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Isaac Regional Council

Extrinsic Material to the Local Government Infrastructure Plan

Revision 1.0

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1.0 Planning Assumptions

Underpinning the Planning Assumptions of the Local Government Infrastructure Plan (LGIP) is the Isaac Regional Council (IRC) Population and Demand Model. These Geographic Information System (GIS) models have been developed using a "bottom up" approach, allowing for the spatial allocation of population and demands (residential & non-residential) across all land parcels within the Council area, from the base date of 2024 through to a realistic ultimate capacity determined for the Isaac Region Planning Scheme. The base assumptions and methodologies employed to develop these models and other key inputs into the Planning assumptions are detailed below.

1.1 *Population*

Isaac Regional Council engaged Foresight Partners Pty Ltd to prepare the Economic and Population Review 2023 report, which investigated various growth scenarios for both resident and non-resident populations for the region. The report has concluded that over the short-term, moderate growth is anticipated in both resident and non-resident populations and that regular review of these should be undertaken given the region's population and prosperity is sensitive to changes in economic conditions.

On this basis, the report recommended a resident population forecast that aligns closely with the medium series forecasts prepared by the Queensland Government Statistician's Office (QGSO) as part of the 2023 edition release. For the purposes of the LGIP modelling, these figures have been re-based to 2024, using the latest ABS Population Estimates for the Isaac LGA and projected forward at the same rate of growth modelled by the QGSO.

For non-resident populations, Council has adopted the medium scenario long-term forecasts prepared by Foresight Partners Pty Ltd. For the purposes of the LGIP modelling, these figures have been re-based to 2024, through extrapolation between 2021 and 2026 estimates.

Table 1 below identifies the resident and non-resident population figures used as a basis for 'top-down' projections adopted for the periods 2021 to 2041 in the LGIP Population Spatial Model and the adopted basis for growth over the planning horizon period.

Table 1: Resident and Non-resident Projections – 'Top Down' Methodology

Proposed LGIP Projections - 'Top-Down'	2021	2023	2024	2026	2031	2036	2041
Resident Populations	22,426	22,898	23,180	23,465	24,183	24,998	25,903
Growth p.a.%				*0.61%*	*0.60%*	*0.67%*	*0.71%*
Methodology / Basis	*FP*	*FP*	*QGSO ERP*	*FP p.a.*	*FP p.a.*	*FP p.a.*	*FP p.a.*
Non-Resident Populations	12,080		13,322	14,220	14,800	15,500	15,500
Growth p.a.%				*3.32%*	*0.82%*	*0.95%*	*0.00%*
Methodology / Basis	*FP*		*FP p.a.*	*FP*	*FP*	*FP*	*2036 Cap*
Total Population	**34,506**		**36,502**	**37,685**	**38,983**	**40,498**	**41,403**
Growth p.a.%				***1.62%***	***0.69%***	***0.78%***	***0.45%***

Acronyms / Notes:

- FP – Foresight Partners Estimate
- FP p.a. – Extrapolated at the same rate identified in the Foresight Partners Forecasts
- QGSO ERP – Queensland Government Statistician's Office 2024 Estimated Resident Population (provisional)
- 2036 Cap – as per maximum non-resident populations identified for 2036.

1.1.1 Current Population

Existing population has been allocated on a lot-by-lot basis to all residential landuses (obtained from Council's rates database) based on dwelling types and expected household sizes. For example, a property identified as containing a house is assigned a 2024 population of 2.71. This allocation has been informed by the Foresight Partners Economic and Population Review and

refined through comparison with the ABS 2021 Census Data. Projected average household sizes are shown in **Table 2**.

Table 2: Average Household Size

Dwelling Type	2024	2026	2031	2036	2041	IRC Model 2041 to Ultimate
Detached Dwelling	2.71	2.70	2.69	2.67	2.67	2.67
Attached dwelling	1.73	1.73	1.72	1.71	1.71	1.71
Other dwelling	2.00	2.00	1.99	1.98	1.97	1.97
All	**2.50**	**2.50**	**2.48**	**2.46**	**2.46**	**2.46**

Source: IRC (Isaac Regional) Model 2025
Note: Measured as persons/occupied dwelling

Following initial allocation of resident and non-resident populations to the dwellings identified through the spatial modelling process, adjustments were made to emulate the dwelling vacancies reported in the 2021 ABS census and confirmed through discussion with Council. It is important that the LGIP modelling recognise the impact that dwelling vacancies has on the need for new housing and development across the various townships and its impact on infrastructure planning.

