
Month	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	June 18	July 18	Aug 18	Sept 18	Oct 18	Nov 18	Dec 18



No. closed	4467	4057	3295	4860	4215	3939	2730	3263	3310	3100	3297	3369	2597
Month	Dec 17	Jan 18	Feb 18	Mar 18	Apr 18	May 18	June 18	July 18	Aug 18	Sept 18	Oct 18	Nov 18	Dec 18

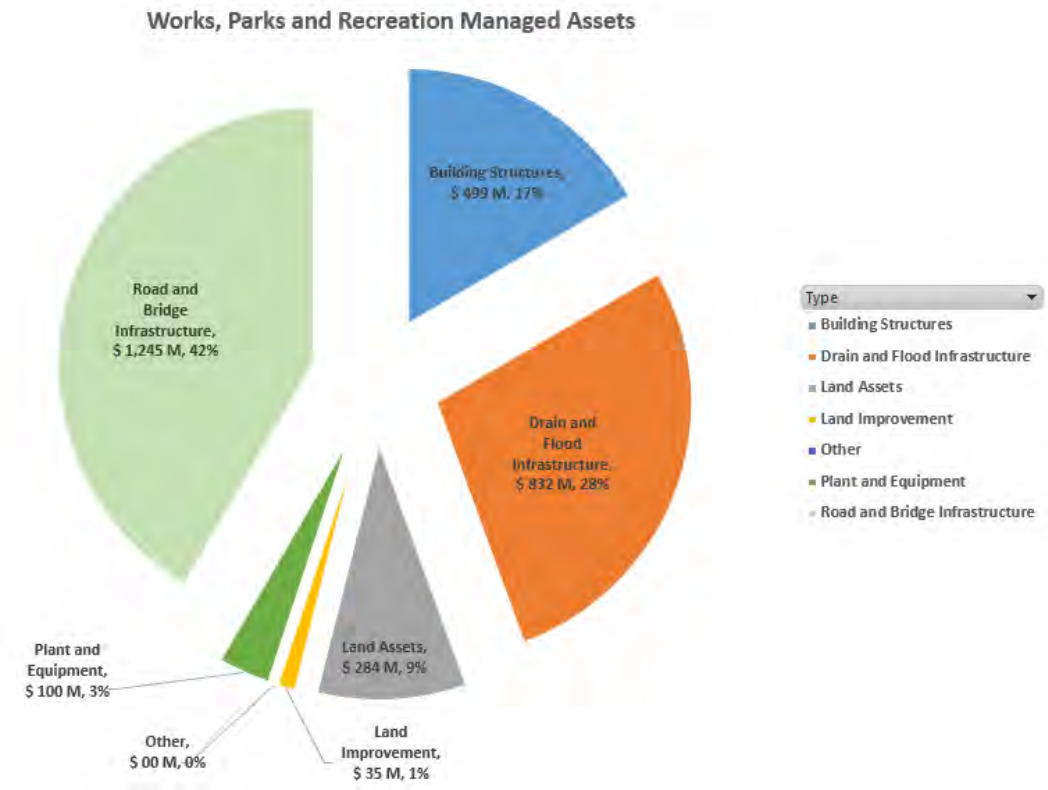
Top 10 Chart: Customer Service Requests and Volumes between October – December 2018

The following table highlights the top 10 customer service requests received by WPR in this quarter.

Rank	Request Code	Total
1	Domestic - Commence Bin Service (Waste Management)	1582
2	Domestic - Repair/Replace Bin (Waste Management)	1268
3	Domestic - Extra Bin Service/Missed Bin Complaint (Waste Management)	744
4	Skip - New (Waste Management)	695
5	Footpath Tree Removal (Roads/Footpaths)	330
6	Footpath Tree Trimming/Maintenance (Roads/Footpaths)	248
7	Park/Reserve Maintenance (Parks and Reserves)	207
8	Standard NHVR Access Consent Request (Road Permits)	182
9	Non Urgent Footpath Maintenance (Roads/Footpaths)	157
10	Non Urgent Drainage Maintenance (Drainage)	151

Assets

Currently Works Parks and Recreation manages $2.994 billion worth of assets, up from $2.970 billion in September 2018, on behalf of the community.



During the October-December 2018 quarter the following new assets were added:

- 15.9 hectares of land
- 3 new buildings (including amenity blocks and sheds)
- 6.28 km sealed roads
- 11.07 km of stormwater drains
- 522 stormwater structures
- 9.77 km of footpath
- 5 parks and reserves

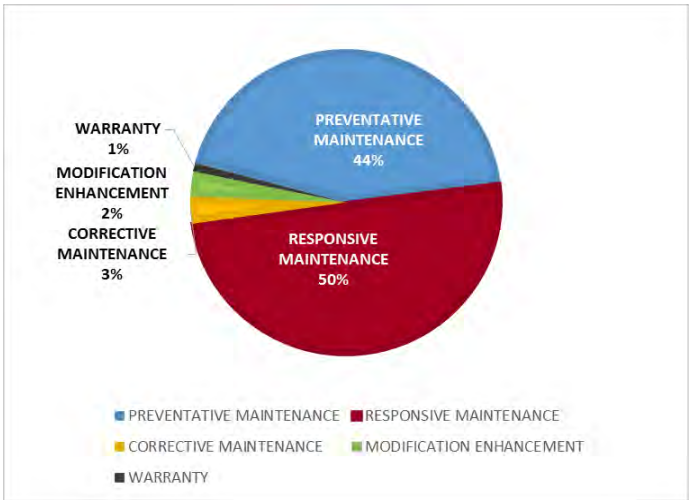
Fleet

Fleet service, maintain and repair the Council fleet which includes trucks, cars, waste trucks, major and minor plant.

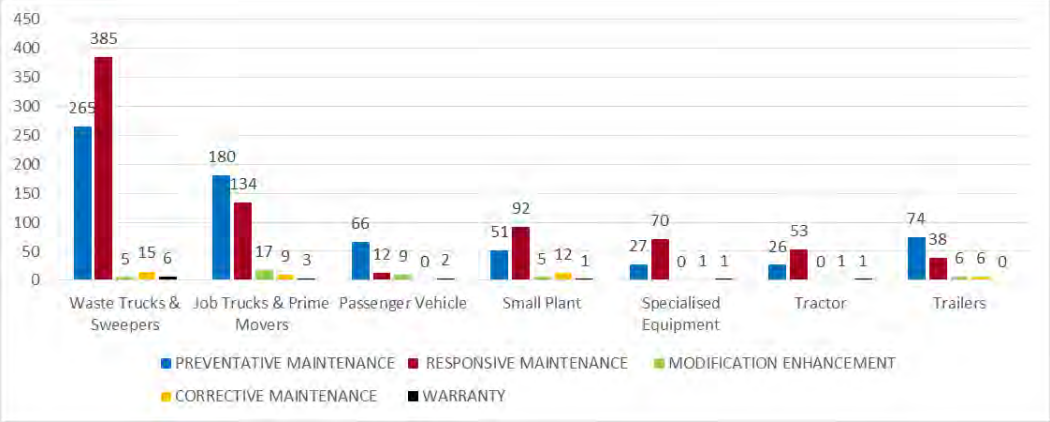
Current Assets @ 31 December 2018

ASSET TYPE	Passenger Vehicles 	Job Trucks & Prime Movers 	Trailers 	Waste Trucks & Sweepers 	Specialised Equipment 	Tractors 	Small Plant 
ICC	186	92	87	42	32	28	523
SES	9	2	22	0	0	0	105

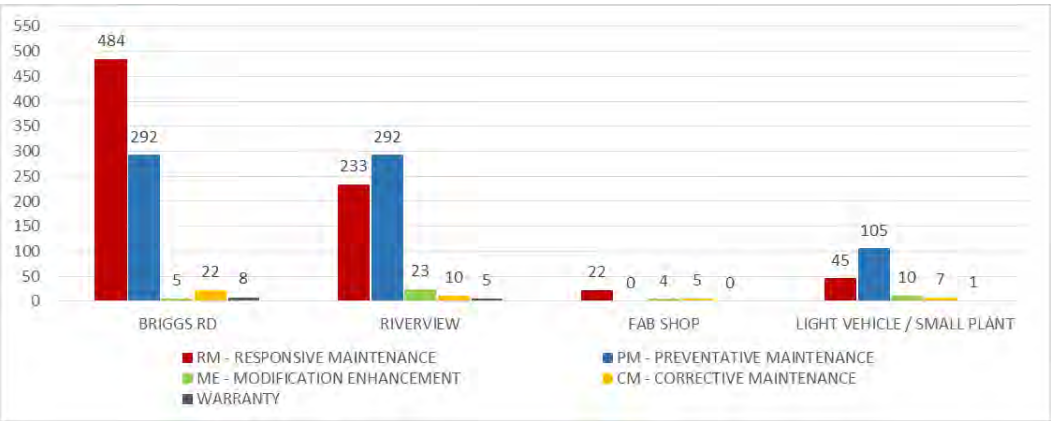
Distribution of Types of Mechanical Maintenance completed October-December 2018



Distribution of work across asset type October-December 2018



Distribution of work across Riverview and Briggs Road Workshops October-December 2018



Reported damage to fleet assets October-December 2018

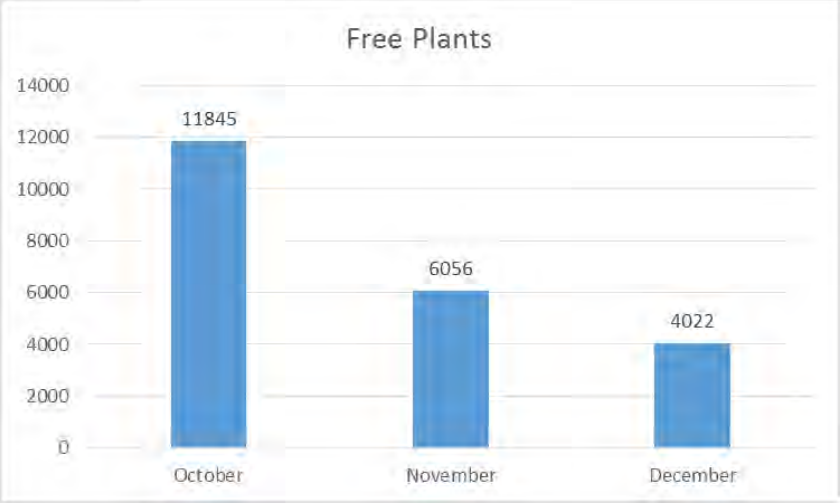
Nursery

Ipswich City Council provides a Free Plant Program each financial year to assist residents to develop a greener, healthier lifestyle.

Over 500,000 trees have been distributed to the local community in the last five years, with this figure continually rising.

Plants are propagated and grown in Ipswich City Council's production nursery. Plant species are chosen and propagated to suit local climate and soil conditions.

Free Plants – this quarter



These figures include the free plants provided at the mobile nurseries held during the quarter.

Mobile Nursery

The following mobile nurseries were held during the quarter.

