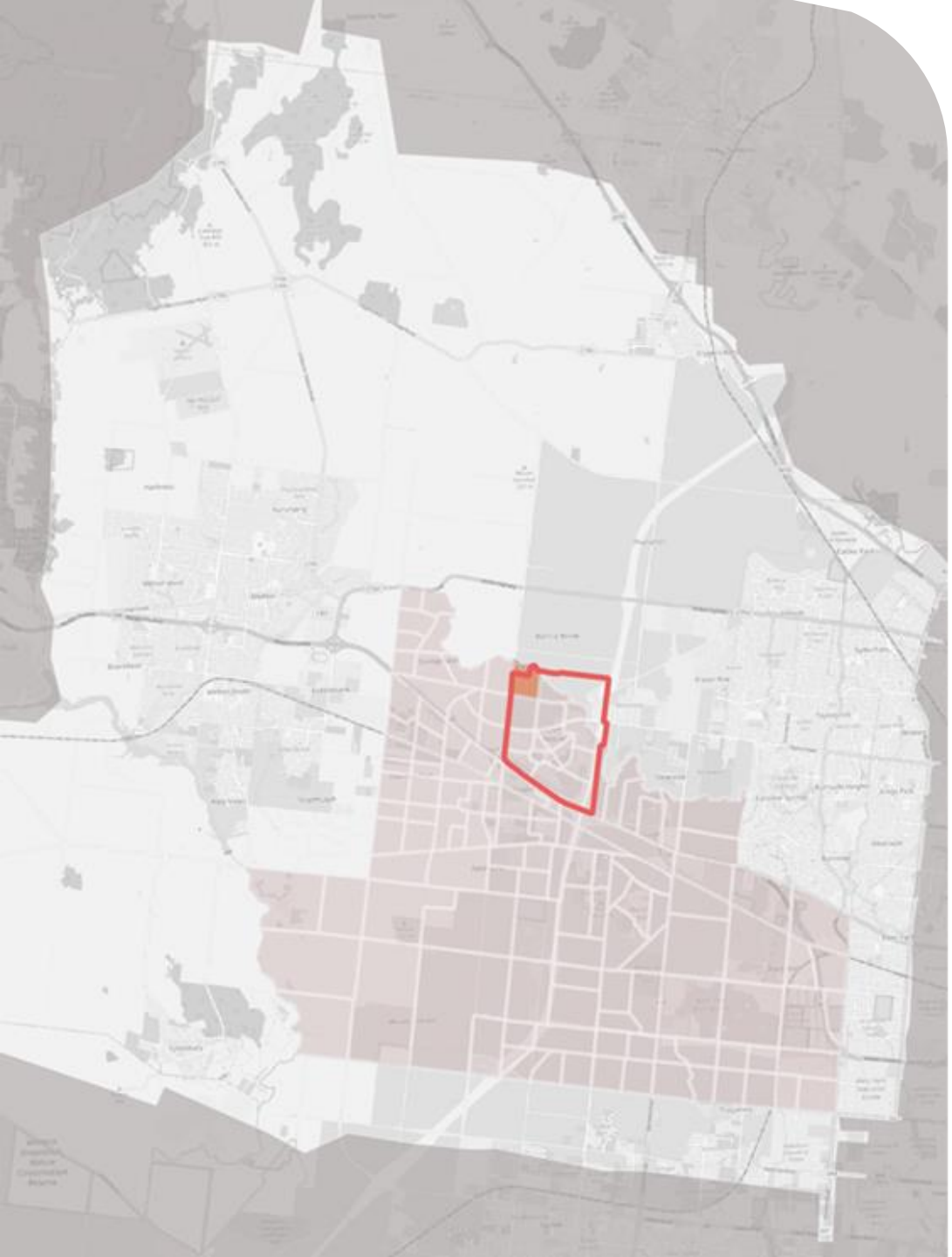
CLARITY

Melton City Council
Rockbank North Major Town Centre UDF

Technical Transport Review and MITM Modelling Assessment

July 2022



Outline

LITERATURE REVIEW

A. Previous Report Review

B. Land Use Review

C. Transport Investment Review

MODELLING

D. Model Suitability Check

E. Major Town Centre Land Use Update Scenario Testing

F. Public Transport Investment Testing

G. Cycling Investment Sensitivity Testing

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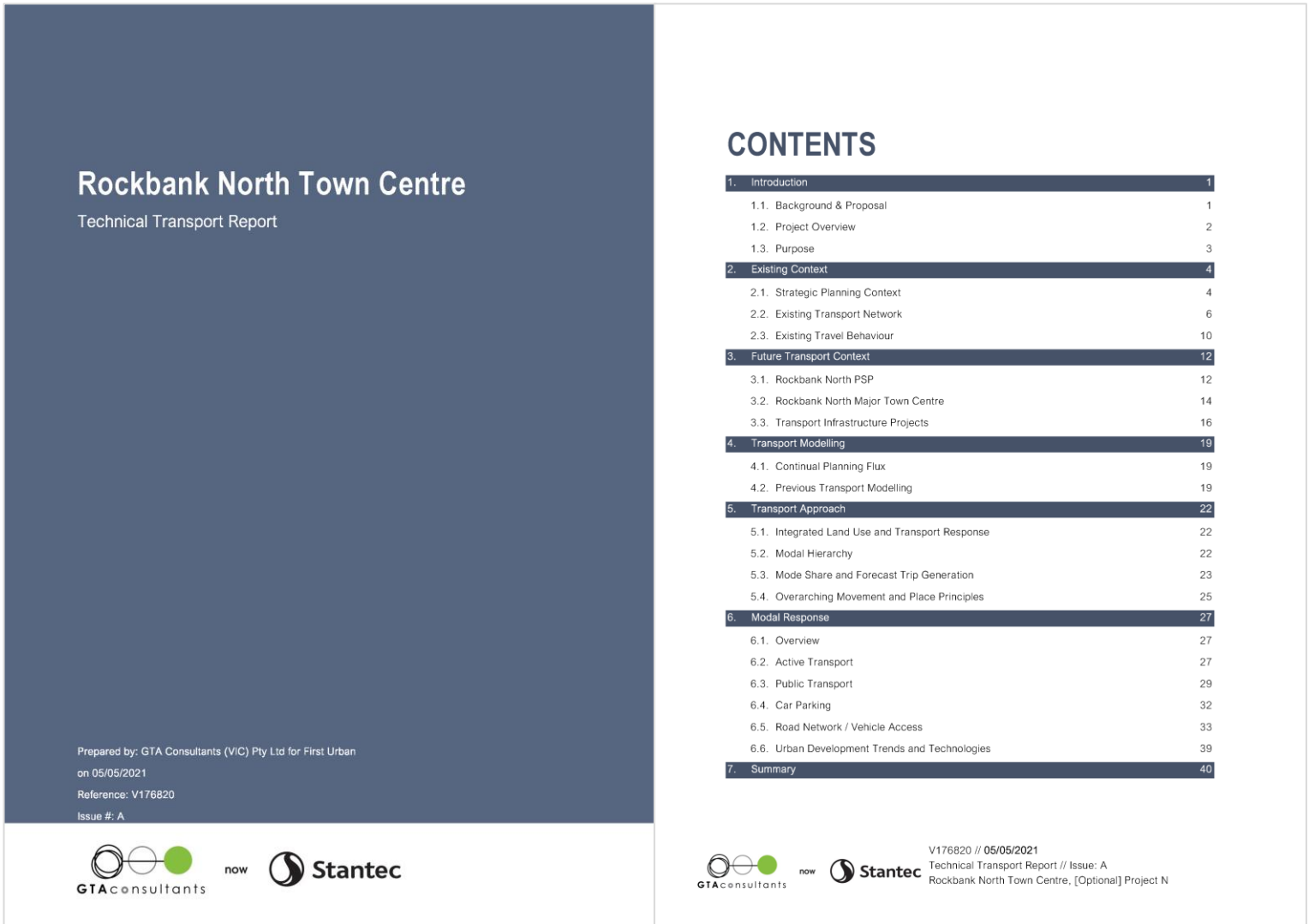
A - Previous Report Review

1 – Report Review (GTA, 2021)

A critical review was initially undertaken of the previous report generated for the Rockbank North Town Centre.



Rockbank North Town Centre

Technical Transport Report

Prepared by: GTA Consultants (VIC) Pty Ltd for First Urban

on 05/05/2021

Reference: V176820

Issue #: A

GTAconsultants now Stantec

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V176820 // 05/05/2021

Technical Transport Report // Issue: A

Rockbank North Town Centre, [Optional] Project N

This report was completed in 2021 by GTA Consultants to support the Rockbank North Major Town Centre Urban Design Framework (UDF) and compiled information from various sources including the initial Precinct Structure Plan (PSP) and Developer Contribution Plan (DCP)

1 – Report Review (Previous Modelling)

Previous modelling work was referenced throughout the GTA Technical Transport report. The five key points from this are referenced below alongside pertinent outcomes from this approach, noting no modelling was explicitly conducted

	PSP Modelling (SMEC, 2012)	Melton Transport Network Plan Modelling (GTA, 2019)	Transport Interventions	Outer Metropolitan Ring Road (OMR)	Access options to Rockbank Major Town Centre (MTC)
Approach Adopted	Assumed Rockbank North MTC to be a very small town centre, significantly less than what is proposed in the UDF	Very limited significance to Rockbank North MTC, with limited land use growth in this area proposed in this modelling work.	Several transport interventions have been proposed but none tested in modelling framework (e.g. bus feeder services to the Rockbank train station and several road upgrades)	OMR implications have not been assessed in detail, noting OMR forms the eastern boundary of the PSP and will likely have an interchange along this section providing direct access from the PSP	Access options to MTC and intersection configurations haven't been modelled to any degree.
Limitations	***The network hasn't been designed to cater for the notable land use intensification***	***Latest modelling work not representative of Rockbank North and therefore redundant for this area***	***No transport investment has been directly modelled for demand uptake and optimisation***	***Large implications for Rockbank North from OMR have not been assessed***	***No consideration for how access to the town centre will be setup and function***

Further to these five items, section 6.5.1 suggests initial modelling undertaken for Rockbank North has sufficient road network to cater for growth, which is ***vague and contradictory to previous statements as this hasn't been assessed***

1 – Report Review (Transport Assessment)

A transport assessment was undertaken as part of this report. This adopted a simplified approach in lieu of completing a detailed transport modelling exercise as outlined below, with a best practice modelling approach also indicated.