This approach was also a consideration in modelling the available non-resident worker accommodation identified by Council, for which it was assumed that only two thirds of the accommodation was occupied at any point in time. In Council's opinion, this approach reflects the evolving nature of the fly-in-fly-out workforce accommodation, with an increasing trend for accommodation units to be assigned to a single employee and kept vacant during periods off-shift. This approach is important in understanding the dwelling requirements for non-resident populations, as the 'top-down' projections identified in Table 1 above relate only to those workers on-shift in the region at any one time.

Table 3 below identifies the Vacancy Rates applied to resident dwellings and non-resident workers accommodation throughout the various LGIP Projection Areas.

Table 3: Vacancy Rate Applied Dwellings

LGIP Projection Area	Resident Population	Non-Resident Workers Accommodation
Moranbah	0%	66.66%
Clermont	20%	N/A
Nebo	15%	66.66%
Glenden	50%	66.66%
Middlemount	20%	66.66%
Dysart	25%	66.66%
Outside PIA	0%	66.66%

1.1.2 Ultimate Population

The ultimate development potential of the Isaac Regional Council Planning Scheme was determined through analysis of the draft Planning Scheme Intents (constraints and zones / densities), consideration of approved development applications and understanding of the realistic development trends throughout the region. The constraints considered as part of this assessment included:

- Biodiversity and conservation;
- Bushfire hazards;
- Coastal hazards including storm tide and erosion prone areas;

- Key resource and mining areas;
- Flood hazards;
- Existing easements.

It is noted that the developable area as described within the Minister Guidelines and Rules is represented by the planning scheme zonings as depicted on the PIA Mapping, having consideration of any absolute and/or partial constraints described above for each land parcel.

Planning Scheme density assumptions have been developed for each zone, with consideration given to the following:

- Residential density provisions within the planning scheme for each zone type, including assumptions about dwelling composition (**Table 4**)
- Household size calculations and projections, changing over time in accordance with **Table 2**;
- Discussions with Council Officers and understanding the realistic development trends throughout the LGA;
- Discussions with Council Officers regarding the arrangements and limitations in relation to non-resident worker accommodation; and
- Assumptions about land requirements for roads, parks and other services, depending on the planning scheme provisions for different zones (i.e. considerations/requirements in urban vs rural zones).

Table 4: Ultimate Residential Density Assumptions

Planning Scheme Zone	Precinct/Area	Excluded Land - Services, Roads, etc.	Lot Size (m²) – Attached*	Lot Size (m²) – Detached*	Planned Density - Gross (Dwellings/Ha)*
Centre		30%	*N/A - Unit size used to determine density*	*N/A - Unit size used to determine density*	*22.4*
Centre	Moranbah	30%			*33.6*
Emerging Community		*Varies depending on assumed underlying intent*			
Low density residential		30%	400 - 450**	900	8.2
Low density residential	Moranbah	30%	400 - 450**	800	9.5
Low-medium density residential		30%	250 - 450**	500	16.6
Rural		5%		50,000,000	0.0002
Rural	Class A/B Agricultural	5%		5,000,000	0.002
Rural residential		10%		40,000	0.2
Specialised Centre		*Applied on a site-by-site basis using existing and current non-resident accommodation approvals*			
Township		30%		1,000	7.0

** Lot Size represents a realistic ultimate average size, based on an assessment of planning scheme provisions, market trends and preferences, and matters affecting propensity to develop.*
*** Varies depending on dwelling type*

Residential populations were allocated across all residential Planning Areas, in accordance with the projections of the Economic and Population Review, while non-resident growth was only allocated to only those sites identified by Council as being used, or approved, for non-resident worker population. **Table 5** below provides a summary of the population found in each LGIP Projection Area for the periods 2024 to Ultimate, reported as either resident or non-resident populations.

This information has been used in the development of the spatial model.