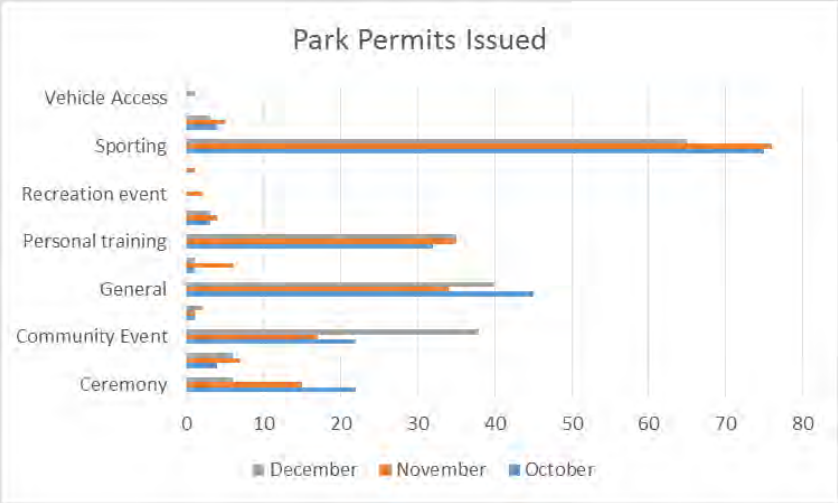
Month	Division	Location	Total Plants Allocated
Oct	4	Jack Barclay Park	558
	2	Oaktree Retirement Village	261
	6	Brassall Shopping Centre	601
	10	Yamanto Shopping Centre	260
		Total October	1680

Open Space

The Works Parks and Recreation Department manages and maintains over 350 parks throughout the City.

This report provides an overview of the activities undertaken by the community and Council in the open space network.

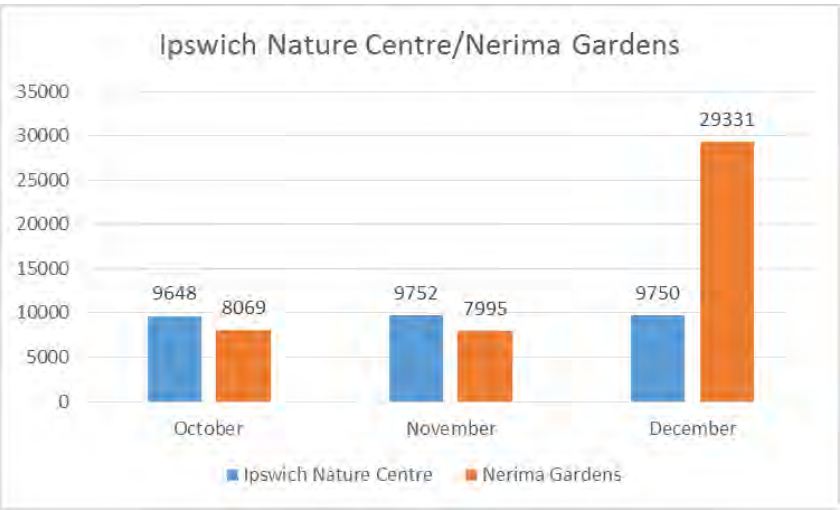
Park Permits Issued



Park Inspections

The graph below provides the total number of park inspections completed in accordance with the adopted program during the quarter.

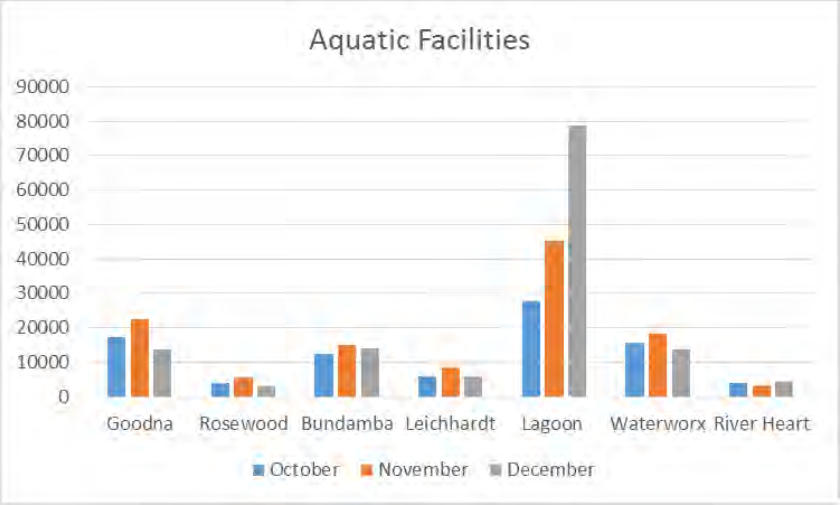
Attendance at Strategic Parks



The increase in visitor numbers during December in Nerima Gardens can be attributed to Council's Christmas Wonderland that was held during the month.

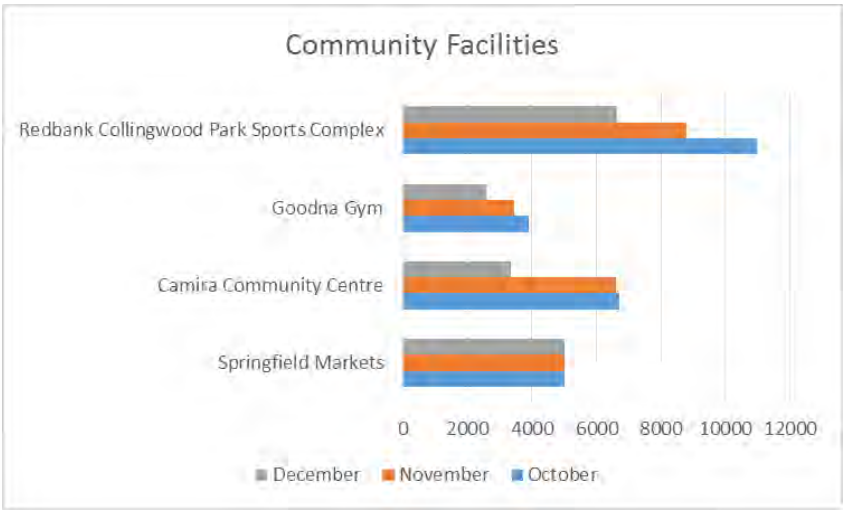
Aquatic Facilities Attendance

The total attendance for the quarter for the City's aquatic facilities are shown in the graph below. Orion Lagoon and River Heart Parkland Stage 2 are estimated based on headcounts taken by the lifeguards (approx. every 2 hours). The attendance is now tracking upwards for the summer season. Goodna Aquatic Centre is still showing strong attendance with well-established programs around learn to swim and aqua with a record attendance being attained in November.



Aquatic Facility	October	November	December
Goodna	17,357	22,574	13,725
Rosewood	3,839	5,418	2,975
Bundamba	12,388	14,981	13,961
Leichhardt	5,981	8,347	5,725
Lagoon (estimated)	27,496	45,368	78,753
Waterworx	15,494	18,328	13,608
River Heart Parkland Stage 2	3,813	3,264	4,079

Community Facilities – Attendance



The indoor facilities have strong programs and activities with the markets numbers showing they are very well supported by the community.

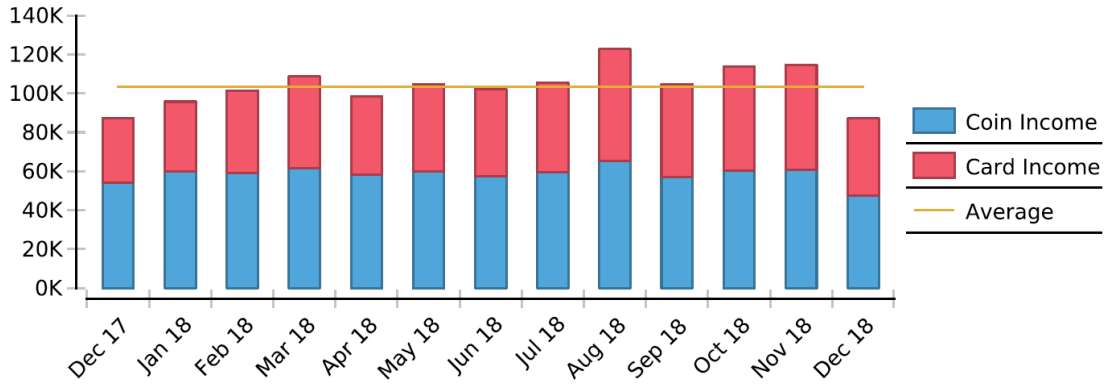
Parking Meter Operations

Income Statistics: October – December 2018

Income from parking meters from October – December 2018 was $315,551.60 with 53% of revenue from coins and 47% from credit cards.

Type	Income
Coin	$168,229.80
Card	$147,321.80
Total	**$315,551.60**

Annual Split of Income by Payment Type



Average income per month (12 month average)

The average monthly income from parking meters is $104,950.96 with 56% of revenue from coins and 44% from credit cards.

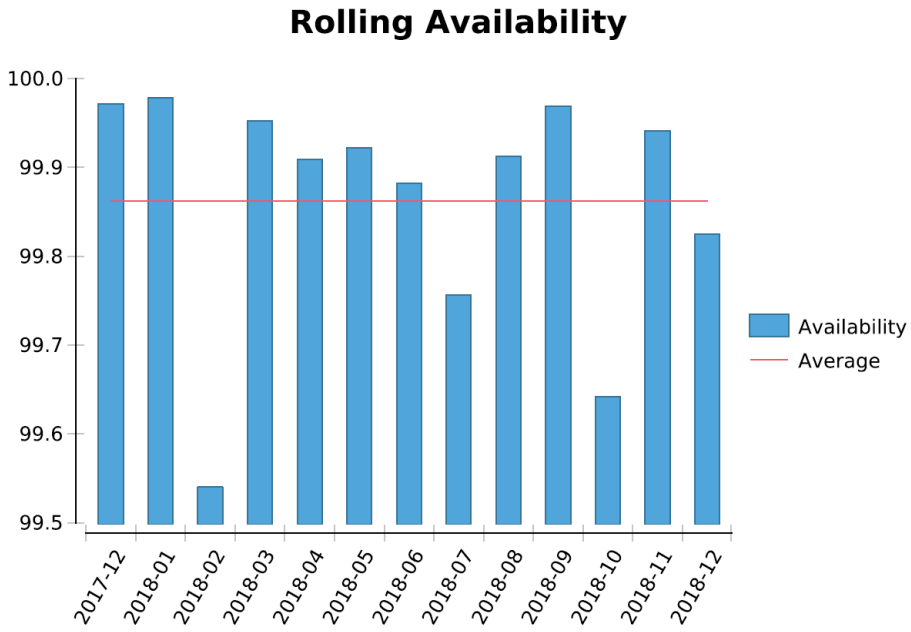
Type	Income
Coin	$58,803.39
Card	$46,147.57
Total	$104,950.96

Average transaction value (12 month average)

The average transaction value for parking meters is $2.41. The average for coins is $1.97 and credit cards $3.27.

Fault Reporting

Between October and December 2018, there were 150 parking meter faults reported by customers, averaging 1.64 calls per operational day. The spike in calls identified in November 2018 can be attributed to a communication outage on 2 November 2018.

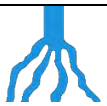


Meter Reliability

The parking meter reliability is high, with an average availability above 99.825%.