	Trip Generation	Trip Distribution	Mode Share
Approach Adopted	• Number of trips in area has been generated using standard form trip rate tables,	• Traffic distribution to/from major town centre simply assumed, without any context as to where people are travelling	• Mode share has been assumed to be similar to inner city urban areas like St Kilda based solely on proposed job densities without any consideration for regional context overlay and socio-economic circumstances in Melton
Best Practice	***Trips generated from outcomes of land use*** *assumptions and their subsequent detailed trip generation rates for different travel purposes*	***Trip distribution generated from linking key generators and attractors****, using modelling frameworks through a gravity model*	***Mode share calculated based on choice model*** *and competing cost of travel via various modes for different travel purposes*

Report Review Summary

Overall, the assessment to date is **not representative** of current planning for the Rockbank North Major Town Centre, centred on the following three points:

1. ***Superseded modelling references*** based on work completed a decade ago with assumptions that have fundamentally changed over the preceding years

2. ***Inferences from other areas of inner-city Melbourne*** that do not suitably account for the outer suburban context of Rockbank North and socio-demographics of the region

3. ***Generic traffic impact assessment principles/assumptions*** that are based on 'back of the envelope' calculations rather than a detailed modelling exercise

Recommendation: A more thorough assessment based on current aspirations and thinking for the town centre needs to be conducted, to ensure adequate provision of transport facilities is provided enabling strong sustainable transport outcomes.

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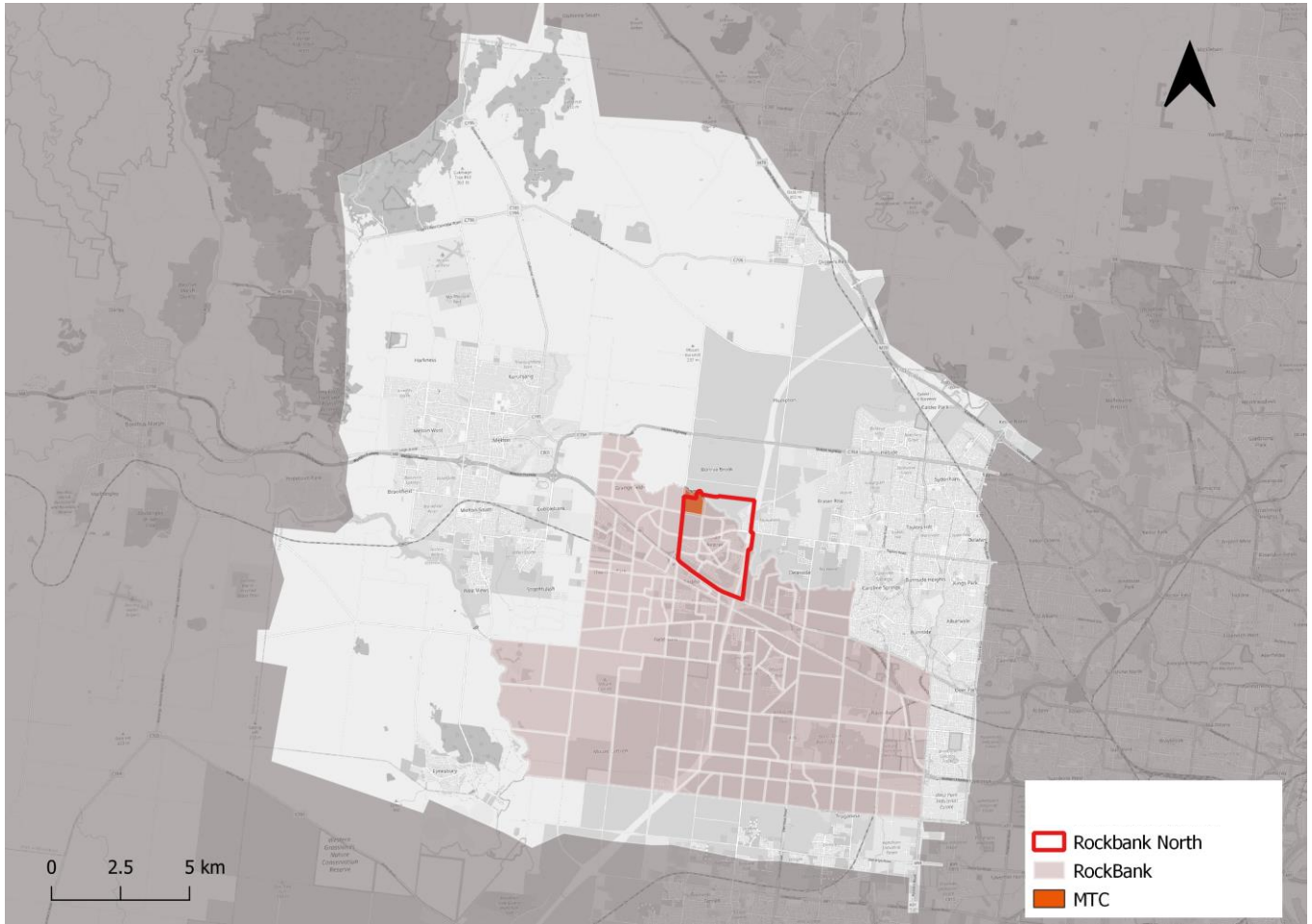
B - Land Use Forecast Review

2 – Land Use Forecast Review (Rockbank North)

Forecast land use for the Rockbank North area was sourced from state government detailed Small Area Land Use Projection data (SALUP). This data was collated for all SALUP zones within Rockbank North, inclusive of the proposed Major Town Centre, as outlined in the figure below. This shows ***large uplifts in population in the Rockbank North region to 2041.***



Population/Households

Precinct	Year	Population	Household
Rockbank North	**2019**	2,137	555
	2026	8,154	1,384
	2031	15,027	2,582
	2041	26,629	4,735

Employment (Jobs)

Precinct	Year	Employment Total	Employment Retail
Rockbank North	**2019**	65	1
	2026	221	5
	2031	364	9
	2041	532	16

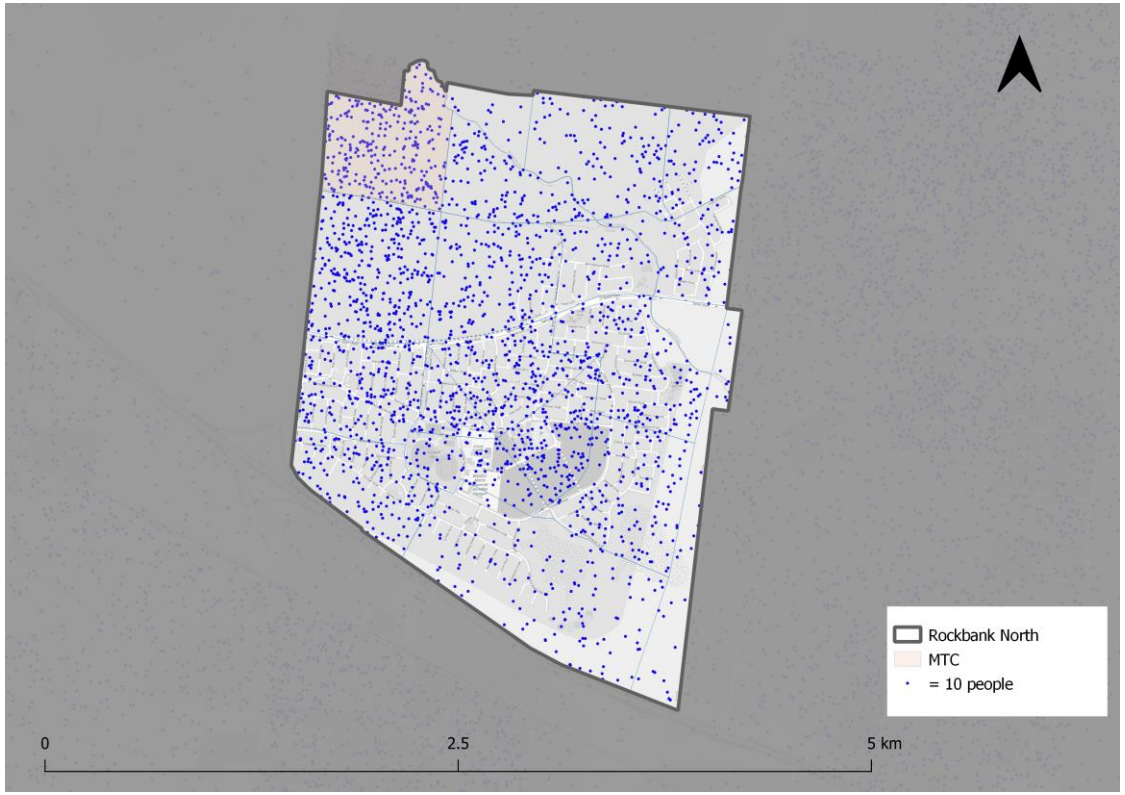
Enrolments

Precinct	Year	Enrolment Primary	Enrolment Secondary
Rockbank North	**2019**	0	0
	2026	809	85
	2031	1,413	168
	2041	1,767	414

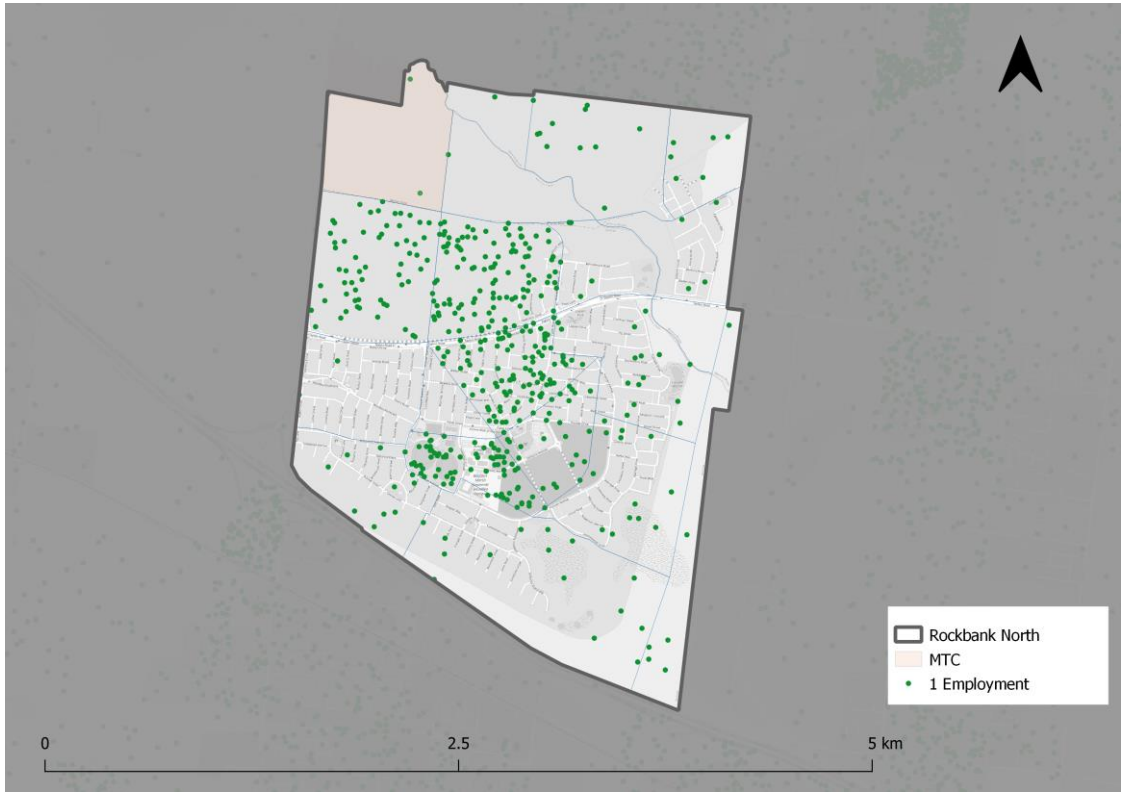
2 – Land Use Forecast Review (Rockbank North)