***Table 5:* Resident and Non-resident Projections and Ultimate Planning Scheme Capacity (2024 to Ultimate) – Reported by LGIP Projection Area**

LGIP Projection Areas	2024	2026	2031	2036	2041	Ultimate*
Resident Populations						
Moranbah	10,024	10,245	10,778	11,388	11,437	12,111
Clermont	2,654	2,657	2,664	2,668	2,704	3,211
Nebo	708	756	868	998	1,005	1,100
Glenden	641	643	653	671	683	1,366
Middlemount	1,894	1,889	1,884	1,876	1,881	2,164
Dysart	2,998	2,991	2,987	2,978	2,988	3,515
Outside PIA	4,263	4,286	4,350	4,419	5,205	17,430
Sub-Total	***23,180***	***23,465***	***24,183***	***24,998***	***25,903***	***40,897***
Non-Resident Populations						
Moranbah	1,768	1,989	2,132	2,306	2,306	4,046
Clermont	544	546	547	548	548	568
Nebo	371	407	430	458	458	741
Glenden	556	557	556	556	556	559
Middlemount	1,838	1,837	1,837	1,837	1,837	2,190
Dysart	2,198	2,241	2,269	2,302	2,302	3,124
Outside PIA	6,047	6,643	7,028	7,493	7,493	12,194
Sub-Total	***13,322***	***14,220***	***14,800***	***15,500***	***15,500***	***23,422***
Total	**36,502**	**37,685**	**38,983**	**40,498**	**41,403**	**64,318**

Source: IRC (Isaac Regional) Model 2025
* Ultimate Development for Non-resident Workers is based on the approved and forecasted Non-resident Worker Accommodation

1.1.3 Interim Population Allocation

Growth between 2024 (base year) and ultimate populations have been allocated to each 5-year cohort using a 'gravity model' approach, with populations within each projection area set to align with the Economic and Population Review. Within each projection area, consideration was given to factors affecting propensity to develop, including:

- The properties location with respect to the Priority Infrastructure Area (i.e. accommodates 10-15 years of growth);
- Availability and proximity to infrastructure services; and
- Existing vacant dwellings and the likelihood for these to accommodate any return in populations versus new dwellings being constructed.

1.2 *Infrastructure Demand*

IRC's spatial demand models express residential and non-residential demand in varying demand units. These are:

- Water Supply network - Equivalent persons (EP)
- Sewerage network - Equivalent persons (EP)
- Transport network - Trips per day (Trips)
- Parks and land for community facilities network - Persons

These units of measure have been selected as they are commonly used and easily understood by a reader of the LGIP.

1.2.1 Residential Demand

The Residential Demands have been calculated for each network in the following manner:

- Water Supply network
  - Population at each cohort = residential EP
- Sewerage network
  - Population at each cohort = residential EP
- Transport network

  - Population at each cohort divided by applicable detached household size (Table 2) to determine equivalent detached dwellings
  - Demand generation of 10 trips per equivalent detached dwelling
- Parks and land for community facilities network
  - Population at each cohort

1.2.2 Non-Residential Demand

Non-Residential Demands for the Water Supply, Sewer and Transport networks have been calculated by applying equivalent dwelling rates per hectare respectively to the developable areas available for non-residential development, derived from the population modelling process. The number of Equivalent dwellings was converted to the relevant demand units using:

- For the water supply and sewer networks - equivalent dwellings multiplied by the detached household size at each cohort (in accordance with **Table 2**)
- For the transport network - equivalent dwellings multiplied by the trip rate per detached dwelling identified in **section 1.2.1** (10 trips per equivalent detached dwelling)

The process for determining the existing demand utilised the landuse information developed through the population modelling process and applied the generation rates presented in **Table 6** to the area of the parcel with existing demand.

Table 6: Non-Residential Demands by Zone - Water Supply, Sewerage & Transport (Roads) – Expressed as EDUs per Hectare

PLANNING SCHEME ZONE	WATER & SEWER EDUs / HA	TRANSPORT EDUs / HA
Centre	25	50
Community Facilities	5	5
Emerging Community	0	0
Environmental Management & Conservation	0	0
Industry	15	7.5
Low Density Residential	0	0
Low-Medium Density Residential	0	0
Recreation and Open Space	0	0
Rural	0	0
Rural Residential	0	0
Special Purpose	0	0
Specialised Centre	5	5
Tourism Area (Minor)	0	0
Township	0	0

To ensure the existing non-residential demand was not overestimated (i.e. the area of the parcel does not necessarily reflect the demand that the existing land use generates), the demand model takes into account the realistic existing demands based on the size of the parcel and whether or not the existing landuse is consistent with the underlying land use intent (e.g. where an industrial use is occurring on a Rural zoned land parcel, and is unlikely to be placing demand over the entire site).

Ultimate future demands are based on demand generation rates per hectare for all land in each non-residential zone presented in **Table 6**.