Partnerships, Sport and Recreation, Strategy and Natural Resources

Community Contact Touch Points represent the number of persons interacted with or present at events including: • Active Parks • Active Breaks • Active and Healthy Ipswich • Woman on Wheels • Healthy Active School Travel • Heart Foundation Walking • Nature-based recreation trail users • Guided Moon Rise Walks • Outdoor Nature-Based Recreation Event participation • Conservation Visitor Management (School Based) • Environmental Education Programs • Community Tree Planting Day • Habitat Gardens Partnership Program • Enviroplan Photo Competition • SES and Emergency Management presentations	 **30,695**
No. of **physical activities, events and workshops** provided to the community • Guided Nature Events • Healthy Active School Travel program Events • Physical Activity Events • Outdoor Nature-Based Recreation Events • Sport & Recreation Events	 **188**
Number of **volunteer hours** • Queens Park Environmental Education Centre Hours • Ipswich Nature Centre • Parks and Gardens • Beautiful Ipswich • SES Summer Storm and Flood Safety Poster Competition • Rosewood Street Festival • Jacaranda Festival • Emergency Management Library Program	 **8,254**
Bursaries, Awards and Grants provided to support local sporting athletes and local sport and recreation organisations • No. of Bursaries provided to support local athletes	 **37**

Number of **Sport Club Development Plans** and **Council and community sporting club Grant Applications** completed, submitted and /or supported • Club Development Plans • Grant Applications	 **10**
Additional area protected for conservation (excluding koala habitat - measured separately) - including VCA • Voluntary Conservation Agreements (2 larger landholder sign ups)	 **66 ha**
Number of hectares of waterway corridor under active restoration • Riparian Corridor Restoration Projects	 **4.85 ha**
Pest animal management achievement points on public land • Dog and Pig Control Purga, Flinders and Grandchester	 **46**
Number of **Investment Planning and Delivery team capital works projects** completed during the quarter	 **4**

Amount of investment received in **sport and recreation infrastructure** that has been instigated by clubs • Ipswich BMX Staging Area Roof • Raceview Soccer - Bench Seating at Jim Donald Parklands • Ipswich & West Moreton Cricket Association – shed power and lights • Centrals Cricket – upgrade cricket nets	 **$111,673**
• Grant Funding received to deliver bike education courses to Ipswich Primary School teachers to enable bike education at schools • Completion of detailed review of the Strategic Framework Part 3 which will feed into the new Planning Scheme.	 **2**
Awards of note throughout last quarter for works undertaken and delivered by Council • Stormwater Qld Awards – Winner - Research & Innovation - Flash Flood Forecasting: The Dream has now become a reality.	 **1**

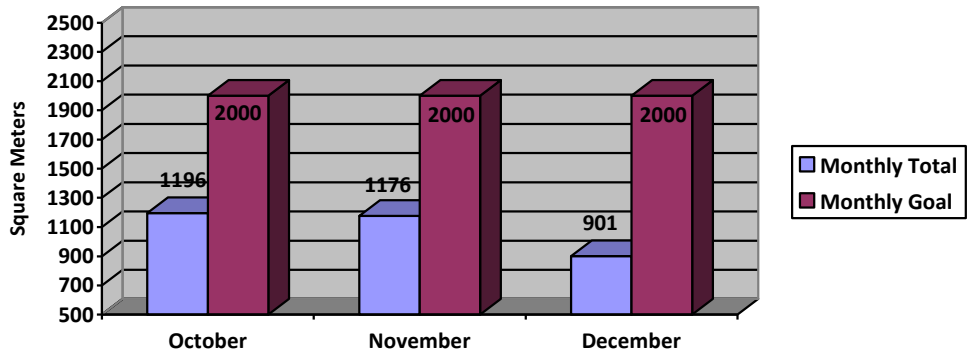
Road Infrastructure

The Works Parks and Recreation Department manages and maintains sealed roads, gravel roads, stormwater drains and structures.

The report provides an overview of the activities undertaken by Works Parks and Recreation for the quarter in regards to managing and maintaining the road infrastructure assets.

Line Marking

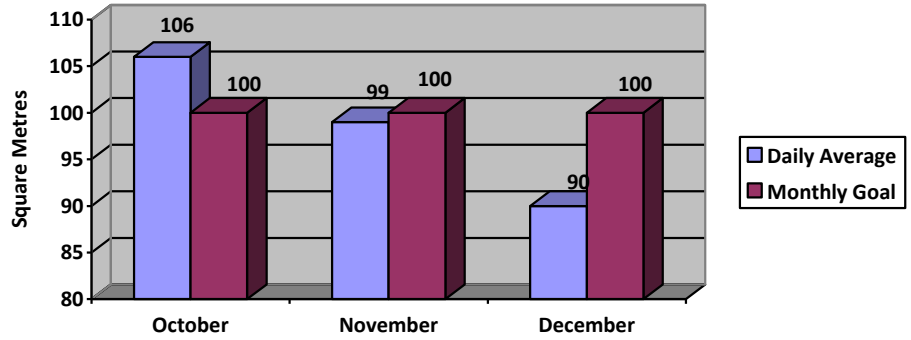
The line marking team have set a team goal to achieve 2,000m^2 of painted area/month. The results for the current quarter are shown below.



The monthly goal for line marking of 2000m^2 was not met during this quarter. The crew did not meet this goal in October marking 1196m^2, this was due to a combination of sick leave and wet weather. The crew did not meet this goal in November marking 1176m^2 this was due to a combination of crew members being on annual leave and sick leave. The crew did not meet this in goal in December marking 901m^{2,} this can be attributed to crew members being on annual leave and the Christmas holiday period.

Bitumen

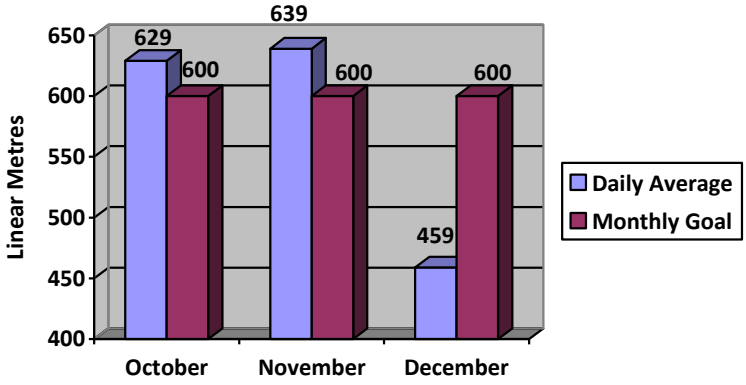
The teams within the bitumen area have set a team goal to complete 100m^2 pavement repairs/day. The results for the current quarter are shown below.



The average daily set goal of 100m^2 of pavement repairs per day has been met within this quarter in October with 106m^2. This goal was not met in November or December with the crew achieving 99m^2 and 90m^2, this was due to a combination of machine breakdowns and the Christmas Holiday period.

Gravel Roads

The Gravel Roads teams have a set goal to complete an average of 600 linear metres of gravel road repairs per day. The results for the quarter are shown below.

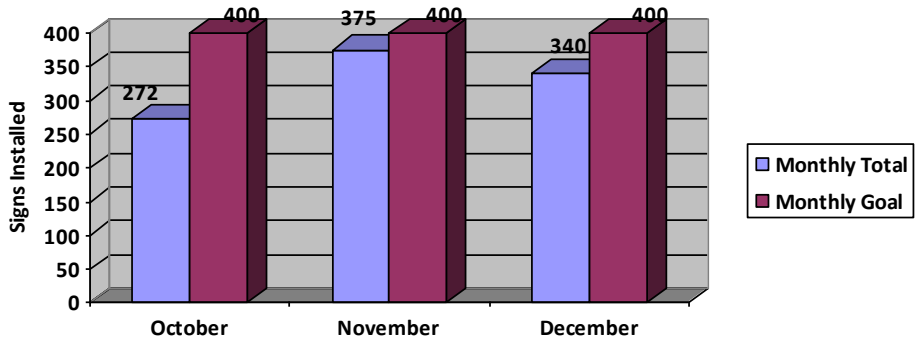


The average set daily goal of 600 linear metres of gravel road repairs has been met within this quarter in October with 629 metres per day and November with 639 metres. This goal was not met

in December with 459 metres achieved, this was due to a combination of annual leave and the Christmas holiday period.

Signs

The Signs team have a target to complete the installation of 400 signs/month. The results for the current quarter are shown below.

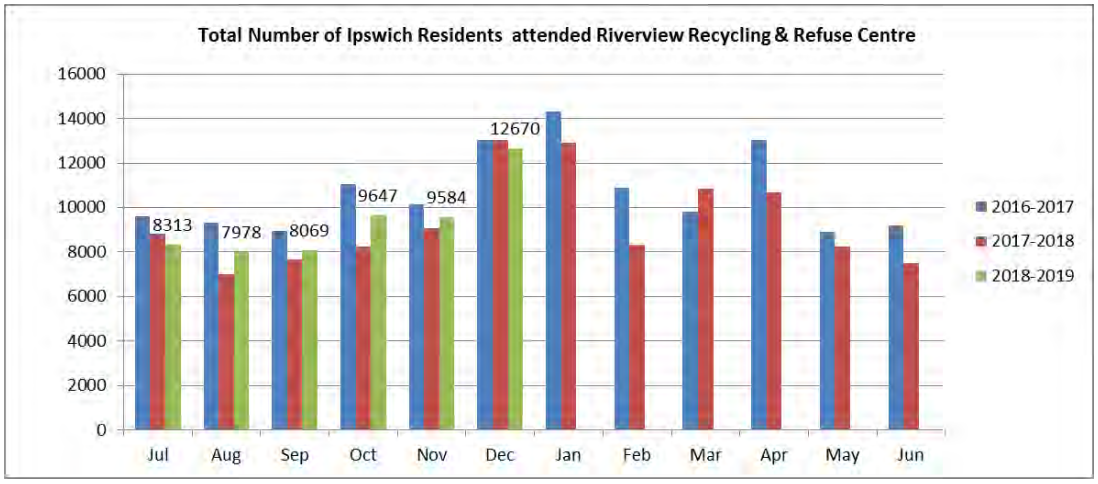


The monthly goal was not achieved within this quarter. The crew did not achieve their goal in October installing 272 signs due to staff being on annual leave. The crew did not achieve their goal in November installing 375 signs due to extra travel time between jobs. The crew did not achieve their goal in December installing 340 signs due to the Christmas holiday period.

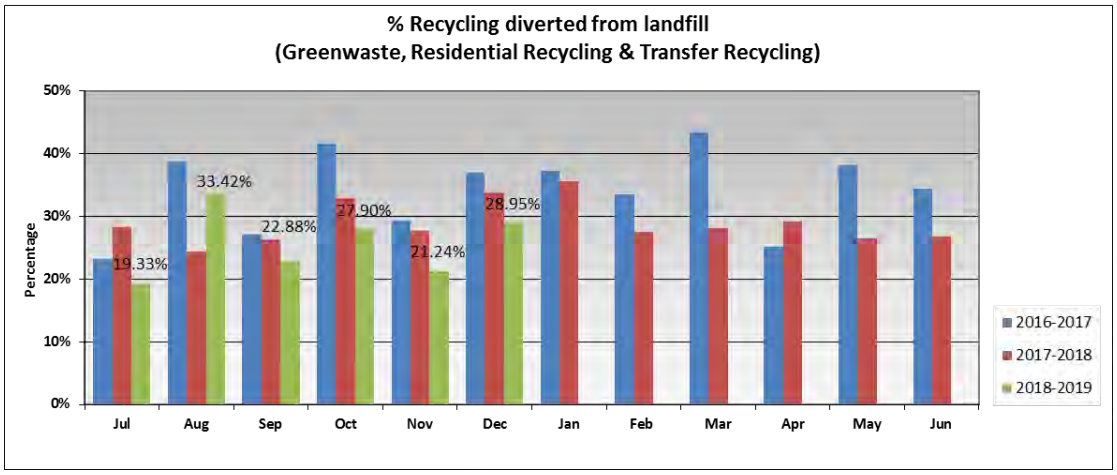
Waste

Ipswich Waste provides to the community a weekly domestic, fortnightly recycling and green waste service and provides services to commercial customers in regards to commercial waste collection.