To add further spatial context to where this forecast growth in population and employment is anticipated to be, plots of the location of growth from 2019 to 2041 for people and jobs (employment) are provided below. These show:

- ***Evenly distributed population growth*** across Rockbank North, with higher densities in the west and central section
- ***Employment growth focused on the central part of Rockbank North*** (noting this only represents a small job growth ~ 500 additional jobs)



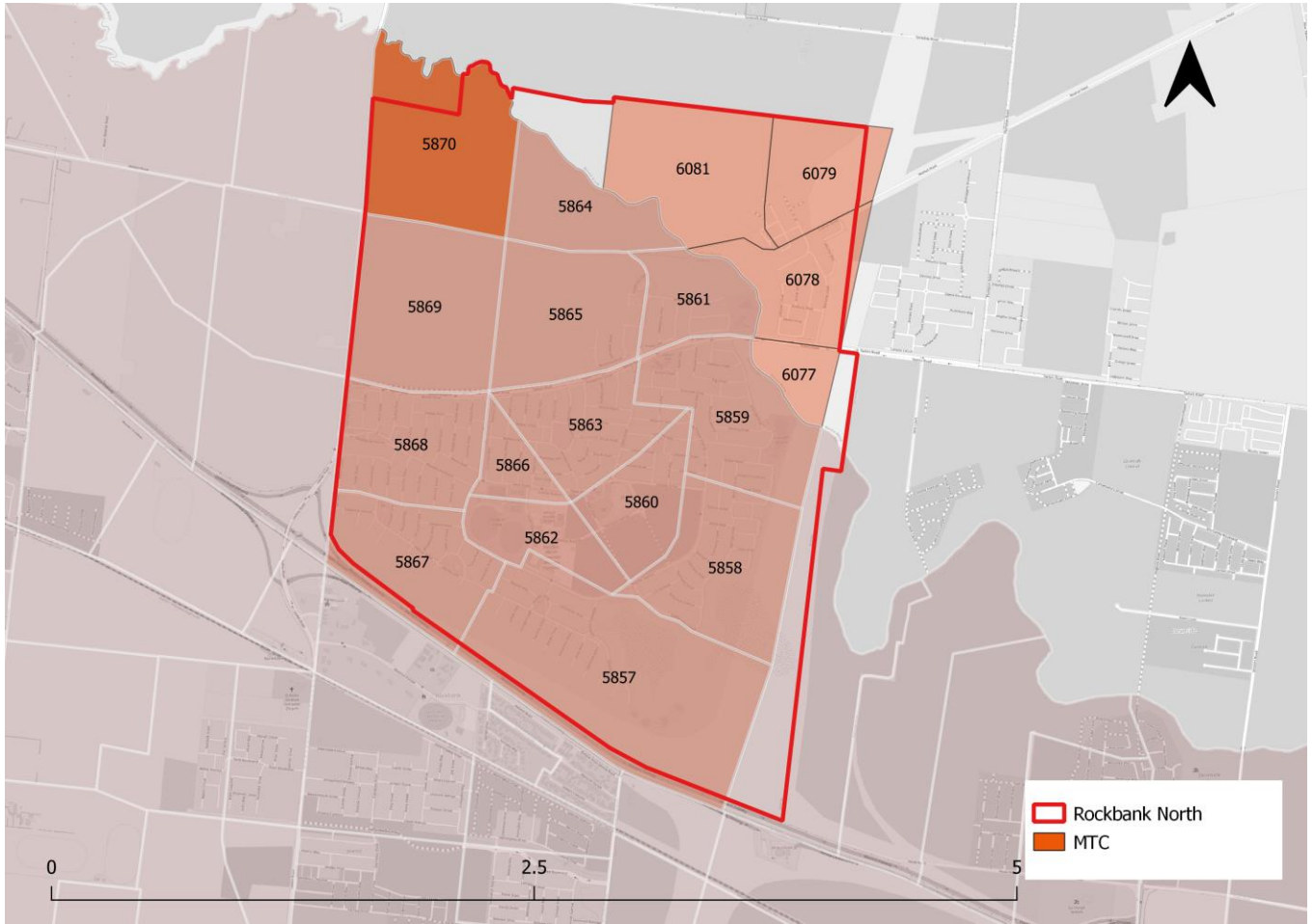
Population Growth (2019 to 2041)



Employment Growth (2019 to 2041)

2 – Land Use Forecast Review (Major Town Centre)

A more detailed review was then undertaken for the Rockbank North Major Town Centre (MTC). This demonstrated that current state government projections for the area showed large uplifts in population, however ***negligible employment forecast in the MTC of less than 10 jobs and no retail jobs, inconsistent with the vision for the town centre***.



Population/Households

Precinct	Year	Population	Household
MTC (zone 5870)	**2019**	139	35
	2026	990	157
	2031	2,032	332
	2041	3,709	636

Employment (Jobs)

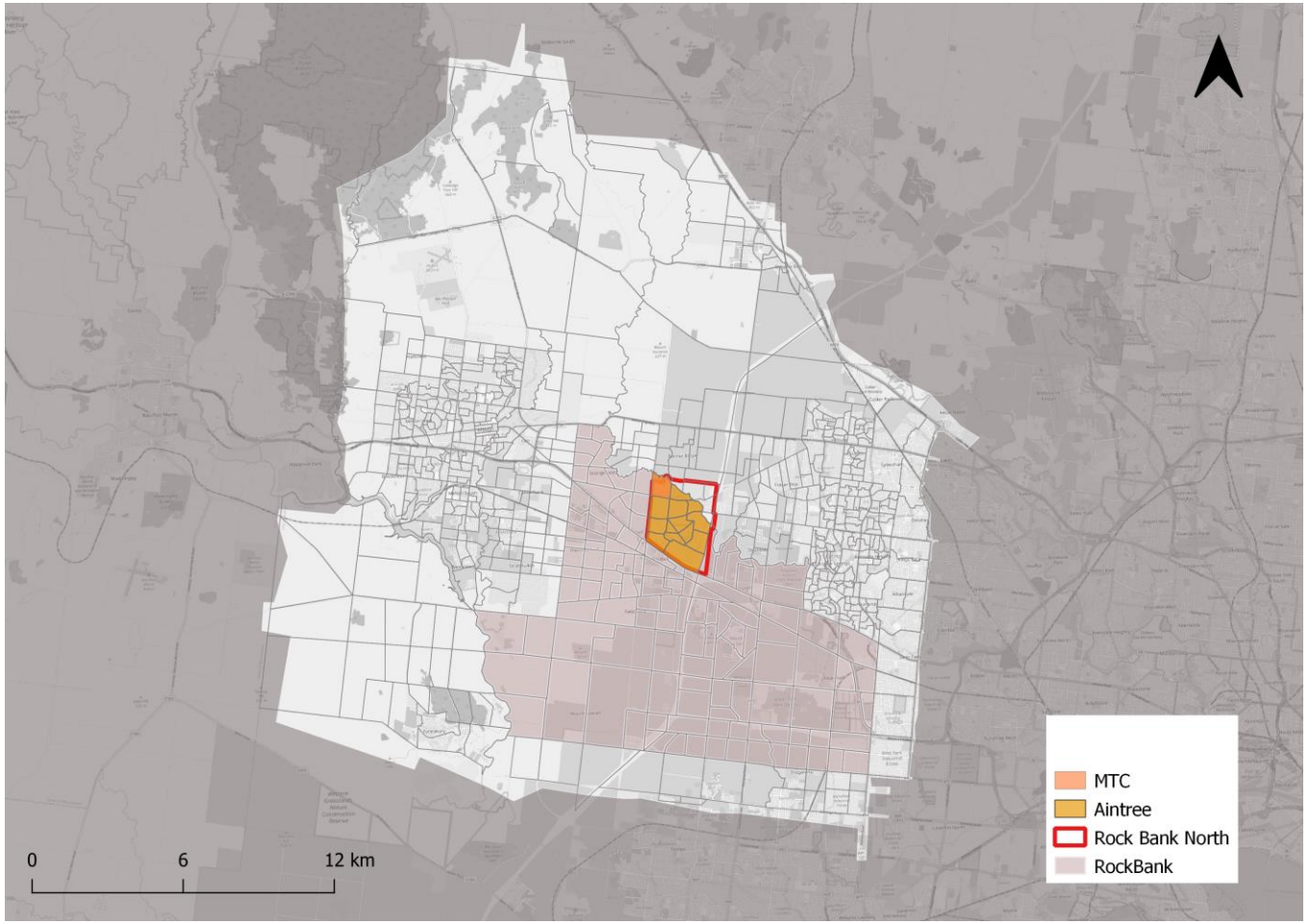
Precinct	Year	Employment Total	Employment Retail
MTC (zone 5870)	**2019**	5	0
	2026	5	0
	2031	6	0
	2041	8	0

Enrolments

Precinct	Year	Enrolment Primary	Enrolment Secondary
MTC (zone 5870)	**2019**	0	0
	2026	0	0
	2031	0	0
	2041	0	0

2 – Land Use Forecast Review (Comparison)

A comparison of alternate sources of land use from the previous GTA assessment shows ultimate population generally in line with 2041 population, however ***significantly more employment assumed (500 vs 3,900)***. Forecast.ID for population shows ***anomalies in terms of population***, with reductions from 2031 to 2041.