The future demand calculated through the above process has been trended over the 2024 to Ultimate time period cohorts based on the rate of population growth rate found in each appropriately defined “Trending District”. In other words, this assumes that the growth in non-residential demand is proportional to the rate of growth of residential demand. The Trending Districts applied to each Zone/Locality are presented in **Table 7**.

***Table 7:* Trending District applied to Each Zone / Locality**

CP ZONE	LOCALITY	TRENDING DISTRICT
Centre	Clermont	Clermont
Centre	Dysart	Dysart
Centre	Glenden	Glenden
Centre	Middlemount	Middlemount
Centre	Moranbah	Moranbah
Centre	Nebo	Nebo
Community Facilities	Clermont	Clermont
Community Facilities	Dysart	Dysart
Community Facilities	Glenden	Glenden
Community Facilities	Middlemount	Middlemount
Community Facilities	Moranbah	Moranbah
Community Facilities	Nebo	Nebo
Community Facilities	All other areas	Entire LGA
Industry	Clermont	Clermont
Industry	Dysart	Dysart
Industry	Moranbah	Moranbah
Industry	All other areas	Entire LGA
Specialised Centre	All areas	Entire LGA

1.3 *Employment*

The Isaac Regional Council Employment Model has been developed to provide important inputs into the LGIP, most notably the existing and future employees and future floor space requirements. The methodology for the employment modelling is detailed below.

1.3.1 Current Employment

Australian Bureau of Statistics (ABS) Census data was used to determine an existing employment profile within the Council area by employment sector for the following regions:

- Isaac Regional Council; and
- Regions aligning with the Population Study and LGIP Projection Areas

The employment profile is based on:

- Total population;
- Total current workforce;
- Total potential workforce (residents aged 15 and older);
- Residents who both live and work locally;
- Industry of employment by occupation;
    - For the purposes of the LGIP employment modelling, ABS industry of occupation has been re-categorised into 'employment sectors' in order to align with categories in the LGIP tables. Assumptions made to assign ABS employment industry into LGIP Employment Sector are detailed in **Table 8** below.

***Table 8:* Employment Industry Assumptions**

ABS Employment Industry Category	LGIP Employment Sector	ABS Employment Industry Category	LGIP Employment Sector
Agriculture, forestry & fishing	Other	Financial & insurance services	Commercial
Mining	Industry	Rental, hiring & real estate services	Commercial
Manufacturing	Industry	Professional, scientific & technical services	Commercial
Electricity, gas, water & waste services	Industry	Administrative & support services	Commercial
Construction	Industry	Public administration & safety	Community Purposes
Wholesale trade	Industry	Education & training	Community Purposes

Retail trade	Retail	Health care & social assistance	Community Purposes
Accommodation & food services	Commercial	Arts & recreation services	Community Purposes
Transport, postal & warehousing	Industry	Other services	Other
Information media & telecommunications	Commercial	Inadequately described/Not stated	Other

The following key inputs into Employment Modelling have been produced for each modelled region, using the available ABS data:

- Labour retention rate (Residents working locally ÷ total work force); and
- Job containment rate (Residents working locally ÷ local jobs available)

These attributes are identified in order to assess the employment increase as a result of growth occurring within the LGA.

1.3.2 Future Employment

The employment model assumes that labour retention, job containment, and unemployment levels are maintained throughout all projection periods.

The ratio of work force to population is used to determine employment projections in each LGIP projection area for each cohort, in each employment sector. This is applied to the population projections derived from the IRC population model. The outputs of the employment model used to inform the LGIP include:

- Total current jobs within each LGIP projection area for each employment sector; and
- Additional job requirements for growth within the LGA for each projection period, distributed amongst employment sectors in accordance with the current trends

1.3.3 Floor Space Requirements

Floor space requirements are calculated based on assumptions about floor space per employee for each employment sector. The assumed floor space requirements are detailed in **Table 9**, and have been identified based on industry knowledge and confirmed by IRC officers as both reasonable and appropriate for use in the LGIP. As with the employment figures, floor space outputs used in the LGIP assumption tables include:

- Total existing floor space requirements within each LGIP projection area for each employment sector; and
- Additional floor space requirements for growth within the LGA for each cohort, distributed mathematically amongst employment sectors within LGIP projection areas.