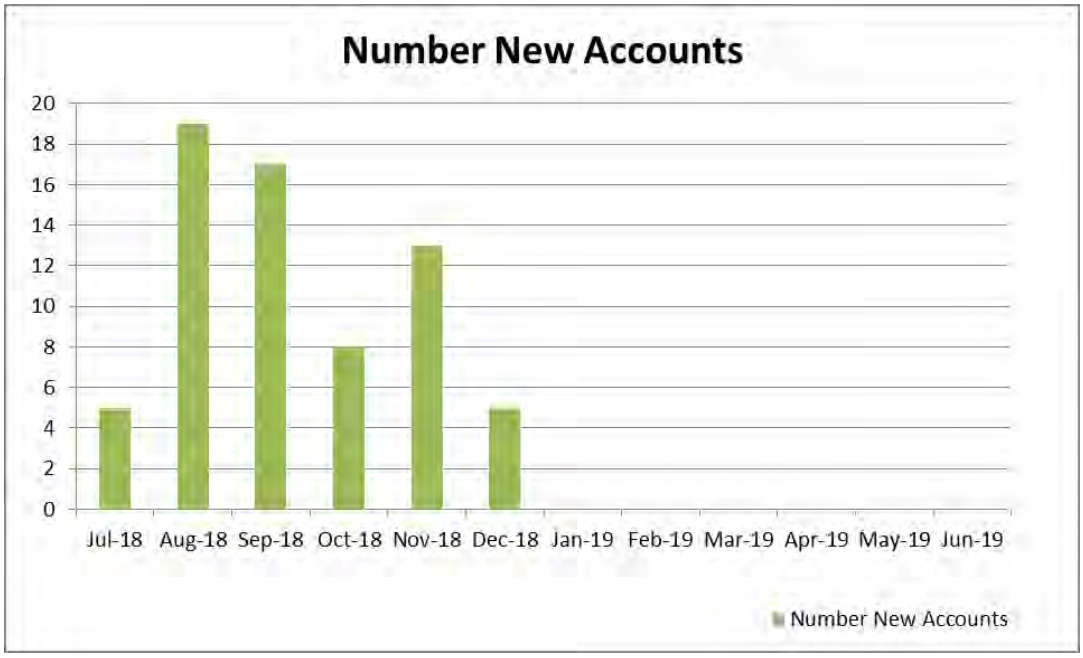
Riverview Recycling and Refuse Transfer Station

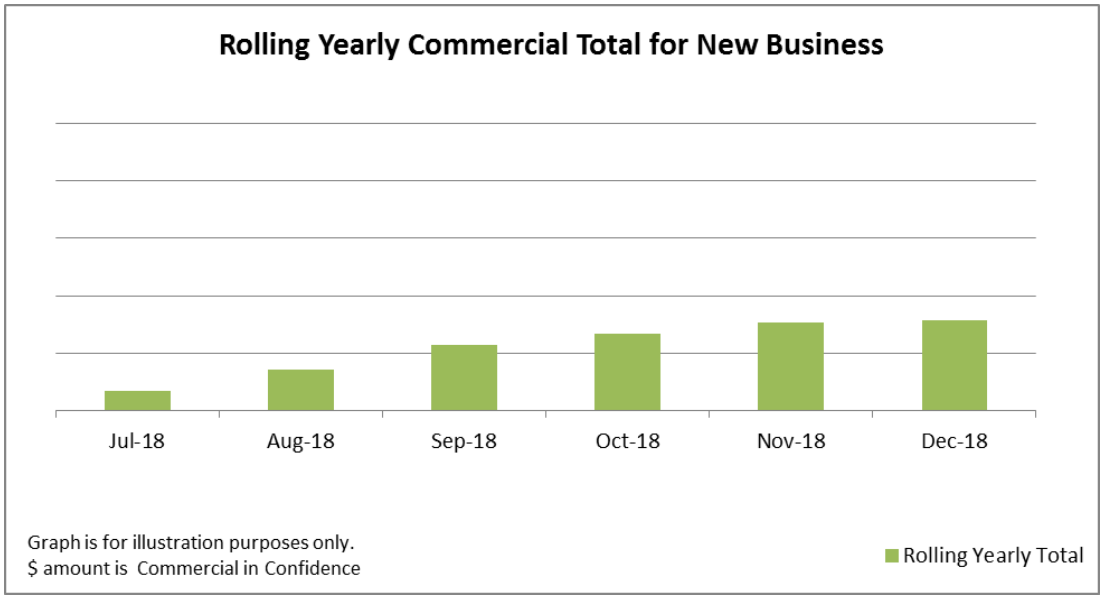


Diversion from Landfill – recycle and greenwaste

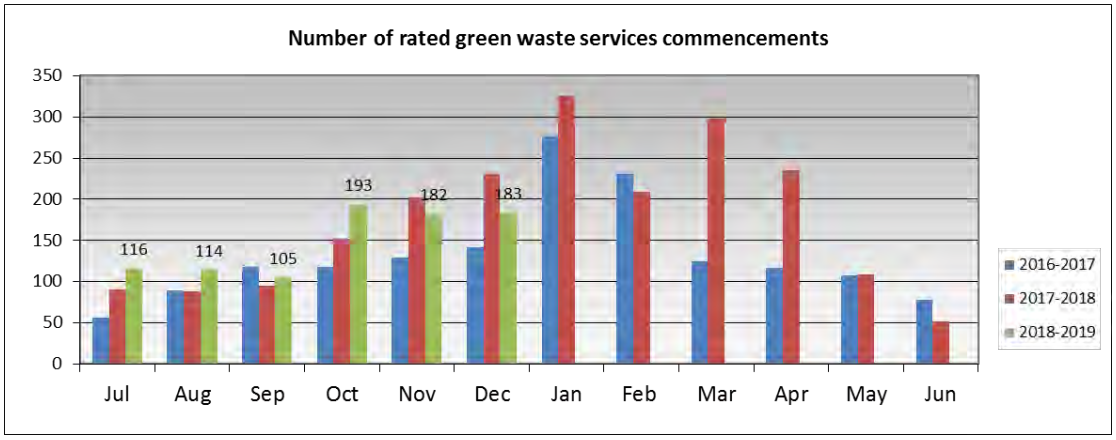


New Commercial Customers

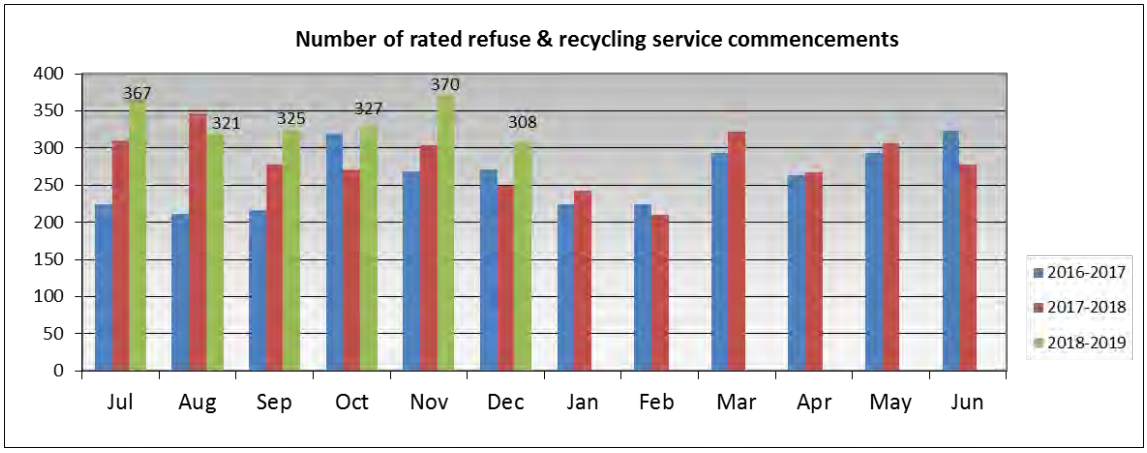




Number of Rated Green Waste (FOGO) Services Commencements



Number of Rated Refuse and Recycling Service Commencements



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Fax (07) 3810 6731
council@ipswich.qld.gov.au

Join us online on:

Growth and Infrastructure Committee	
Mtg Date: 19/02/19	OAR: YES
Authorisation: Brett Davey	

BD:LR
A5331996

8 February 2019

M E M O R A N D U M

TO: CHIEF EXECUTIVE OFFICER

FROM: ACTING CITY PLANNER

RE: PLANNING AND DEVELOPMENT DEPARTMENT
QUARTERLY ACTIVITY REPORT – DECEMBER 2018

INTRODUCTION

This is a report by the Acting City Planner dated 8 February 2019 concerning the activities of the Planning and Development Department within the December Quarter 2018.

ATTACHMENT

Name of Attachment	
Quarterly Activity Report	 Attachment A

BACKGROUND

This is the eleventh quarterly report prepared by the Planning and Development Department.

ACTIVITY

The December quarterly report is enclosed as Attachment A.

The report focuses on:-

- overall development activity within the Ipswich Local Government area (specifically population and dwelling growth, land subdivision and non-residential building activity);
- development applications (for planning, engineering, building and plumbing);
- infrastructure delivery by the development industry (ie contributed assets);
- major projects (such as planning scheme amendments, policy and legislation review, heritage projects, business improvement initiatives and major development applications lodged and determined during the quarter); and

- activity generated through information requests (via certificates and web access).

HIGHLIGHTS

Highlights from the December Quarterly Report include:-

- another high growth period, with 2,680 persons population growth, and the Local Government Area population increasing to 218,071 persons;
- an equivalent annual population growth rate of 4.98%;
- Spring Mountain as the fastest growing suburb;
- Deebing Heights with the highest number of new lots created and Spring Mountain with the highest number of new lots approved;
- 7,319m^2 of new, non-residential building floor space, able to accommodate 125 new jobs;
- 456 development applications lodged;
- 475 plumbing applications lodged;
- 2,753 building and plumbing inspections undertaken; and
- 158,392 web site visits.

RECOMMENDATION

That the report be received and the contents noted.

Brett Davey
ACTING CITY PLANNER

ATTACHMENT A

Planning and Development

Quarterly Activity Report
December 2018

"Building a balanced and sustainable Ipswich with a strong economy, key infrastructure and a community that cares for each other and the environment"

Ipswich.qld.gov.au

City of Ipswich

Table of Contents

Introduction

Council's Planning and Development (P&D) Department is the lead agency in the Ipswich community for managing growth and development in order to create a socially, ecologically and economically sustainable environment that:

- Meets the community's housing needs
- Integrates land use and transport needs
- Creates jobs and supports overall economic development
- Delivers appropriate infrastructure and community services
- Protects valuable features such as places of culture heritage significance and important natural environment areas

The department's core activities include:

- Preparing and implementing plans, strategies and policies to ensure integrated and sustainable development outcomes for the City as a whole and within specific local areas
- Identifying, protecting and promoting places of cultural heritage significance and streetscape value
- Identifying and protecting important natural environment areas through appropriate planning scheme mechanisms and development assessment processes
- Maintaining an appropriate and efficient regulatory environment for development assessment and building and plumbing compliance

The P&D Department's activities are delivered through its five (5) Branches:-

- Strategic Planning
- Development Planning
- Engineering and Environment
- Building and Plumbing
- Business Support

This Development Activity Report profiles the volume and composition of development related activity within the Ipswich Local Government Area for the October to December quarter of 2018, referred to in this document as the December 2018 quarter.