Summary of Rockbank North PSP future development (GTA Rockbank North Report)

Area	Item	Ultimate Figure	Source
Rockbank North PSP	Population	20,400	*Rockbank North PSP (2012), p.7*
	Dwelling	7,300	*Rockbank North PSP (2012), p.7*
	Jobs	3,900	*Rockbank North PSP (2012), p.7*

Population (Council Data based on Forecast.ID)

Area	Year	SALUP	Forecast.ID	Difference
Aintree	**2019**	2,078	5,345	3,267
	2021	2,975	8,601	5,626
	2026	7,934	11,502	3,568
	2031	14,027	13,204	- 823
	2041	23,991	12,590	- 11,401

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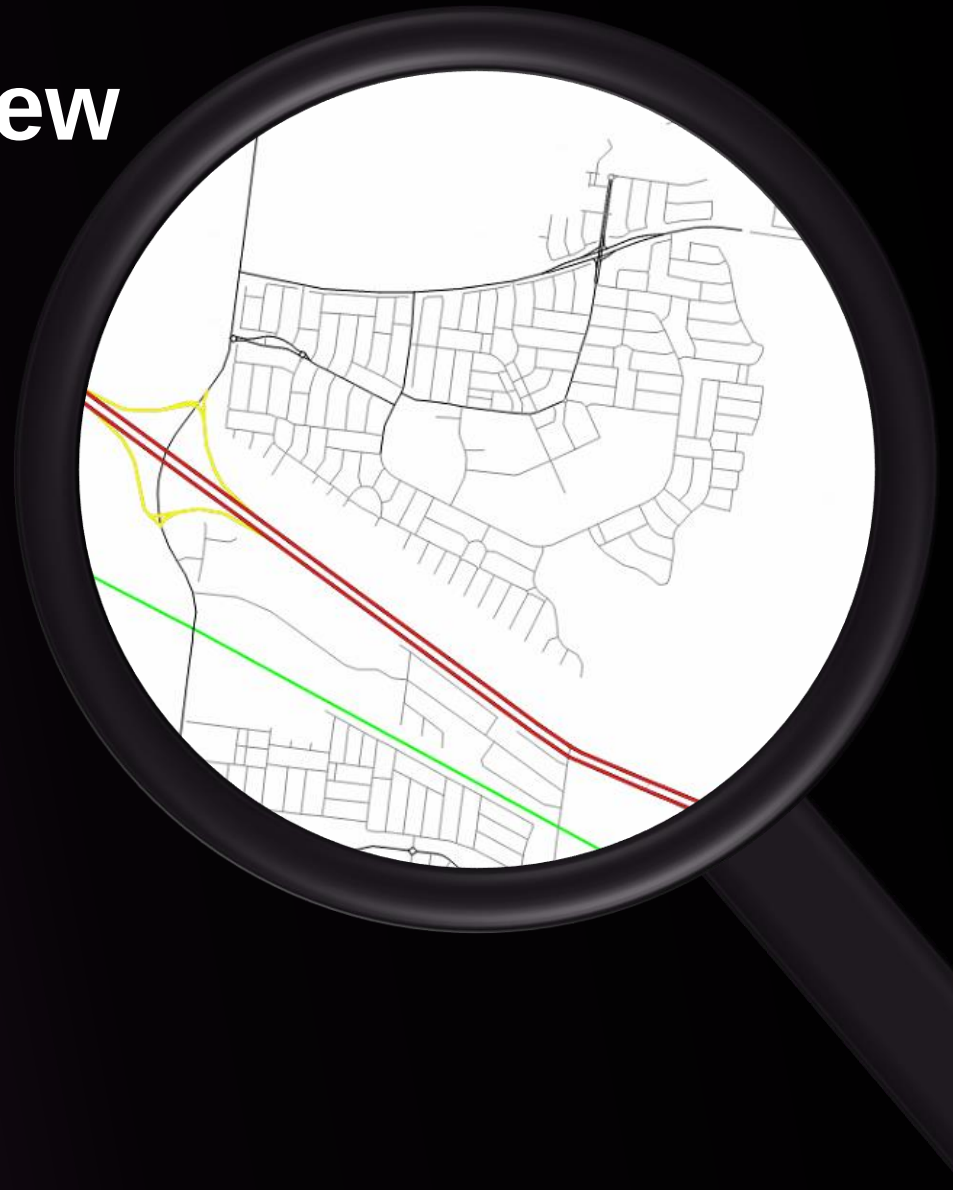
C - Transport Investment Review



3 – Transport Investment Review

Transport network assumptions for both roads and public transport in the vicinity of Rockbank have been extracted from the ***Victorian Integrated Transport Model (VITM).***

This outlines the transport investment envisaged for Rockbank in terms of:

Road Upgrades
- Upgrade of existing roads from rural standard

New Roads
- Construction of new roads linking to the new development areas

Additional Buses
- Additional bus services on existing corridors

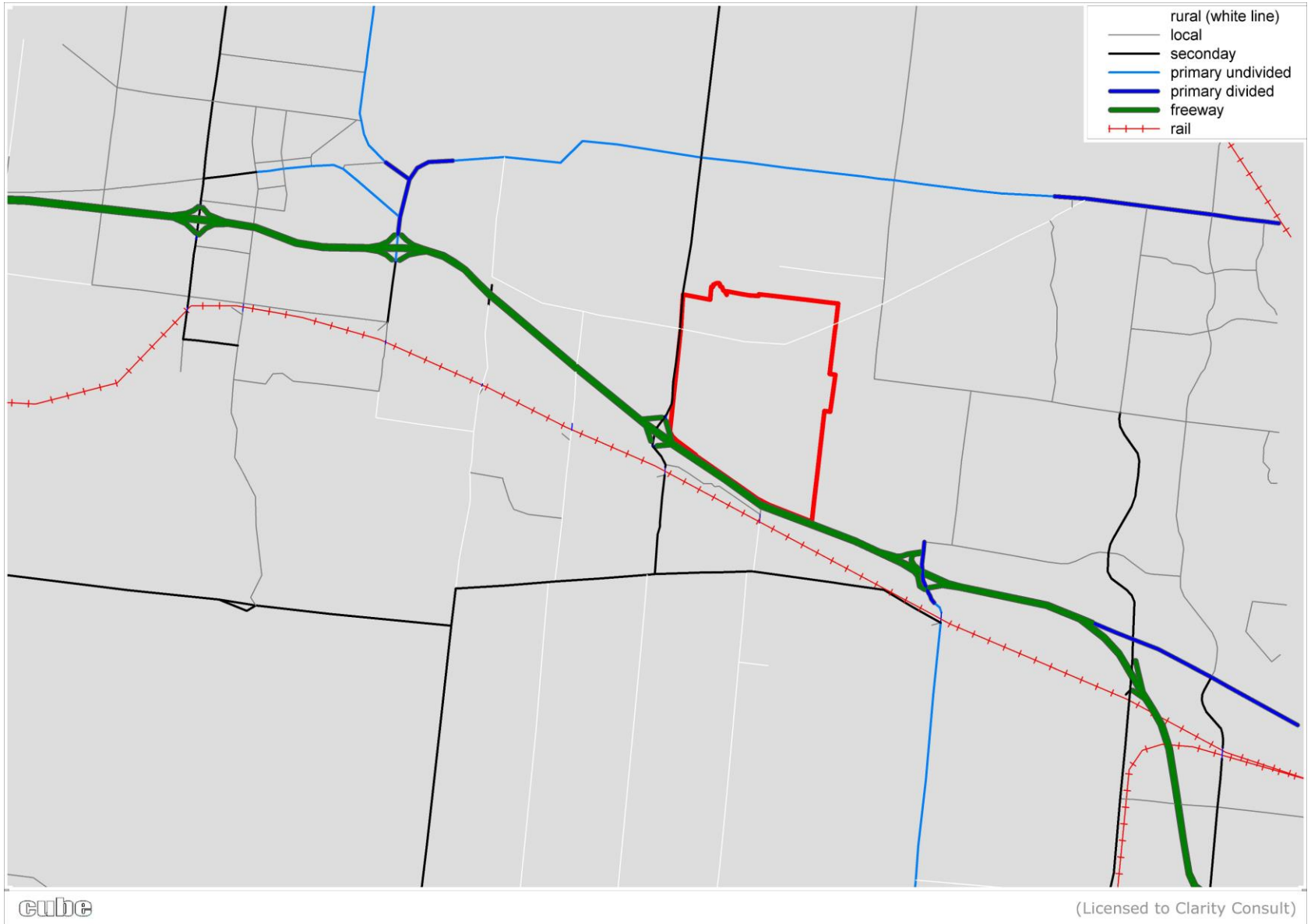
New Bus Routes
- New bus routes to service new development areas

Additional Trains
- Additional rail services on existing lines

Rail Upgrades
- Electrification of rail corridors

Note additional granularity of future transport network detail will be able to be provided on completion of the Melton Integrated Transport Model (MITM) in April/May 2022

3 – Transport Investment Review (2018 Roads)



The base year 2018 road network shows limited road infrastructure in Rockbank North, with only one rural standard east-west road traversing the study area.

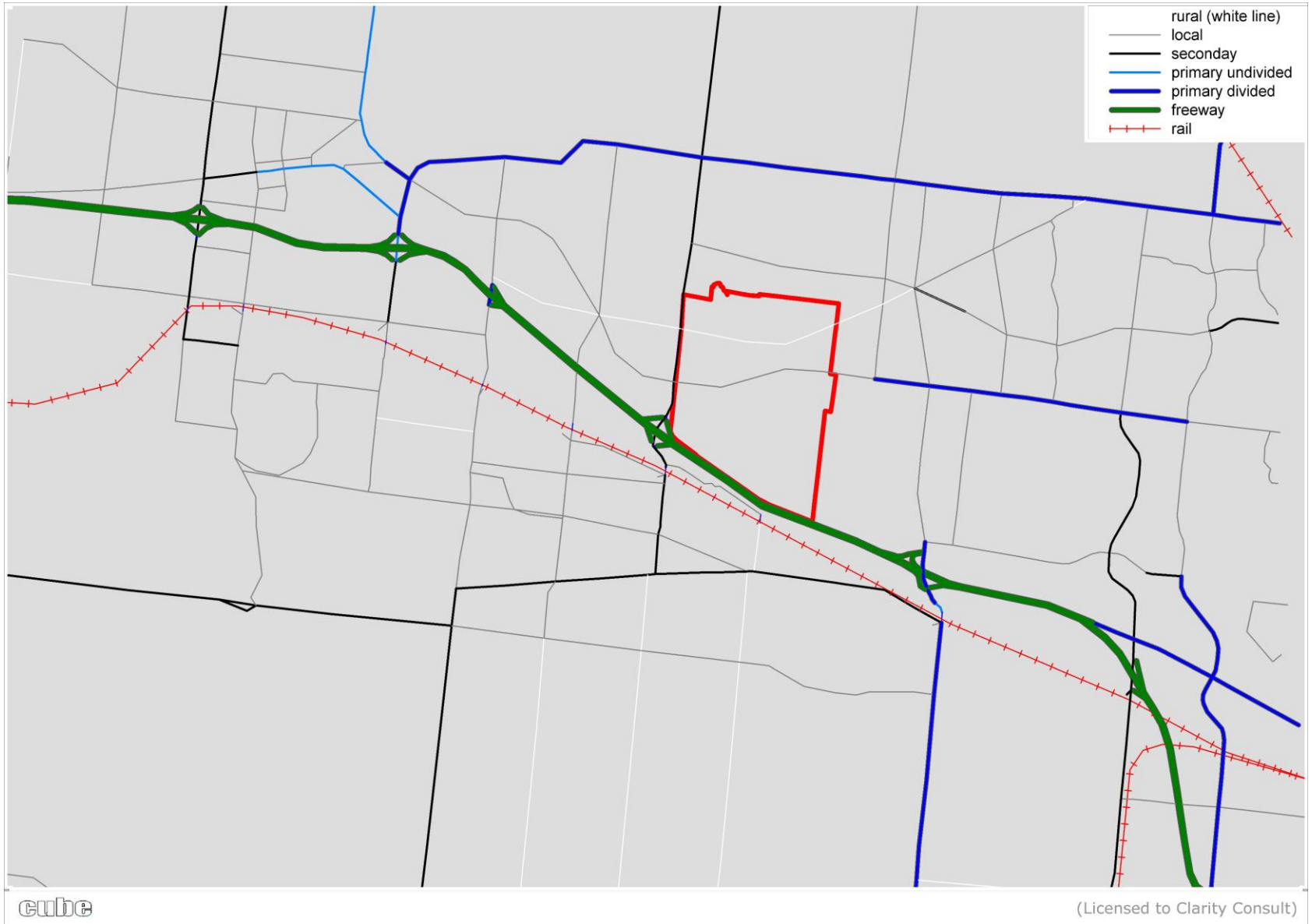
3 – Transport Investment Review (2026 Roads)

In 2026, several roads in the region are upgraded from rural standard

The Taylors Road east-west corridor is extended to travel through the Rockbank North study area and connect to Leakes Road to the west.