Table 9: **Floor space assumptions by LGIP Employment Sector**

LGIP Employment Sector	Floorspace (m^2/employee)
Retail	30
Commercial	30
Industry	80
Community Services	25
Other (incl. Home based business)	20

1.4 *Priority Infrastructure Area Capacity*

IRC's growth allocation model considers a range of factors for the distribution and take-up of available capacities across the Planning Scheme, in particular the propensity for areas to develop over time. Based on the assumptions, the modelling indicates that a population of approximately 28,700 people are realistically able to be accommodated within the PIA up until 2041 (the "PIA Period", see **Table 10**).

The chosen PIA Period meets the intent of the Ministers Guidelines and Rules and relevant supporting guidance, in that it represents a 15-year period measured from the anticipated date for incorporation of the Interim LGIP Amendment into the Planning Scheme (i.e. mid-2026).

Table 10: Priority Infrastructure Area Capacity

LGIP Development Type	2024		2036		2041		Ultimate	
	Population	Dwellings	Population	Dwellings	Population	Dwellings	Population	Dwellings
Detached dwelling	21,334	7,872	22,741	8,517	22,822	8,577	26,242	9,828
Multiple dwelling	2,244	1,297	3,009	1,760	3,047	1,803	4,065	2,377
Other dwelling	2,614	1,307	2,837	1,433	2,837	1,440	4,388	2,227
Total	**26,192**	**10,477**	**28,587**	**11,710**	**28,705**	**11,820**	**34,695**	**14,433**

The extent of urban population growth allocated within the PIA boundary (approx. 1,300) demonstrates a total remaining capacity for approximately 2,700 dwellings identified at the end of the PIA period. In assessing the PIA capacity, it is important to note the following:

- The population residing in urban areas throughout the region is heavily dispersed, with varying growth profiles and outstanding capacities remaining for each township at the end of the PIA Period;
- Given current economic conditions, ongoing uncertainty regarding future growth (as outlined in the Economic and Population Review), and the region's propensity for boom-and-bust development, the economic conditions driving development could potentially change within the lifetime of this LGIP, which may require additional land for urban development purposes; and,
- Additionally, the available PIA capacity is a result of a significant amount of infill development, and therefore this capacity may not be realised within 10-15 years. These areas cannot be removed from the PIA on the basis that they are existing urban development.

On this basis, the remaining capacity at the end of the 15-year PIA period is considered appropriate.

2.0 Cost Assumptions

The LGIP has used a variety of costing methodologies where available to inform the development of costs to be used within the Schedule of Works (SoW) model, using the information deemed most accurate and appropriate, which was available at the time the LGIP was being prepared. For asset costing purposes within the SoW model, all unit rates for all assets and networks have been indexed to the base year of the model, 2024 using relevant Producer Price Indices (PPI) data from the ABS unless otherwise noted. The transport network uses the Road and Bridge Construction (RBC) PPI index for Queensland, while all other networks use the Non-residential Building and Construction (NRBC) PPI index for Queensland.

2.1 *Baseline Valuation*

Existing asset valuations within the SoW model provide an additional level of detail when compared to the standard SoW models 'baseline valuation'. The 'Base Estimate' within the IRC SoW model provides the equivalent valuation figure, however this has been built using a raw unit rate cost in addition to project owners costs (on-costs).

On costs are considered to be an essential element of the 'current replacement cost' identified within the Ministers Guidelines and Rules, relating to design/redesign, environmental considerations, traffic management and project management among other things, all necessary components of the cost to replace an asset. The Evans and Peck report referenced within the SoW model user manual identifies that many Councils already include on costs within their unit rates. Isaac Regional Council has chosen to separate these costs in order to provide additional transparency and ease of understanding within their LGIP documentation.

2.2 *Water Supply & Sewerage Network*

2.2.1 Water Supply / Sewer Asset Costs

Water Supply and Sewerage network asset costs are derived from a variety of sources provided by Council for the purposes of developing costs to be utilised in the LGIP. Existing and future passive assets (i.e. pipework) were costed based on unit rates prepared by Council, and presented in the Schedule of Works Model tab titled 'Unit Rates'. Existing active assets (i.e. Treatment Plants, Reservoirs, Bores and Pump Stations) were costed from asset registers maintained by Council.

Future Water Supply and Sewerage network projects listed in **Table 11** below have been project costs, based on information provided by IRC which have been adopted from Council's most recent Capital Works Planning.