Development Activity

Population Growth

At 31 December 2018, the population[1] of Ipswich City was 218,071 persons, up from 215,391 persons at 30 September 2018. This represents an increase of 2,680 persons and an equivalent annual growth rate of 4.98%. This represents an annual change from the same period last year of 9,581 persons and 4.60% and a five year average annual growth rate of 3.82%.

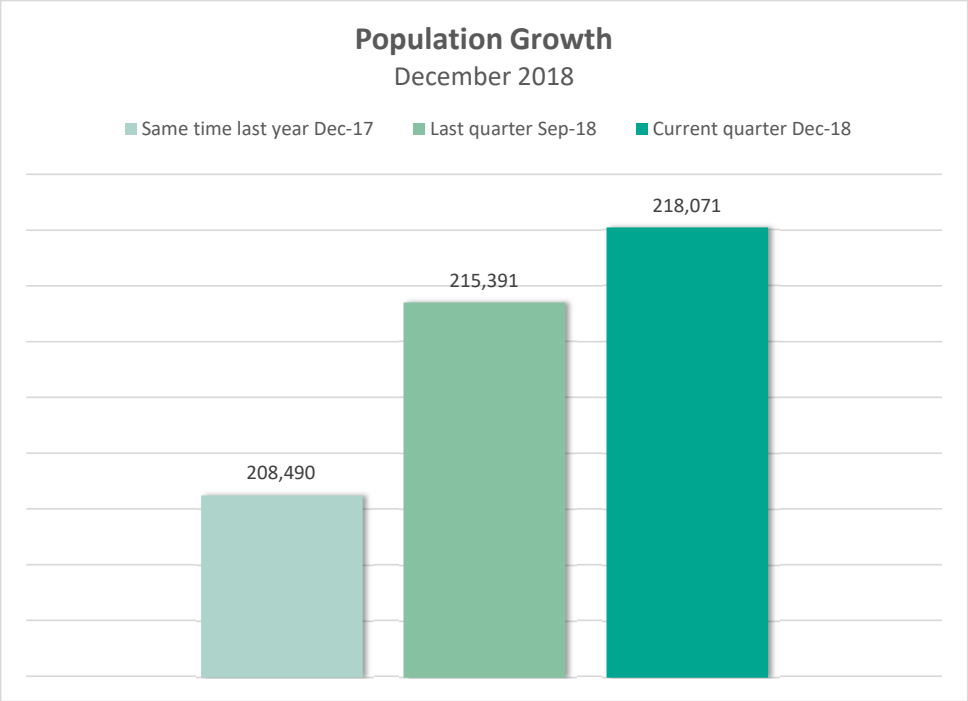

Figure 1: Population Growth December 2018

[1]Population information is based on ICC Population Model based principally on take up for domestic refuse services.

Dwelling Activity

At 31 December 2018, there were 80,255 dwellings within Ipswich City as compared with 78,786 dwellings at 30 September 2018. This represents an increase of 1,469 dwellings and an equivalent annual growth rate of 7.46%. This represents an annual change from the same quarter last year of 4,073 dwellings and 5.35% and a five year average annual growth rate of 4.20%.

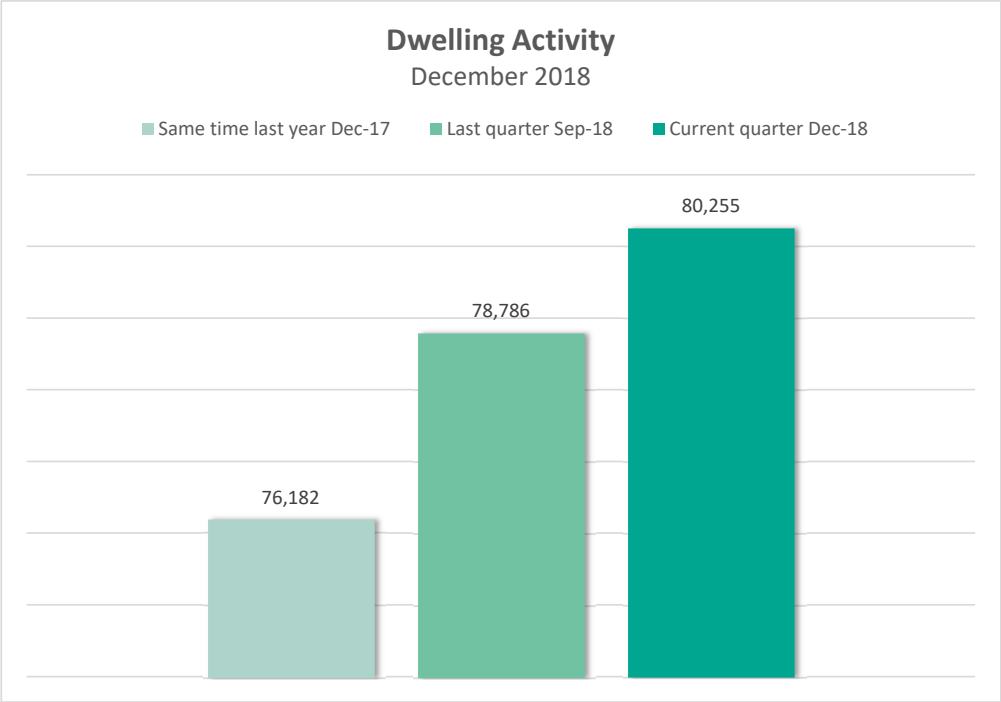

Figure 2: Dwelling Activity December 2018

Population Hotspots

Suburbs with the greatest population[2] growth during the December 2018 quarter are shown in Table 1 and Figure 3 below. The hotspot suburb with the highest total population growth was Spring Mountain (724 persons).

Table 1: Top 5 Population Growth 'Hot Spots' December 2018

Rank	Suburb	Population			
		Last Quarter	Current Quarter	Change	
		Sep-18	Dec-18	Rate	%
1	SPRING MOUNTAIN	1,370	2,094	724	52.81
2	REDBANK PLAINS	22,243	22,491	248	1.11
3	RIPLEY	2,797	2,992	195	6.97
4	REDBANK	2,039	2,231	192	9.41
5	SOUTH RIPLEY	2,782	2,946	164	5.88

[2]Variations proportionally between the total population and dwelling numbers for suburbs are a result of differences in the occupancy rates reported for the Statistical Areas in the ABS Census and applied in estimating the resident population.

Dwelling Hotspots

Suburbs with the greatest increase in dwellings during the December 2018 quarter are shown in Table 2 and Figure 3 below. The hotspot suburb with the highest increase in total dwellings was Spring Mountain (247 dwellings).

Table 2: Top 5 Dwelling 'Hot Spots' December 2018

Rank	Suburb	Dwellings			
		Last Quarter	Current Quarter	Change	
		Sep-18	Dec-18	Rate	%
1	SPRING MOUNTAIN	466	713	247	53.00
2	REDBANK PLAINS	7,560	7,681	121	1.60
3	REDBANK	818	891	73	8.92
4	RIPLEY	923	991	68	7.37
5	SOUTH RIPLEY	875	927	52	5.94

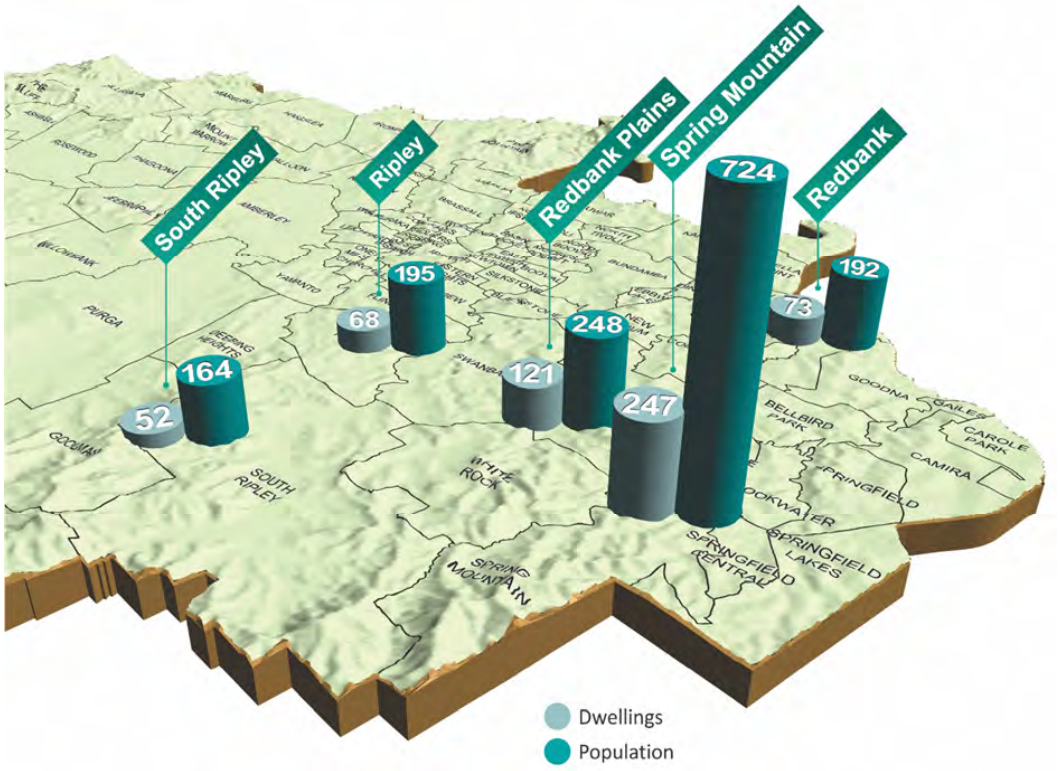

Figure 3: Dwelling and Population Hotspots December 2018

Dwelling Stock

The dwelling stock at 31 December 2018 comprised 10,979 attached (14%) and 69,276 detached (86%) dwellings. This represents an increase of 235 attached dwellings and 1,234 detached dwellings from 30 September 2018.

Table 3: Composition of Dwelling Stock December 2018

	Dwelling Composition		
	Last Quarter	Current Quarter	Change
	Sep-18	Dec-18	Rate
Attached	10,744	10,979	235
Detached	68,042	69,276	1,234
Total	78,786	80,255	1,469

Subdivision Activity

New Lot Approvals

During the December 2018 quarter Council approved 663 new residential lots[3]. This compares to 1,223 in the September 2018 quarter and 665 lots approved in the same quarter last year. Comparatively, 657 lots were approved in the December 2013 quarter.

New Lot Creations

During the December 2018 quarter Council signed plans creating 558 lots. This compares to 152 lots in the September 2018 quarter and 792 lots created in the the previous quarter last year. Comparatively, 376 lots were created in the December 2013 quarter.