The Hopkins Road north-south corridor is now also extended north of the Western Freeway up to Melton Highway,.

3 – Transport Investment Review (2031 Roads)

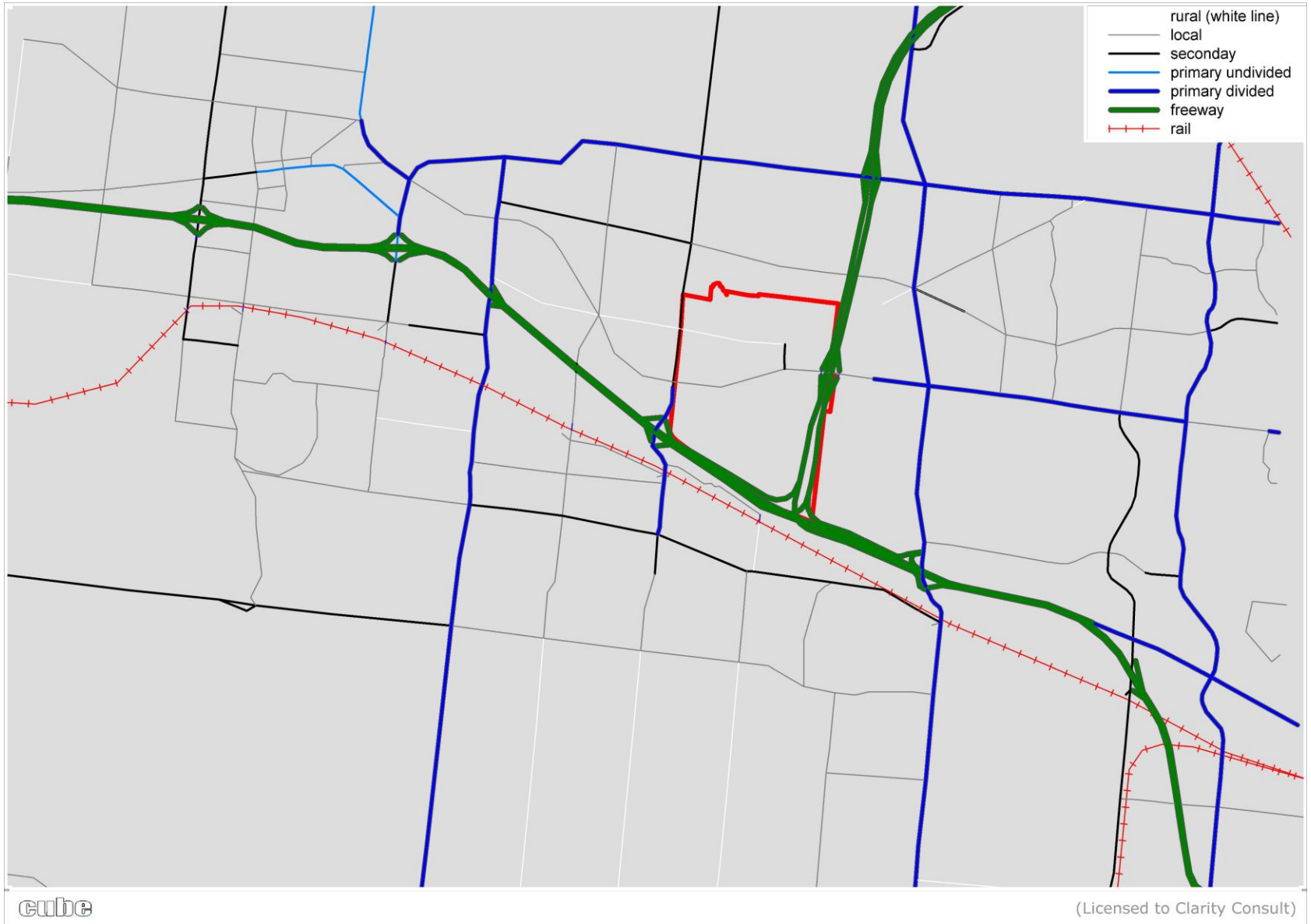


By 2031, multiple road upgrades are implemented around the region, consisting of new north-south and east-west corridors.

Taylors Road is extended further west past Leakes Road and upgraded to a primary arterial divided carriageway to the east.

A new east-west connection is also provided to the north of Rockbank North, just north of the Major Town Centre.

3 – Transport Investment Review (2041 Roads)



By 2041, the road network is significantly enhanced with many of the surrounding corridors up to arterial standards.

More significantly though, the Outer Metropolitan Ring Road (OMR) comes online on the eastern border of Rockbank North, providing an interchange at Taylors Road and direct access from Rockbank North to a second freeway at the OMR.

3 – Transport Investment Review (Public Transport)

The base year 2018 public transport network shows no public transport services in Rockbank North.

3 – Transport Investment Review (Public Transport)

By 2026, bus feeder services are provided connecting Rockbank North and the MTC to the Rockbank Train Station. These feeder services are relatively high frequency, ensuring strong connections. The Melton rail line also has a notable increase in V/Line services.

3 – Transport Investment Review (Public Transport)

In 2031 there is limited change from 2026, with bus services largely unchanged and an increase in rail services along the Melton line.

3 – Transport Investment Review (Public Transport)

By 2041, an increase in the number of bus feeder services is provided between Rockbank North/MTC and the Rockbank Train Station. More notable however is the electrification of the Melton Rail line all the way to Melton.

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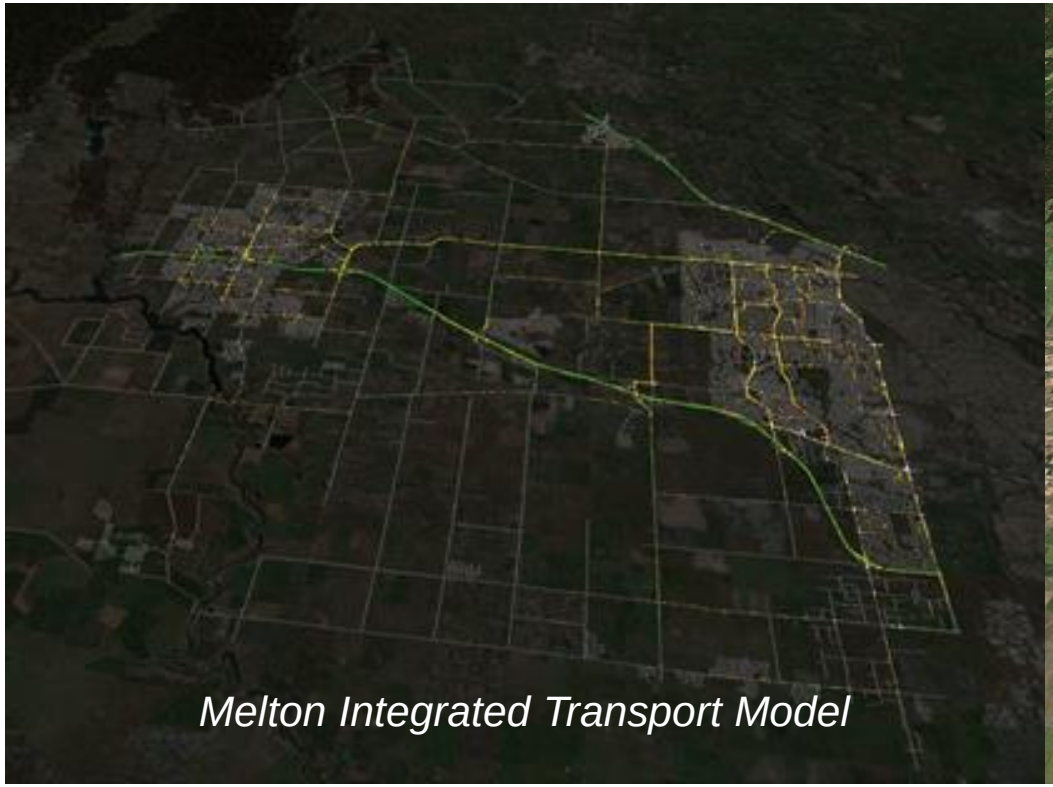
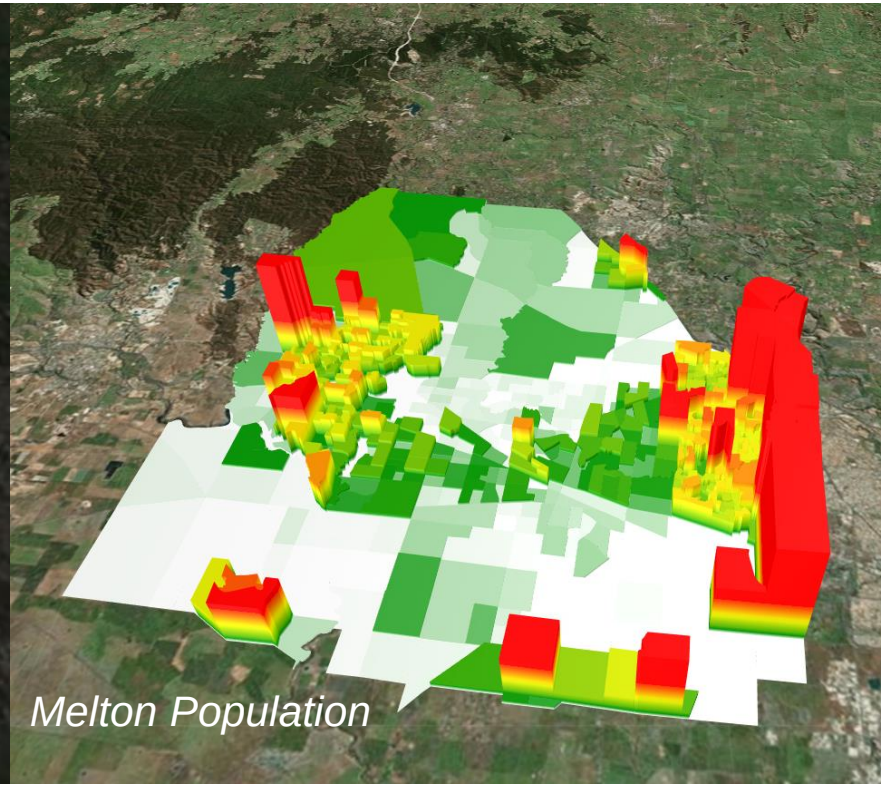
D - Model Suitability Check

4 – Melton Integrated Transport Model (MITM)

The Melton Integrated Transport Model (MITM) has been developed in collaboration with Melton City Council to provide council with a single consolidated demand and operational tool for all transport planning and capital works management moving forward. Validation of the base year model has now been completed and the team are working through setting up the model for the future years of 2026 (short term) , 2031 (medium term) and 2041 (long term).