Table 11: **Water Supply and Sewerage networks assets utilising Project Cost assumptions**

Network	Asset ID	Asset Description	Project Base Cost
Water	WTPF10	Dysart - SCADA Upgrade	$1,010,672
Water	WTPF11	Moranbah - SCADA Upgrade	$1,010,672
Water	WTPF12	Moranbah - WTP Upgrade	$5,333,266
Sewer	PSF09	Middlemount PS - SCADA Upgrade	$505,336
Sewer	PSF10	Dysart PS - SCADA Upgrade	$252,668
Sewer	PSF11	Glenden PS - SCADA Upgrade	$379,002
Sewer	PSF12	Moranbah PS - SCADA Upgrade	$631,670
Sewer	PSF13	Moranbah PS - Pump Upgrade	$126,334
Sewer	WWTPF09	Nebo STP - Recycled Water Plant and Irrigation - Construction	$469,559
Sewer	WWTPF10	Nebo STP - Upgrade - Design	$126,334
Sewer	WWTPF10	Nebo STP - Upgrade - Construction	$1,190,668

Sewer	WWTPF11	Clermont STP - Effluent Polishing Plant and Pipelines	$503,100
Sewer	WWTPF15	Middlemount - SCADA Upgrade	$758,004
Sewer	WWTPF16	Dysart - SCADA Upgrade	$758,004
Sewer	WWTPF17	Glenden STP - Effluent Polishing Plant and Pipelines	$631,670
Sewer	WWTPF18	Moranbah - SCADA Upgrade	$1,263,340

2.2.2 Cost Modifiers

In addition to the unit rates identified above, the cost modifiers listed in **Table 12** have also been applied as necessary to assets across the water supply and sewerage networks.

Table 12: **Water and Sewerage network asset cost adjustments**

Modifier	Valuation Component	Applies To	Adjustment Factor
On-Cost Allowance	Works	All existing & future assets	13%
Contingency	Works	All future assets	11.8%

2.3 *Transport Network*

2.3.1 Transport Asset Costs

Transport network unit rates were provided by Council for the purposes of developing costs to be utilised in the LGIP.

Future Transport projects listed in **Table 13** below are project costs provided by IRC and which have been adopted from Council's most recent Capital Works Planning. Costs for all other LGIP projects identified in the Schedule of Works Model are derived from a unit rate, which have been presented in the relevant spreadsheet tab (titled 'Unit Rates').

The costs presented below represent the full cost to deliver each project, however these may also attract separate grant funding. The Schedule of Works Model identifies where supplementary funding is available to assist in the delivery of the LGIP projects.

Table 13: **Transport network assets utilising Project Cost assumptions**

Asset ID	Asset Description	Project Base Cost
INTF_001	Intersection - Goonyella Rd and Curtin St	$2,553,000
INTF_002	Intersection - Goonyella Rd and Mills Ave	$1,276,500
INTF_020	Intersection - Mills Ave and Griffin St	$1,276,500
INTF_040	Intersection - Moranbah access Rd and Moranbah Airport access	$4,467,750
STF_015	Floodway - Turrawulla Road (ch 50.42)	$43,793
STF_016	Bridge - Saraji Road	$98,195
STF_019	Bridge - Moranbah Access Road	$22,565,233
TRF_039	Road - Moranbah - Peak Downs Highway second access	$89,355,000
TRF_040	Road - Moranbah north eastern access road - bypass	$19,147,500
TRF_041	Road - Sarchedon road - upgrade western sport upgrade	$3,829,500
TRF_042	Road - Greenhill Road	$1,276,500
TRF_043	Road - Moranbah Access Road	$1,276,500
TRF_044	Road - Peak Downs Mine Road	$612,720
TRF_045	Road - Saraji Road	$638,250
TRF_046	Road - Golden Mile Road	$944,610
TRF_047	Road - Peak Downs Mine Road	$842,490
TRF_048	Road - Saraji Road	$561,660

2.3.2 Cost Modifiers

In addition to the unit rates identified above, the cost modifiers in **Table 14** have also been applied as necessary, to assets across the transport network.

Table 14: **Asset Cost Adjustments**

Modifier	Valuation Component	Applies To	Adjustment Factor
On-Cost Allowance	Works	All Structures	12%
On-Cost Allowance	Works	All existing & other future assets	15%
Contingency	Works	All Structures	15%
Contingency	Works	All other future assets	11%

2.4 *Parks and Land for Community Facilities Network*

2.4.1 Parks Asset Costs

Where no project costs are available, existing park embellishment costs have been established using costs for individual embellishment items. An audit of the current embellishments within existing parks was completed by IRC Officers. This complete embellishment list applies the individual item costs to determine a total embellishment value per park.