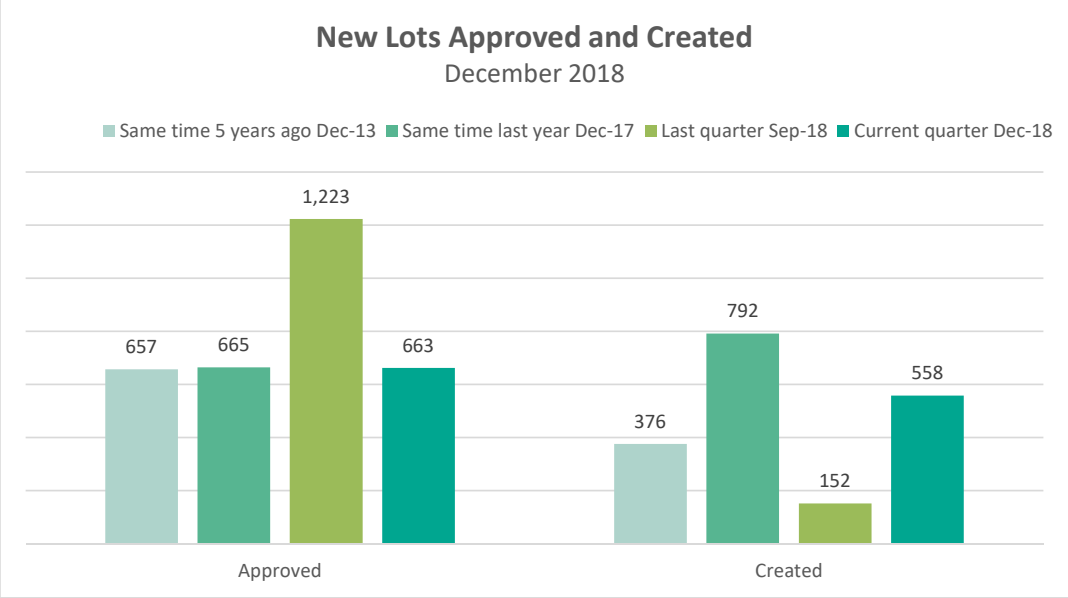

Figure 4: New Lots Approved and Created December 2018

[3]The lots created and approved figures are subject to change after the date of this report. This can be as a result of data entry corrections and amendments to the proposed number of lots for a development by an applicant.

Subdivision Hotspots

Lots Approved

Suburbs with the most lots approved during the December 2018 quarter are shown in Table 4 and Figure 5 below. The hotspot suburb with the highest number of lots approved was Spring Mountain (387 lots).

Table 4: Top 5 'Hot Spots' New Lots Approved December 2018

Rank	Suburb	New Lots Approved	
		Last Quarter	Current Quarter
		Sep-18	Dec-18
1	SPRING MOUNTAIN	247	387
2	BELLBIRD PARK	2	79
3	WALLOON	74	79
4	BRASSALL	0	37
5	REDBANK PLAINS	7	32

Lots Created

Suburbs with the most lots created during the December 2018 quarter are shown in Table 5 and Figure 5 below. The hotspot suburb with the highest number of lots created was Deebing Heights (116 lots).

Table 5: Top 5 'Hot Spots' New Lots Created December 2018

Rank	Suburb	New Lots Created	
		Last Quarter	Current Quarter
		Sep-18	Dec-18
1	DEEBING HEIGHTS	17	116
2	SOUTH RIPLEY	3	110
3	RIPLEY	0	100
4	REDBANK PLAINS	24	83
5	BELLBIRD PARK	2	52

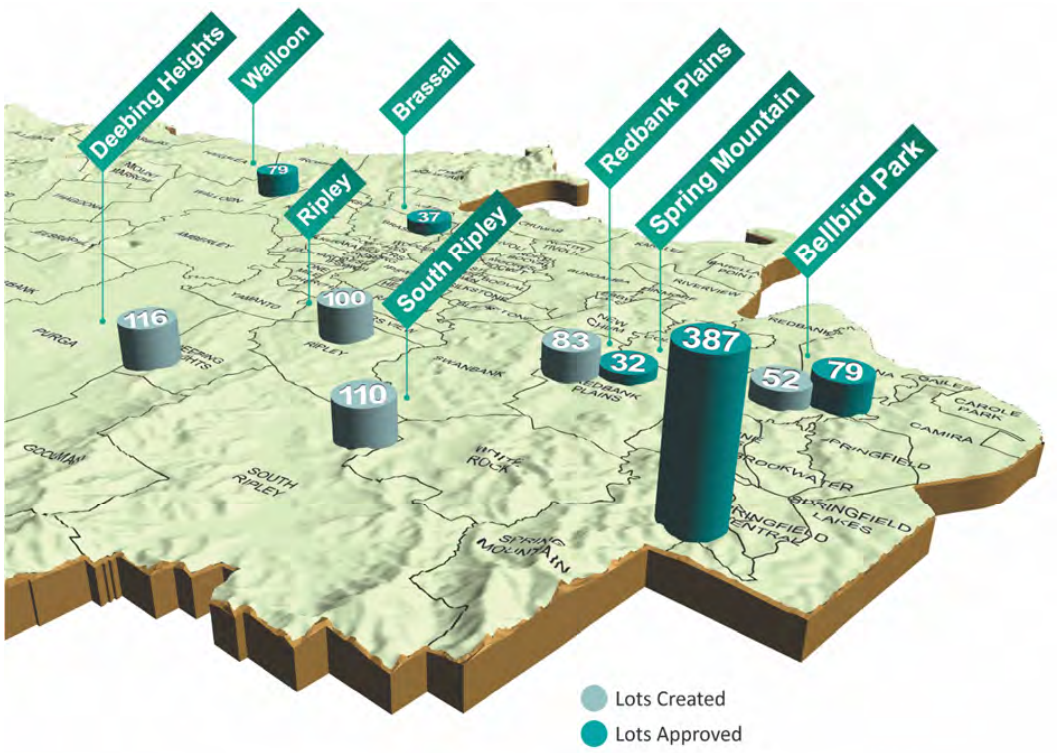

Figure 5: New Lots Approved and Created December 2018

Non-Residential Building Activity

New non residential floor space approved during the December 2018 quarter amounted to 7,319m^2, as shown in Table 6 below. The floor space approved during the December 2018 quarter can broadly be categorised into Retail, Industrial, Commercial or Other (which includes education).

Table 6: Total Approved GFA December 2018

Activity	Approved GFA (m^2)
Industrial	4,509
Other	908
Retail	1,690
Commercial	212
Total	7,319

The approved GFA will be able to accommodate in the order of 125 new employees across all sectors, as shown in Figure 6 below. This quarter most new jobs were created in the Retail sector accounting for 65 new jobs.

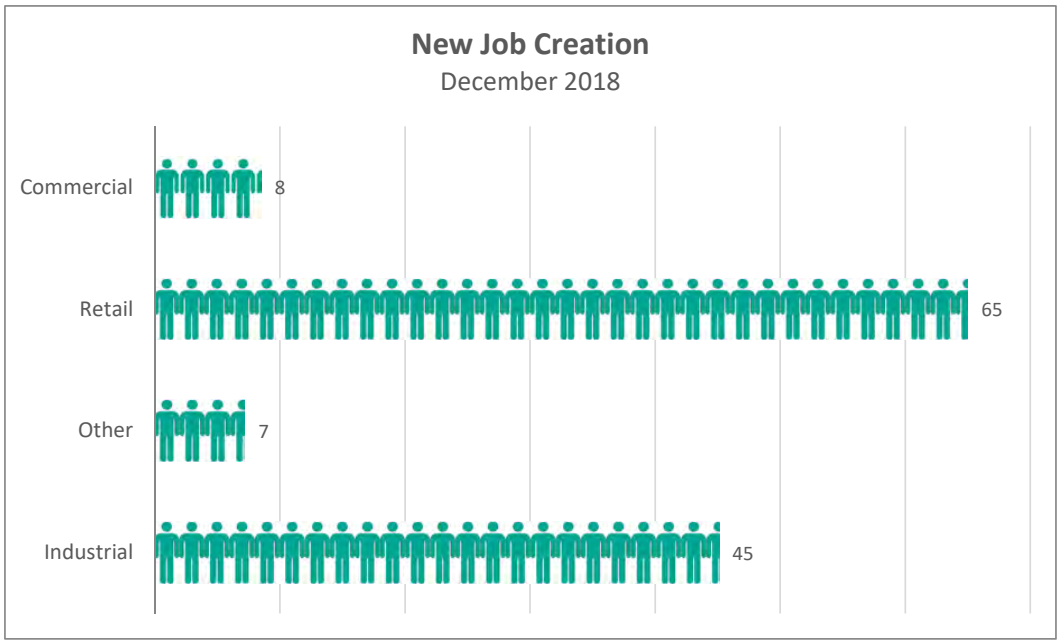

Figure 6 : New Job Creation December 2018

Development Applications

Development Applications Lodged

During the December 2018 quarter, 456 development applications[4] were lodged. This represents an increase from the previous September 2018 quarter of 409 applications. The number of applications lodged during the December 2018 quarter is an increase in the number of applications lodged during the previous December 2017 quarter where 361 applications were lodged. Application numbers represent an increase of 39% for the December 2018 quarter over the 5 year period since the December 2013 quarter. Refer to Figure 7 below.

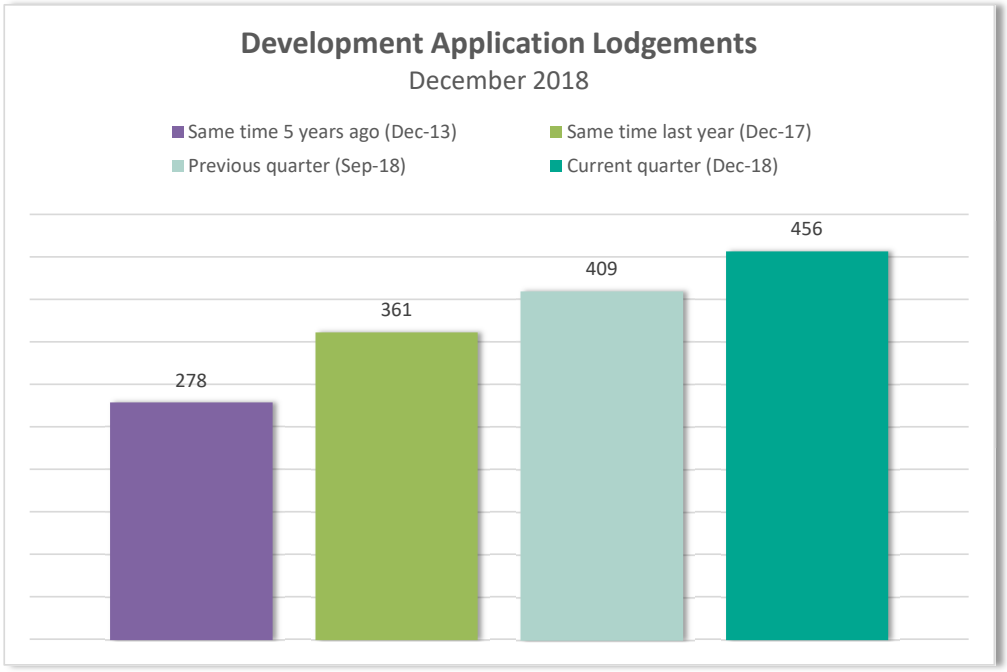

Figure 7: Development Applications Lodgements December 2018

[4]The data for development applications includes all application types listed in the 'Development Application Lodgements by Type' chart following. Application numbers are subject to change based on properly made status at the time of report.

During the December 2018 quarter, 456 applications were lodged across a range of application types, as shown in Figure 8 below.