Melton Integrated Transport Model



Melton Population

As development of MITM is now complete, utilising the model for assessment of Rockbank would provide an evidence base for assessment of the area and improve on previous work conducted. MITM is developed for the AM peak (7 to 9am) and PM peak (3 to 6pm).

4 – Model Suitability Checking

Validation of the base year model has now been completed across the Melton LGA and the team are now finalising the future year models of 2026 (short term) , 2031 (medium term) and 2041 (long term)

Prior to utilising any model for the purposes of a detailed localised assessment though, it is always prudent to ***undertake a review and sense check of validation outcomes in the direct study area*** (i.e. how well does the model represent the transport operations in the study area and where are there any deficiencies or limitations that should be noted).

As part of this exercise we will review the following aspects to ensure the model is suitable for use in the Rockbank North area for the purposes of a detailed assessment:

Traffic demand

do traffic counts in the area align with observed data?

Travel time along key road corridors

do travel times in the area align with observed data?

Public transport demand [1]

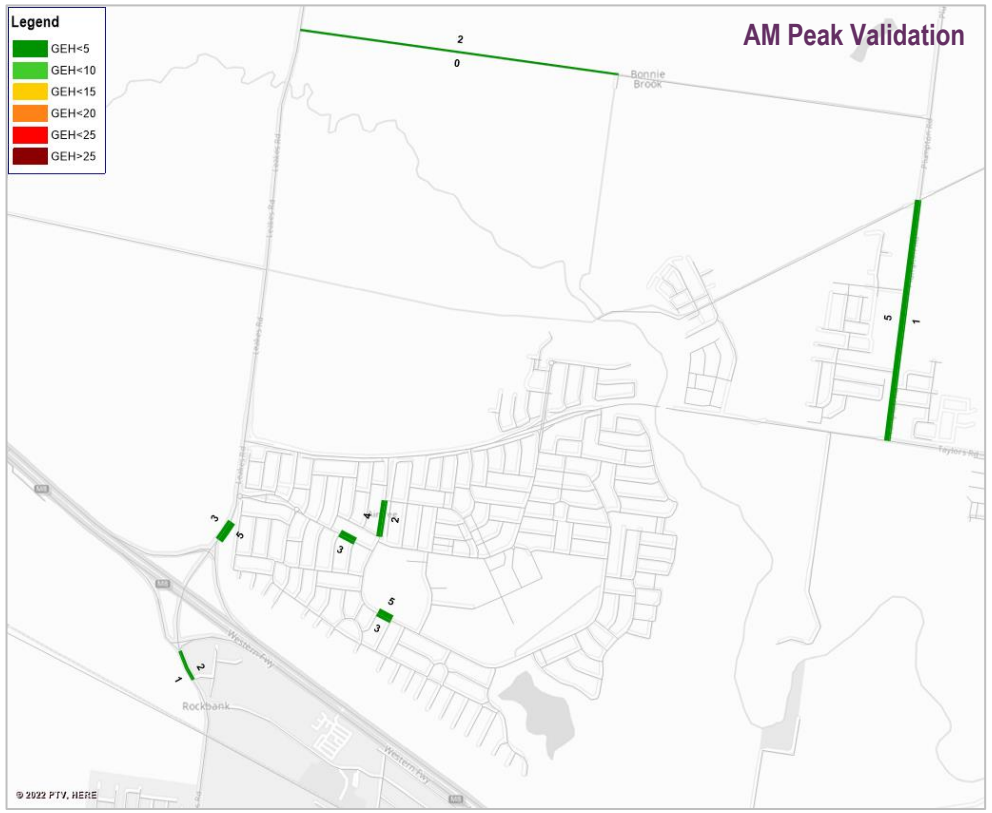
does public transport patronage align with empirical data

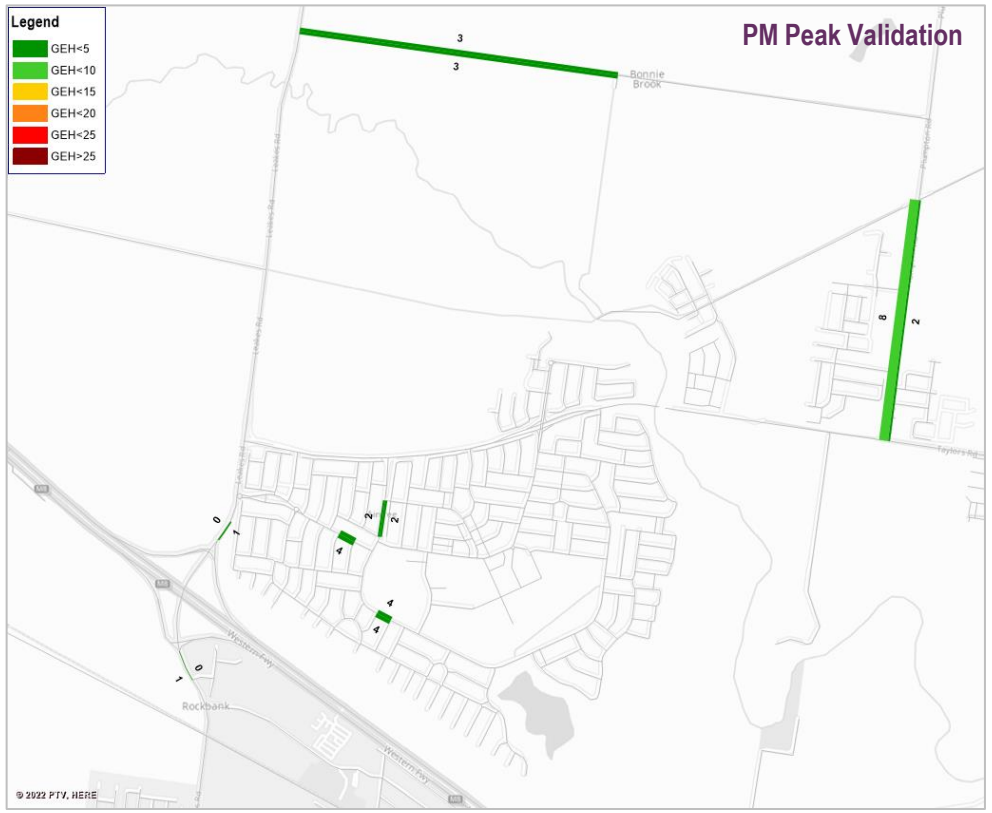
[1] noting no bus services currently operate in Rockbank North and hence this was not completed

4 – Model Suitability Checking (Traffic Demand)

Several locations in the vicinity of the Rockbank North study area had traffic counts in the model. The validation outcomes for these locations (i.e. how does the model compare to traffic counts) is shown below using the GEH threshold[1].

As can be seen below, ***both AM and PM peak validation is strong in the Rockbank North Study area***, with all counts in both peak periods within required criteria. Note the only location outside the ideal GEH criteria was Plumpton Road northbound in the PM peak, however this was only marginally outside and still within the acceptable upper range.





GEH is the criteria for determining acceptable modelled traffic demand differences. A GEH of less than five is deemed a good fit of the modelled to observed data and ideally all counts should have a GEH less than 10.

4 – Model Suitability Checking (Travel Times)

Two key corridors run adjacent to the Rockbank North study area, being the north-south corridor of Leakes Road and east-west corridor of Melton Highway. The travel time validation outcomes for both of these corridors is provided below for each of the five peak hours in the model.

As can be seen from the below table, ***nearly all corridors in both directions for all five peak hours fall within the required validation criteria***, meaning the travel time within the model falls with observed data bounds. The only exception is Leakes Road in the 8 to 9am peak hour, where the model is over representing congestion for this peak hour.

Corridor	Direction	7 to 8am	8 to 9am	3 to 4pm	4 to 5pm	5 to 6pm
Melton Highway	Eastbound	✓	✓	✓	✓	✓
	Westbound	✓	✓	✓	✓	✓
Leakes Road	Northbound	✓	✓	✓	✓	✓
	Southbound	✓	x	✓	✓	✓

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E - Major Town Centre Land Use Update Scenario Testing

6 – Staging Plan Scenario Testing

The land use forecast review in section B of the document demonstrated land use not conducive of a major town centre, with negligible employment of less than 10 jobs by 2041. Further to this, detailed reviews of population forecast assumptions have also demonstrated limitations, particularly in terms of staged development.