Future park embellishment costs for new Local Recreation parks have been applied using the same method, using standard embellishments comparable to the standards identified in the Desired Standards of Service and the standards of recent trunk park contributions.

Future park projects listed in **Table 16** below have been project costs, based on information provided by IRC which have been adopted from Council's most recent Capital Works Planning.

Unit rates for land have been calculated based on a park's location inside or outside a PIA, representing a higher value for land within existing or planned urban areas. June 2024 Land values per m² of site area are shown in **Table 15**.

Table 15: **Parks land valuation**

Location	Land valuation ($/m²)
Moranbah PIA	$49.81/m²
All other township PIAs	$31.13/m²
Outside PIA	$12.45/m²

Table 16: **Parks and land for community facilities network assets utilising Project Cost assumptions**

Asset ID	Asset Description	Project Base Cost
PF22	Recreation District - Blair Athol Recreational Sports Ground	$150,000
PF23	Recreation District - Greenhill Rec Park	$450,000

2.4.2 Cost Modifiers

In addition to the unit rates identified above, the cost modifiers in **Table 17** have also been applied as necessary to assets across the transport network.

Table 17: **Asset Cost Adjustments**

Modifier	Valuation Component	Applies To	Adjustment Factor
On-Cost Allowance	Works	All existing & future assets	20%
Contingency	Works	All future assets	25%

3.0 Network Planning

Network planning has been undertaken over a 17-year planning horizon from the base date of the LGIP (2024). It is important to note that this does not align with the ultimate development of the Planning Scheme.

Network planning has been prepared on a basis of various studies. Due to time and resource limitations it was not possible to undertake new modelling for all trunk networks, however existing modelling was utilised for the networks and townships where available.

The network planning horizon has been selected on the basis that it provides a rational alignment between the infrastructure planning and landuse outcomes envisaged under the draft IRC Planning Scheme. The considerations given to the planning of each network within the LGIP are as follows.

3.1 *Network Planning in General*

An assessment of the future growth characteristics and trends over each network's planning horizon has been performed by Council engineers and planners together with a review into existing network servicing capacity / adequacy through application of the Desired Standards of Service (DSS) identified within the LGIP. The population and demand models completed as a part of the LGIP project have been considered against Council's previously completed network planning in order to reassess its appropriateness and assist in determining where planning 'gaps' may exist that need to be addressed.

3.2 *Water Supply Network*

Water supply network planning has been undertaken to a 17-year planning horizon at a level of service that aligns with the DSS in the LGIP.

Future trunk infrastructure has been guided by discussions between IRC planners and engineers, review of current capital planning schedules, technical water network reporting and strategy documents, in conjunction with the recommendations identified in water network planning undertaken as part of the development of IRC's Belyando Estate scheme from 2011 to 2014.

3.3 *Sewerage Network*

Sewerage network planning has been undertaken to a 17-year planning horizon at a level of service that aligns with the DSS in the LGIP.

Future trunk infrastructure has been guided by discussions between IRC planners and engineers, review of current capital planning schedules, in conjunction with the recommendations identified in water network planning undertaken as part of the development of IRC's Belyando Estate scheme from 2011 to 2014.

3.4 *Transport Network*

The transport network planning was performed collaboratively through discussions between IRC planners and engineers and review of current capital planning schedules, in order to determine a suitable IRC road network for the LGIP that will support the existing and future needs of the region and that will meet the community outcomes envisaged by the DSS prepared and agreed to by IRC.

Transport network planning has been undertaken to a 17-year planning horizon at a level of service that aligns with the required DSS.

3.5 *Parks and Land for Community Facilities Network*

The Parks and Land for Community Facilities network planning was performed collaboratively through discussions between IRC planners and engineers and review of current capital planning schedules, in order to determine a suitable IRC parks and land for community facilities network for the LGIP, taking into account both land and embellishments. This will support the existing and future needs of the region and that will meet the community outcomes envisaged by the DSS prepared and agreed to by IRC up to the 17-year network planning horizon.

4.0 Financial Modelling Assumptions

4.1 *Model Inputs*

Financial modelling inputs for the IRC LGIP SoW model are outlined in **Table 18** below, including brief comments and justifications around the appropriateness of the inputs used.