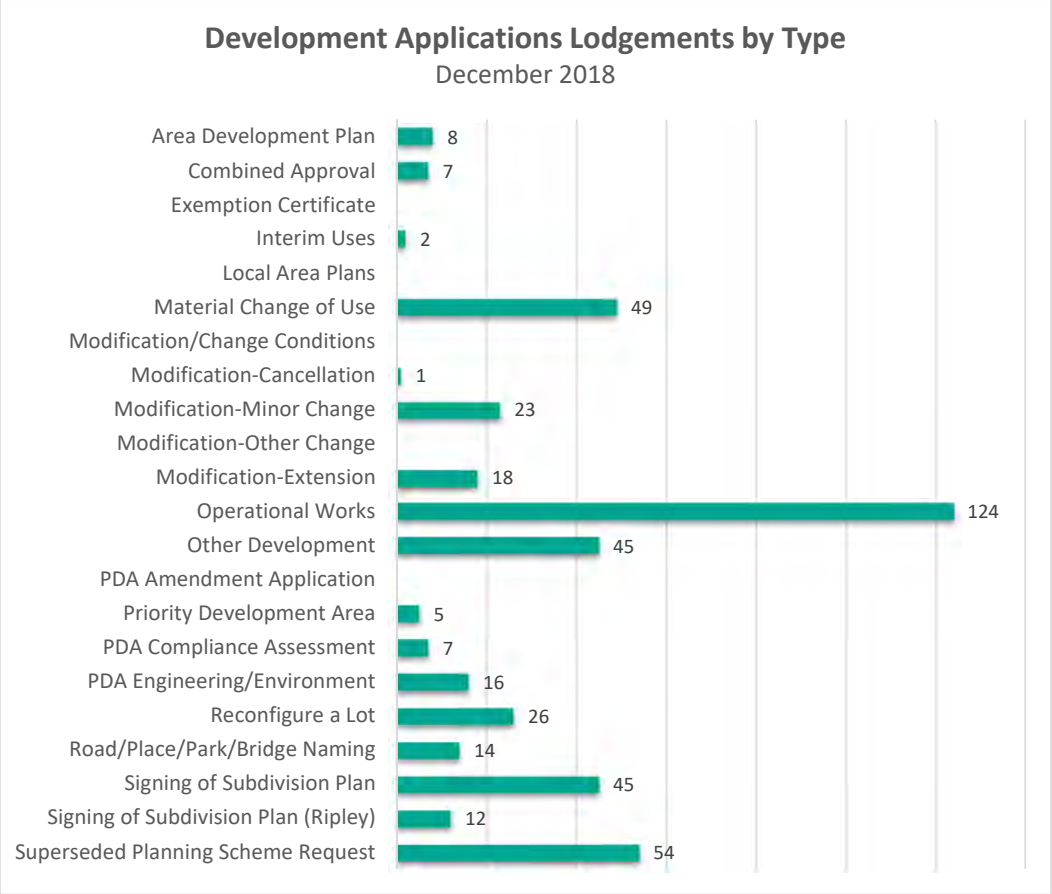

Figure 8: Development Applications Lodgements by Type December 2018

Development Applications Determined

Development Applications Determined

During the December 2018 quarter, 424 applications were determined across a range of application types, as shown in Figure 9 below.

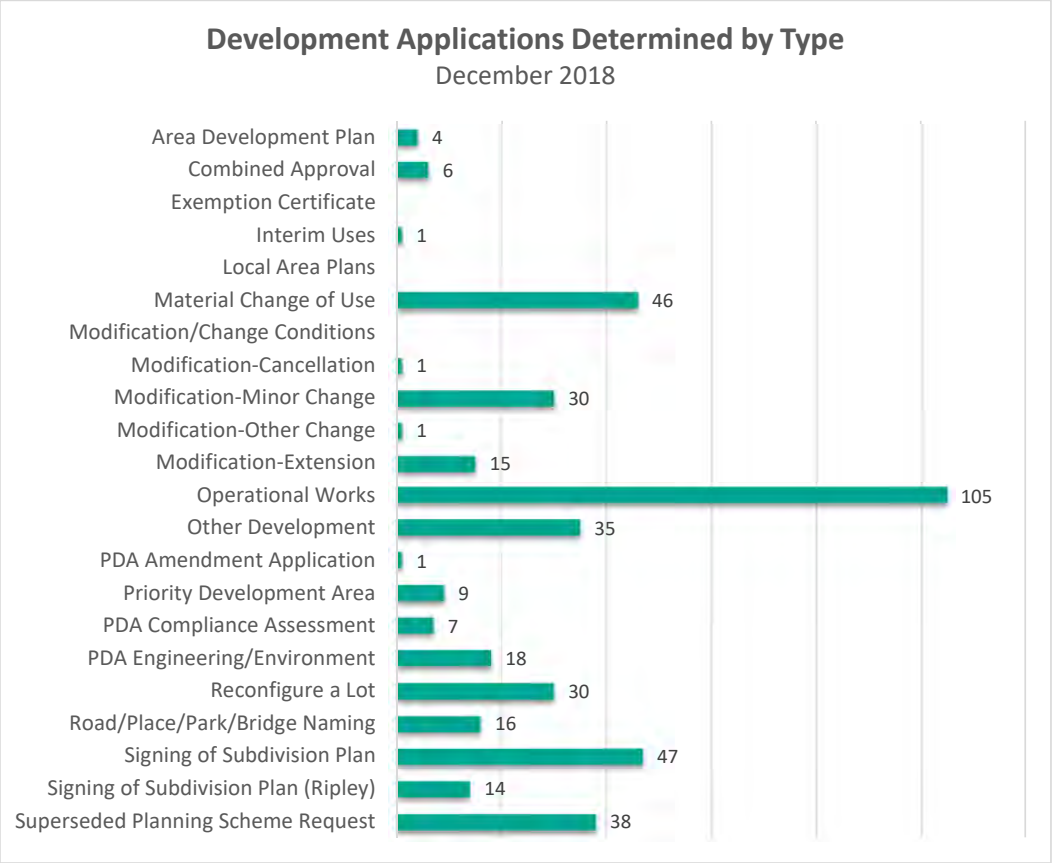

Figure 9: Development Applications Determined by Type December 2018

Development Applications Determined – Fast Track

During the December 2018 quarter, 24 applications were assessed and decided through the ICC Fast Track Process, as shown in Figure 10 below. Fast Track applications are assessed and decided within 5 business days of the application being properly lodged with Council. The majority of the Fast Track applications were identified in the Other Development category which includes Building Work assessable against the Planning Scheme and Advertising Devices.

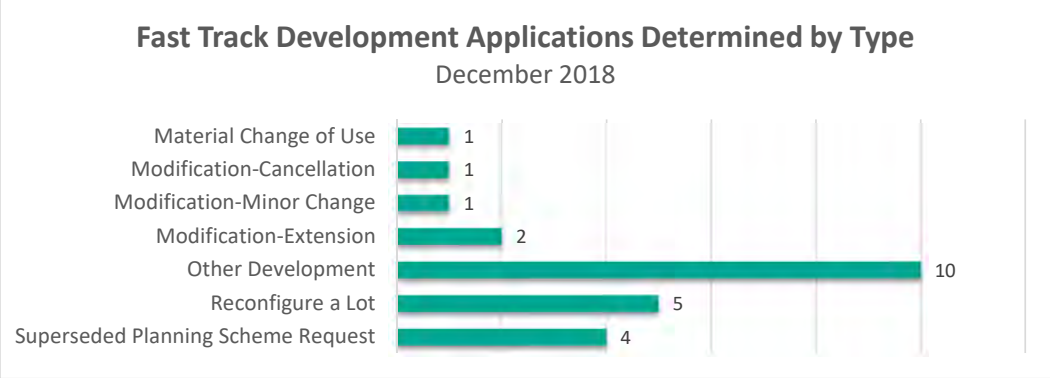

Figure 10: Fast Track Development Applications Determined by Type December 2018

Note: Figures 7-10 above represents applications lodged and approved under the *Sustainable Planning Act 2009* (SPA) and the *Planning Act 2016* (PA). As a result of the PA taking effect on 3 July 2017, changes have been made to ICC's application types. The following changes are noted:
-Applications within the bounds of the Springfield Structure Plan are now one of the following: 'Area Development Plans', 'Local Area Plans' or 'Interim Uses'.
-New application categories include: 'Exemption Certificate' and 'Superseded Planning Scheme Request'.
-Signing of Subdivision Plans for Ripley are now contained within a separate category to standard Signing of Subdivision Plans.
-'Modification/Change Conditions' reflects 'Permissible Change' and Extension to Relevant Period' applications under the SPA only.
-Modification-Change Application Minor', Modification-Change Application Other', Modification-Cancellation' and 'Modification-Extension Application' reflect 'Minor Change', 'Other Change', 'Cancellation Application' and 'Extension Application' under the PA only.
These graphs will continue to reflect all SPA and PA application statistics until all SPA applications have been finalised.

Pre-lodgement Meetings

Formal pre-lodgement meetings provide an opportunity for prospective applicants to seek advice and clarify requirements from Planning and Development staff.

There were 42 development related formal pre-lodgement meetings held in the December 2018 quarter. This represents an increase compared to the 37 meetings held in the previous September 2018 quarter and a decrease compared to the 59 meetings held in the previous December 2017 quarter. This figure is based on formal requests for pre-lodgement meetings and does not capture meetings held once an application is lodged or post approval.

Building and Plumbing Applications

A total of **$176.2** million in building works[5] was approved during the December 2018 quarter. This represents:

- a $114.2 million decrease compared to the value of building works approved in the September 2018 quarter ($290.4 million);
- a $82.2 million decrease compared to the value of building works approved in the December 2017 quarter ($258.4 million); and
- a $37.2 million increase compared to the value of building works approved in the December 2013 quarter ($139 million).

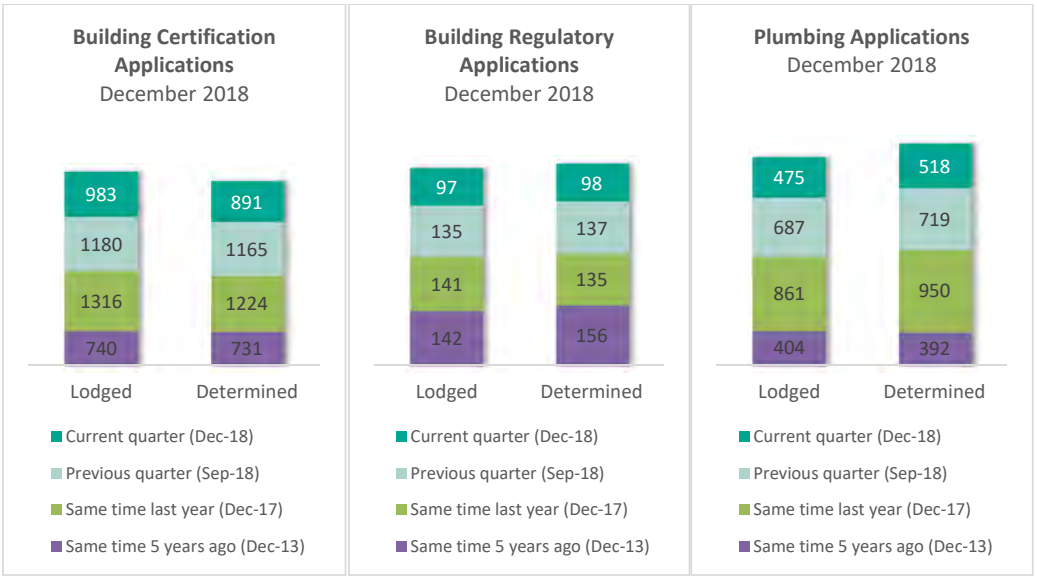

Figure 11: Building and Plumbing Applications Lodged vs. Determined December 2018

[5]The data for building applications includes Private Certifier applications in addition to applications decided by Council.
Variances in this data in comparison to the previous reporting quarter may occur as a result of the delayed lodgement of building approvals. These approvals may not have been captured when the previous quarter's data was collated however are now captured in the figures above.
may not have been captured when the previous quarter's data was collated however are now captured in the figures above.

A total of **983** applications for building works were lodged during the December 2018 quarter. This represents:

- a decrease of 197 applications for building works lodged in the September 2018;
- a decrease of 333 applications for building works lodged in the December 2017; and
- an increase of 243 applications for building works lodged in the December 2013.

A total of **97** applications for building regulatory works were lodged during the December 2018 quarter. This represents:

- a decrease of 38 applications for building works lodged in the September 2018;
- a decrease of 44 applications for building works lodged in the December 2017; and
- a decrease of 45 applications for building works lodged in the December 2013.

A total of **475** applications for plumbing works were lodged during the December 2018 quarter. This represents:

- a decrease of 212 applications for building works lodged in the September 2018;
- a decrease of 386 applications for building works lodged in the December 2017; and
- an increase of 71 applications for building works lodged in the December 2013.

Building and Plumbing Inspections

A total of 2,753 building and plumbing inspections were undertaken in the December 2018 quarter, representing a decrease of 813 applications from the previous September 2018 quarter. In comparison, 3,219 inspections were undertaken in the same quarter last year.

Major Development Applications Lodged

The following major development applications were lodged during the December 2018 quarter.

Table 7: Major Applications Lodged

Council Reference	Application Description	Address
7614/2018/MCU	Material Change of Use - Special Industry - Waste Transfer Station and Environmentally Relevant Activity (ERA) 62 - Waste Transfer Station Operation	540-604 Warrego Highway, North Tivoli 237-239 Mt Crosby Road, North Tivoli
10040/2018/CA	Combined Approval Material Change of Use - Special Industry (Treatment and Manufacturing of Plastic) Material Change of Use - Environmentally Relevant Activity (Plastic Manufacturing)	9 General Macarthur Place, Redbank
9009/2018/MCU	Material Change of Use - Recreation Use (Indoor Recreation)	39, 19-27 Junction Road, Chuwar
7942/2018/MCU	Material Change of Use - Recreation Use - Motorsports	86 Champions Way, Willowbank
9242/2018/MCU	Material Change of Use - Community Use (School)	6 Church Street, Goodna
9518/2018/MCU	Material Change of Use - Community Use (Youth Support Centre)	1A Scott Street, Goodna
10013/2018/MCU	Material Change of Use - Recreation Use - Indoor Recreation (Dance School)	2/1505 Warrego Highway, Blacksoil
7751/2018/PID	Proposed Ministerial Designation of Land for Community Infrastructure - Hallets Road, Redbank Plains (School and Child Care Centre)	67-87 Halletts Road, Redbank Plains
9184/2018/ADP	Area Development Plan – Extension to Neighbourhood Shopping Centre	16-30 Springfield Parkway, Springfield
9112/2018/CA	Material Change of Use - Service/Trades Use - Warehouse and Distribution Centre Other Development - Advertising Devices	7001 Hoepner Road, Bundamba

9523/2018/MCU	Material Change of Use - Business Use (Produce/Craft Market), Community Use (Community Hall, Meeting Rooms), Entertainment Use (Club, Dance Hall, Exhibition, Theatre and Trade Fair) & Recreation Use (Indoor Recreation) - Expansions and Renovations to the Ipswich Showgrounds	81 Warwick Road, Ipswich
9987/2018/ADP	Area Development Plan - RAL - Two (2) lots into Six Hundred and Sixteen (616) lots MCU - Permit the Development of 616 Detached Dwellings that are not Compliant under the Planning Scheme Springfield Rise, Spring Mountain - Village 16	7001 and 7010 Sinnathamby Boulevard, Spring Mountain
9989/2018/ADP	Area Development Plan to: - Nominate land for Detached Housing, Attached Housing, Dual Occupancy, Road and Park; - Reconfigure Two (2) Lots into Three Hundred and Six (306) Lots; and - Permit the development of 306 Attached/Detached Houses Spring Mountain - Village 17	7001 and 7010 Sinnathamby Boulevard, Spring Mountain
10001/2018/ADP	Area Development Plan to: - Nominate land for Detached Housing, Attached Housing, Dual Occupancy, Road and Park; - Reconfigure Four (4) Lots into Seven Hundred and Sixty-Five (765) Residential Lots and Management Lots, plus New Road, Park and Balance; and - Permit the development of 765 Detached/Attached Houses (Spring Mountain - Village 18)	Lot 750, Lot 754 Unnamed Road, Spring Mountain 7001 and 7010 Sinnathamby Boulevard, Spring Mountain

Major Development Applications Determined

The following major development applications were determined during the December 2018 quarter.

Table 8 – Major Applications Determined

Council Reference	Application Description	Address
8854/2017/MCU	Material Change of Use – Multiple Residential (115 townhouses and four (4) apartments) Material Change of Use – Shopping Centre (three (3) tenancies)	1 & 19 Mcewan Street, Riverview
4513/2018/MCU	Material Change of Use - Community Use (Hospital) and Business Use (Medical Centre)	59 East Street, Ipswich
7872/2018/MCU	Material Change of Use - Major Utility - Telecommunications Facility	61 Allawah Road, Chuwar
7225/2018/MCU	Material Change of Use - Recreation Use (Indoor Recreation)	2 & 8 Smiths Road, Goodna
6390/2018/MCU	Material Change of Use - Shopping Centre (Extension) and Recreation Use (Indoor Recreation)	19-27 & 39 Junction Road, Chuwar
995/2018/MCU	Material Change of Use - Business Use (Cafe, Restaurant and/or Hotel) Community Use (Library)	25 Ipswich City Mall, Ipswich
7900/2018/ADP	Area Development Plan – Indoor Recreation (Gym)	16-30 Springfield Parkway, Springfield
4170/2018/CA	Material Change of Use - Business Use (excluding bulky goods sales, fast food premises, hotel, medical centre, produce/craft market, restaurant, service station, shop and vehicle sales premises), General Industry (excluding bus depot and truck depot) and Service Trade Use (excluding mini bus depot) Reconfiguring a Lot - access easement (realignment)	78-82, 84, 86 & 88-110 Junction Road, Karalee
4902/2014/MAMC/A	Minor Change - Extension to General Industry (Office)	103 Riverview Road, Riverview
8445/2018/MCU	Business Use (Office – extension to Office building/s)	292 Brisbane Street, West Ipswich
6088/2018/PDA	Material Change of Use - Temporary Community Facility, and ancillary Temporary Business, Food Premises and Shop Uses	676-722 Ripley Road, Ripley

4280/2015/MAMC/A	Minor Change - Reconfiguring a Lot - 1 lot into 446 residential lots plus park, drainage reserve and one (1) estate signage lot Material Change of Use - Single residential (all lots)	7001 Collingwood Drive, Collingwood Park
9819/2017/MCU	Material Change of Use - Business Uses (Medical Centre, Cafe, Snack Bar, Professional Office and Shop)	23 Mill Street, Goodna
3105/2016/MAMC/B	Reconfiguring a Lot - Five (5) Lots into Ninety-Four (94) Residential Lots, Three (3) management lots, Five (5) balance lots, One (1) park lot and new roads.	7001 Rohl Road, 590 & 673-675 Karrabin Rosewood Road, 33-135 Caledonian Road, 246 Taylors Road, Walloon

Infrastructure Delivery

Developer contributed assets for the December 2018 quarter include:

Roads & Pathways

Local Roads	3.33 km
Pathways and Bikeways	4.47 km

Recreation and Community Purposes

Local Linear Park	1.04 Ha
Local Reserve	2.61 Ha

Major Projects

Planning Scheme and Planning Scheme Policy Amendments

During the December 2018 quarter, the following Planning Scheme and Planning Scheme Policy amendments were made:

Planning Scheme Major Amendment Package 03/2017

- The Interim Administrator of Ipswich City Council resolved to adopt Planning Scheme Major Amendment Package 03/2017 which came into force and effect on 19 October 2018. The purpose and general effects of the amendments are:
  - Amendment to the Single Residential (Auxiliary Unit) accepted development triggers for Auxiliary Unit locations and consequential amendments;
  - Amendment to make 'restaurant' a consistent use within the Special Opportunity Zone, Sub Area SA15 – Powells Road, Yamanto;

- Amendment to the parking space provisions for single residential use in the Parking Code to remove duplication and ensure consistency with the Ipswich Planning Scheme and Queensland Development Code;
- Amendment to the Reconfiguring a Lot Code to clarify footpath provision for a Collector Street;
- Amendment to Zoning Map Z15 for 25 Kendall Street, East Ipswich;
- Amendment to Overlay Map OV2 – Key Resource Areas, Buffers and Haul Routes at Pine Mountain and Muirlea to remove the Kholo Sands Key Resource Area consistent with state government mapping; and
- Amendment to Schedule 2 – Character Places to remove a listing at Kraatzs Road, Tallegalla and include a listing at Grandchester Mt Mort Road, Grandchester.

Planning Scheme Major Amendment Package 02/2018

- The Interim Administrator of Ipswich City Council resolved to make a major amendment (Planning Scheme Major Amendment Package 02/2018) to the Ipswich Planning Scheme on 13 November 2018. The amendment package was forwarded to the State Government on 14 November 2018 for state interest review. The amendments propose to amend Part 14 – Springfield Structure Plan to align the planning and approval processes with a recent Queensland Court of Appeal judgement and also to amend the Alternative Dispute Resolution provisions.

New Planning Scheme

The Interim Administrator of Ipswich City Council resolved on 13th November 2018 that Council prepare a new Ipswich Planning Scheme pursuant to section 18 of the *Planning Act 2016*. The State Governments' "chief executive" notice under section 18(3) of the *Planning Act* has been received from the Department of State Development, Manufacturing, Infrastructure and Planning setting out the State Government approved process for making the planning scheme. At least two 'rounds' of consultation are to be undertaken that will provide the opportunity for land owners, other stakeholders and the community to comment, including in relation to the proposed zoning of land. The State Governments' "chief executive" notice providing more information on the process for making the planning scheme can be viewed at https://planning.dsdmip.qld.gov.au/planning/better-planning/local-planning under the "Public notices for making/amending planning schemes'.

Heritage Projects

During the December 2018 quarter, 11 customers used Council's free Heritage Adviser Service.

Business Improvement Initiatives – Current Quarter

Branches within the Planning and Development Department are committed to ongoing business improvement, with the following improvements made to operations during the December 2018 quarter:

Development Planning

- Completed delivery of improved external mapping on Council's PD Online system
- Commenced investigating an improved platform for availability and display of PD Online information.

Business Improvement Initiatives – Next Quarter

In addition to current projects, the following activities are scheduled to commence or will be underway during the next quarter:

Development Planning

- Analysing the feedback from the Development Planning Branch customer service questionnaire.
- Reviewing policies and procedures to optimise and improve service levels.
- Continued review of PD Online platform.
- Review of fees and charges.

Information Searches

Certificates

In the December 2018 quarter, 109 Planning and Development Certificates were issued, as shown in Table 9 below.

Table 9: Planning and Development Certificates December 2018

Type	March	June	September	December
	2017/18	2017/18	2018/19	2018/19
Limited	123	178	145	102
Standard	32	1	9	7
Full	0	4	2	0
Totals	155	183	156	109

Website Activity

Online user activity utilising the Planning and Development Website in the December 2018 quarter decreased by 21% over the previous September 2018 quarter. Information searches decreased across all areas, with the most "traffic" accessing property information through the Property Search function. Table 10 below provides detailed information on activity during the past 4 quarters.

Table 10: Planning and Development Website Search Activity December 2018

Information viewed	March	June	September	December
	2017/18	2017/18	2018/19	2018/19
Property	120,308	121,588	119,216	96,072
Application	53,794	56,543	62,350	54,116
Mapping	9,643	9,730	10,240	8,204
Totals	183,745	187,861	191,806	158,392