Table 18: **Financial Modelling Assumptions within the IRC LGIP SoW model.**

Financial Modelling Assumptions		Inputs	Comments/Justification
Model Setup	Base Year of Model	2024	To align with the Infrastructure Planning and Demand Modelling that has been prepared for the LGIP project
	Infrastructure Planning Horizon	17	18 years for all infrastructure networks. This represents the extent to which each network has been planned and alignment of infrastructure and landuse outcomes is reached.
	Demand Unit (Unit of Measure)	EP/Trips/ Persons	EP – Water Supply / Sewerage networks Trips - Transport network Persons - Parks and Land for Community Facilities network
Financial Inputs	**Discount Rates**		
	Post-tax Nominal WACC to be applied to Expenses (WACC)	5.96%	Comprised of: • 2.46% - Annual average of the 10-year bond rate, taken at the base year of the LGIP; and • 3.5% - Margin
	Real Post-tax Nominal WACC to be applied to Revenues (RWACC)	2.99%	The WACC Adjusted for inflation using the Fisher Equation.
	Escalations		
	Works Escalation Rate (for discounting purposes)	2.81%	The annual 10-yearly moving average of the applicable QLD PPI (RBC) index at the base year of the LGIP, calculated using the same methodology as the State's 3-year PPI averages.
	Land Escalation Rate (for discounting purposes)	2.88%	The annual 10-yearly moving average of the Brisbane CPI index at the base year of the LGIP, calculated using the same methodology as the State's 3-year PPI averages.
	Modelled Charge Inflation Rate	2.88%	The annual 10-yearly moving average of the Brisbane CPI index at the base year of the LGIP, calculated using the same methodology as the State's 3-year PPI averages.

The LGIP SoW model has adopted a "User Pays" approach for the apportionment of infrastructure costs between the users. In addition, this calculation method also employs a discounted cashflow methodology to appropriately model the time value of money over the modelling horizon and to understand the true cost of infrastructure delivery and funding. The SoW model therefore applies the following formula in order to determine a cost per demand unit.

$$\frac{\text{Existing Infrastructure Value (\$) + NPV (Nominal) of Future Infrastructure Expenditure (\$)}}{\text{Current Demand (D) + NPV (Real) of Future Demand (D)}}$$

The Net Present Value (NPV) of future infrastructure expenditure is determined using the *Nominal WACC* (5.96%) and *Escalation Rates* (2.81% or 2.88%), to take into account the escalation of the capital spend in the years forward of the base year. These rates are aligned with assumptions used in Council's Long Term Financial Forecast (LTFF).

The NPV of future demand is a proxy, used to represent future revenue from infrastructure charges. This is determined using a *Real WACC* (2.99%), which is adjusted to account for inflationary effects.

The use of these equations determines an escalating price path which is driven by the inflation rate. In this way, the contribution rate grows over time in line with other cost growth in works, land, sales and wages. The final cost schedules are presented in the LGIP SoW Model.

4.2 *Charges Revenue and Ability to Fund the LGIP*

Charges Revenues have been developed using projected growth in residential dwellings and non-residential floorspace, in accordance with the charging methodologies proposed at the time of gazettal of the LGIP.

An assessment of infrastructure charge revenues collected over the prior 9 years has identified a significant disparity between what was anticipated to be recovered versus what has been collected. Although improving slightly in the last 3-years, the average annual revenues over this period represent only 5% of what would be expected from the Dwelling and GFA assumptions under the LGIP.

Reasons for these disparities are likely due to a combination of the following:

- Development that is provided by State or Commonwealth Government does not typically attract an infrastructure charge;
- Instances of secondary dwellings / family accommodation are becoming increasingly common across the LGA, with the recovery of infrastructure charges proving difficult to monitor and enforce given the limited planning controls (i.e. ability to issue an ICN);
- Growth in non-resident population may be accommodated within existing accommodation vacancies (particularly in the short term).

As a result, the charges revenue modelled in the Schedules of Works Model has adopted the following assumptions with respect to the likelihood for recovery of infrastructure charges revenues:

- 75% reduction to revenues in the first 5-year cohort;
- 50% reduction to revenues in the second 5-year cohort;
- 25% reduction to revenues in the third 5-year cohort; and
- $18.2 million in infrastructure charge revenues were held in Council reserves as at the base year of the LGIP.

Applying the above reductions produces an average annual charge revenue assumption of approximately $2.5 million, which allows demonstrates that Council should be able to fund the LGIP projects with little additional revenue sources. However, Council will continue to monitor the above shortfall closely to ensure that all charges revenues owed by new development in the region are recovered, future capital works planning is adjusted to align with available funding and that all available grants and subsidies for trunk infrastructure projects are pursued.