To rectify these limitations and provide a more realistic assessment of forecast conditions for Rockbank North and its Major Town Centre, detailed updates to land use were conducted. This included reviewing and updating land use for each of the three horizon years (2026/2031/2041) in terms of:

Population and Households

- Reviewing total number of assumed dwellings and population, as well as when each stage of the Rockbank North / Aintree development comes online

Employment

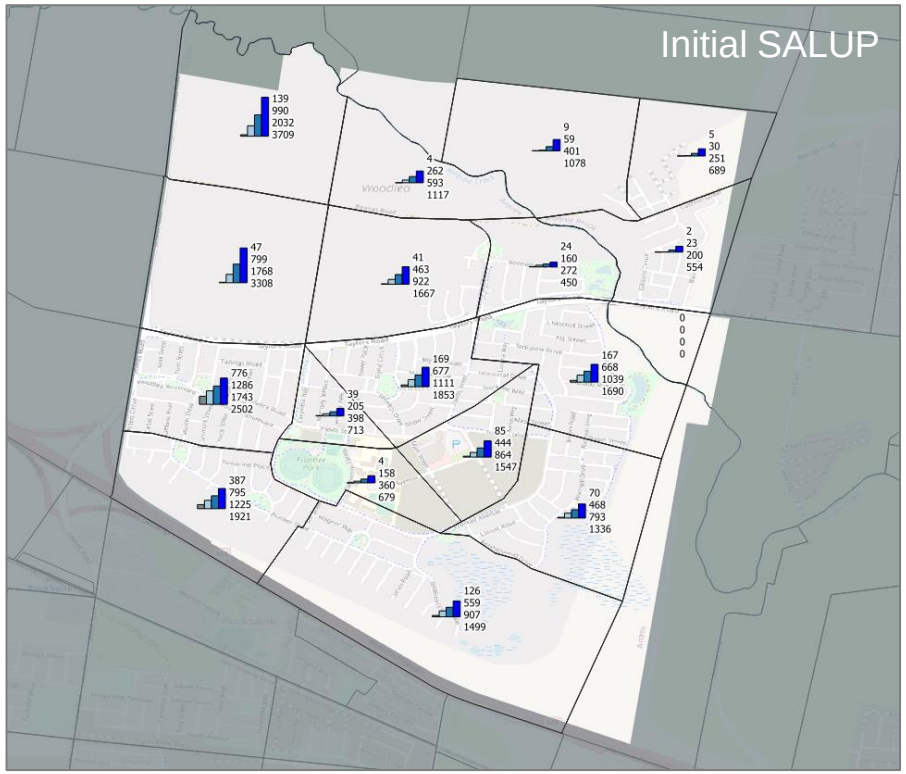
- Reviewing and updating employment assumptions for the Major Town Centre based on more recent work in the area, including detailed breakdown by industry classification

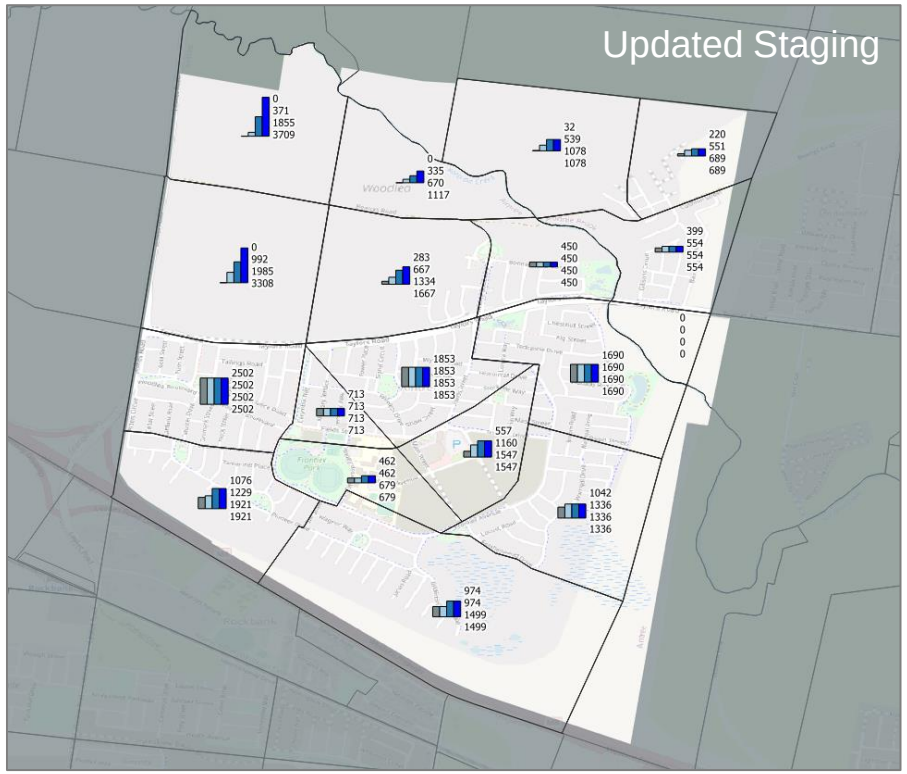
Note ***population updates for the wider Rockbank North area have been included in the baseline model*** as a more accurate reflection of planned residential development. Whereas land use updates in the MTC form the land use testing to isolate the impacts from its development

7 – Updated Land Use Assumptions (Population)

Population assumptions in MITM were initially adopted from SALUP. Following a review against forecast.ID, it was noted that population assumptions in the short term were significantly underestimated against what is currently on the ground. However, from the year 2026 onwards, forecasts balance out well. Therefore, for total population from 2026 onwards, the SALUP total numbers in the area was maintained.

The staging of development was however rectified to align better with staging plans for the development. Final updated population forecasts are shown below for each of the four years (2019/2026/2031/2041) showing areas to the south are already fully built out (with the exception of southern most zones), however areas to north and west have some time till completed.

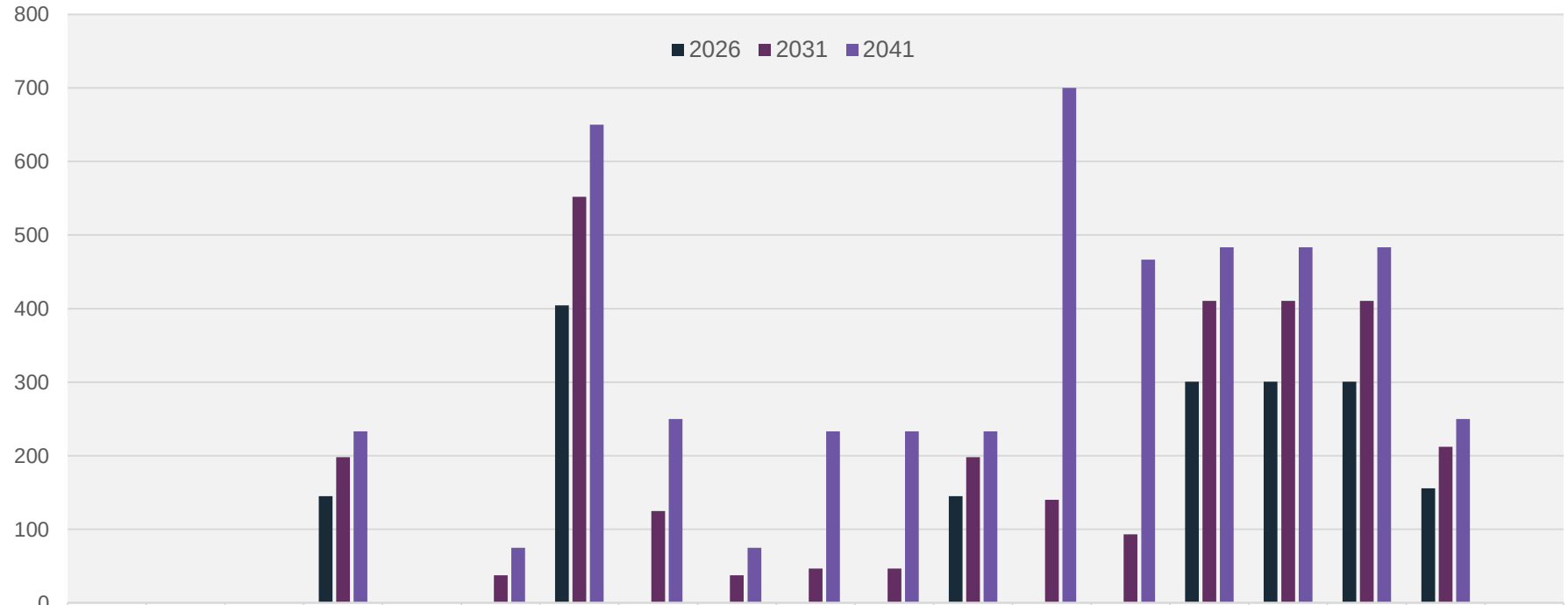




7 – Updated Land Use Assumptions (Employment)

As previously noted, employment assumptions for the MTC were shown to be neglible in the SALUP land use forecasts. To rectify this and have a model with more representative town centre characteristics, ***details on projected employment were sourced from a recent assessment being the "Urban Enterprise Economic Assessment (February 2021)".***

These projections were then converted from gross floor area into person jobs by industry classification and then forecast to the three horizon years based on when staged developed of the MTC is planned to take place. The final projected employment by IC are shown below:



	Agriculture, Forestry and Fishing	Mining	Manufacturing	Electricity, Gas, Water and Waste Services	Construction	Wholesale Trade	Retail Trade	Accommodation and Food Services	Transport, Postal and Warehousing	Information Media and Telecommunications	Financial and Insurance Services	Rental, Hiring and Real Estate Services	Professional, Scientific and Technical Services	Administration and Support Services	Public Administration and Safety	Education and Training	Health Care and Social Assistance	Arts and Recreation Services	Other Services
2026	0	0	0	145	0	0	405	0	0	0	0	145	0	0	301	301	301	156	0
2031	0	0	0	198	0	38	552	125	38	47	47	198	140	93	411	411	411	212	0
2041	0	0	0	233	0	75	650	250	75	233	233	233	700	467	483	483	483	250	0

Rockbank North Major Town Centre is forecast to accommodate the following ***total number of jobs for each forecast year***:

- 2026 = 1,753 jobs
- 2031 = 2,920 jobs
- 2041 = 4,850 jobs

2041 is assumed to be the ultimate level of development for the precinct, with employment levelling out off from this point onward.

7 – Major Town Centre Scenario Testing

With the updates to both Rockbank North and the Major Town Centre (MTC) land use assumptions, two sets of scenarios were developed and run for all three future years (i.e. 2026, 2031 and 2041) and both peak periods (i.e. AM and PM peaks).

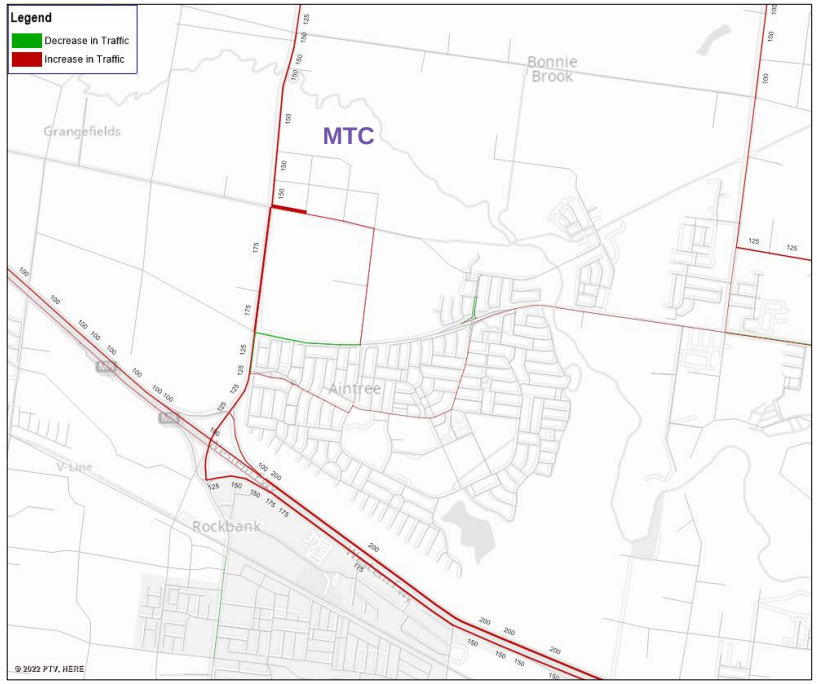
These scenario sets pertain to:

1. **Updated baseline scenario** – from rationalising population assumptions
2. **Major Town Centre (MTC) scenario** – updating population and employment assumptions in the MTC

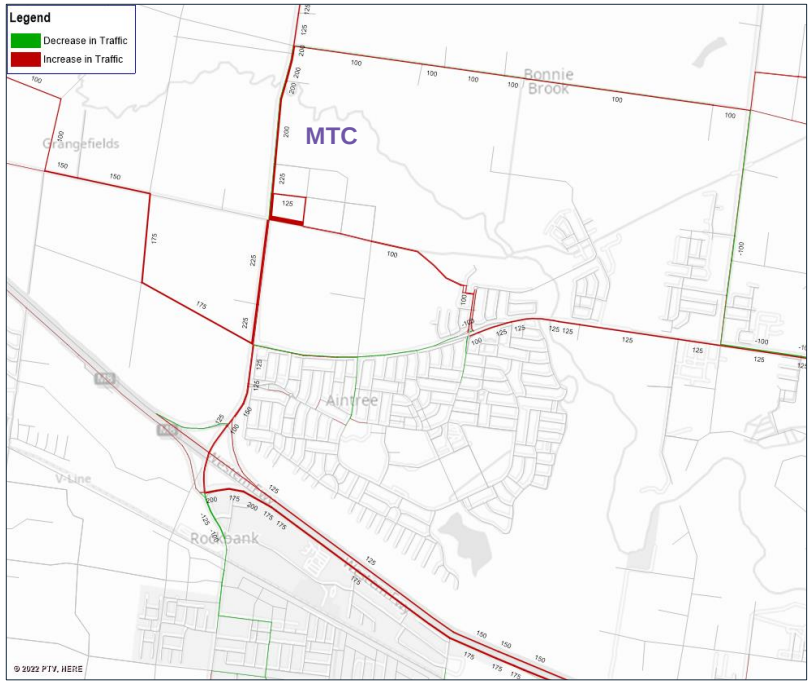
The modelling results in this chapter are therefore exploring the ***impact of the major town centre*** on the surrounding transport network, noting that by 2041 there are forecast to be nearly 5,000 additional jobs in the town centre

8 – Major Town Centre Impacts on Traffic (AM)

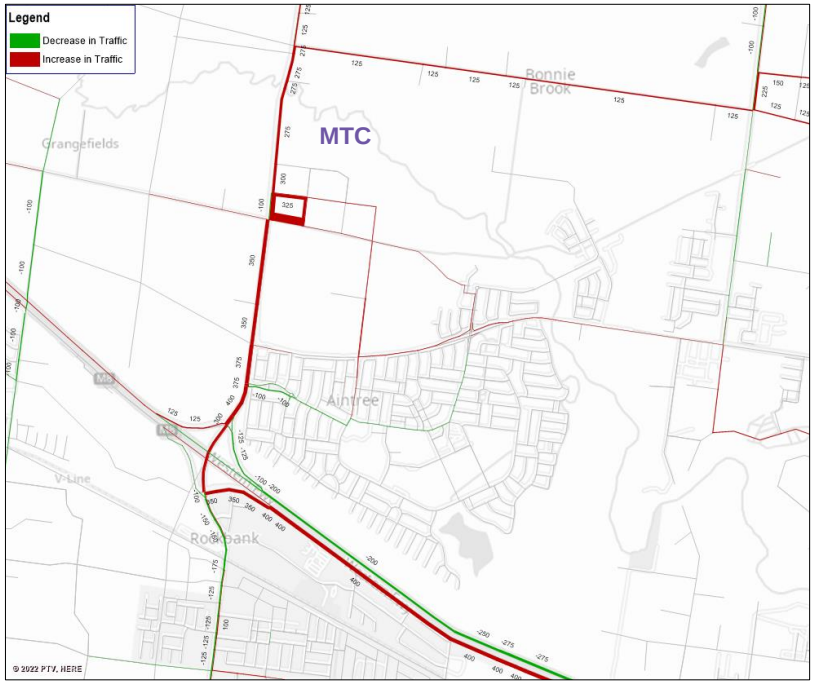
Additional traffic demand was noted in the Rockbank North area as a result of MTC coming online, likely from people using their car to access jobs in the MTC. Leakes Road was the major corridor from both the south and the north in the AM peak period.



2026 AM Peak Traffic Impact



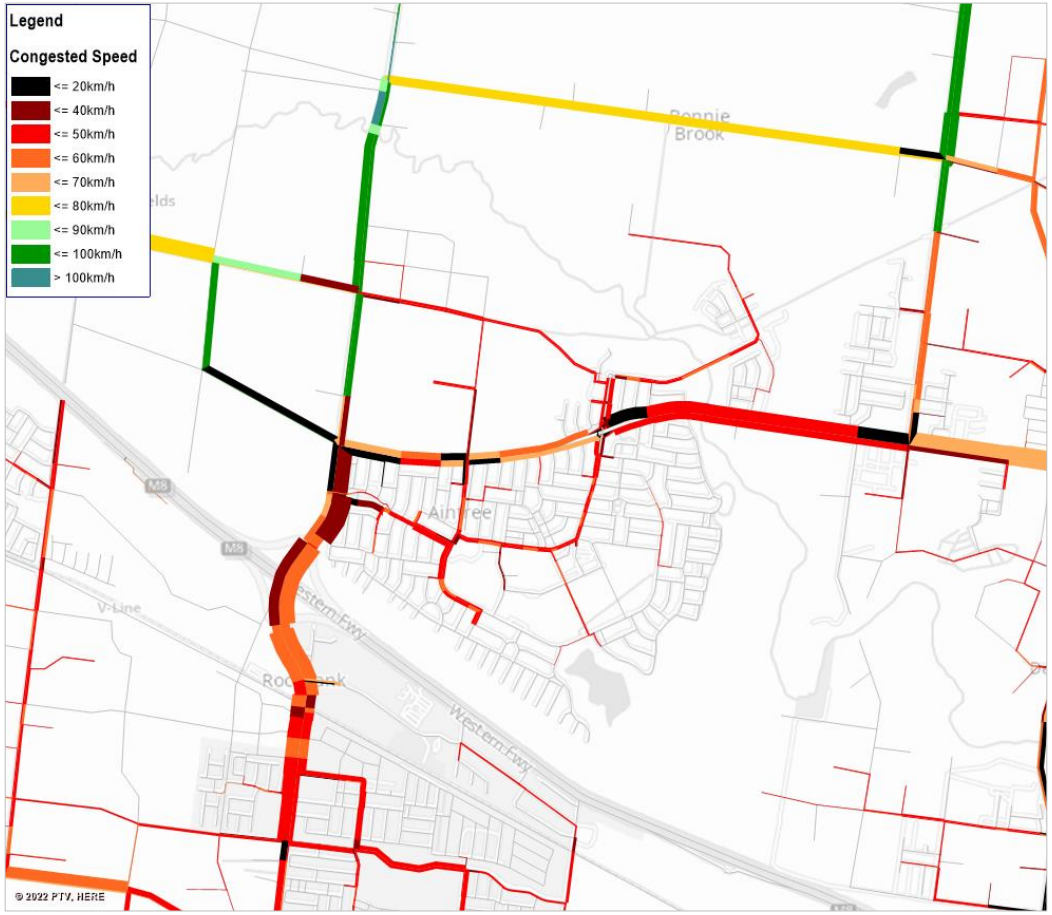
2031 AM Peak Traffic Impact



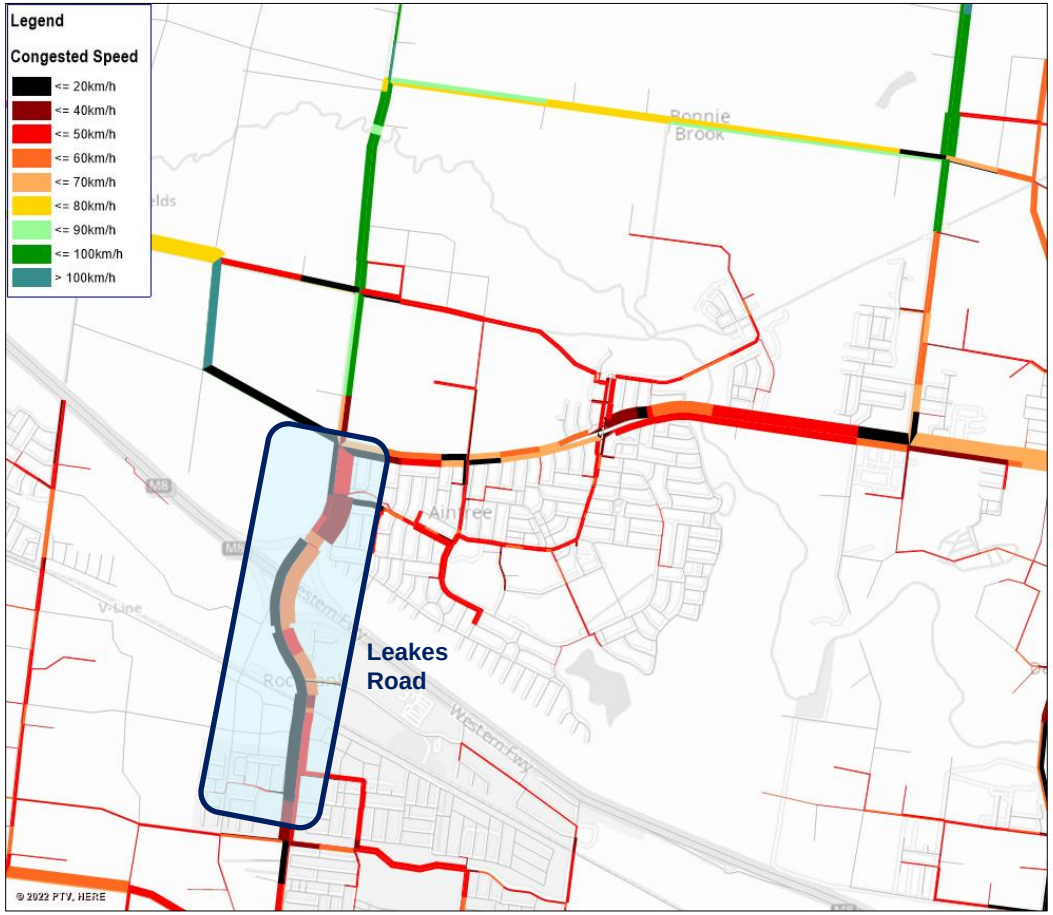
2041 AM Peak Traffic Impact

8 – Major Town Centre Impacts on Congestion (AM)

The additional demand on the network from the MTC coming online leads to increased congestion levels with the MTC becoming an attractor for traffic. This causes a deterioration in performance on the surrounding arterial road network, with Leakes Road in the 2031 AM peak showing long queues south of Taylors Road and speeds less than 20 km/h



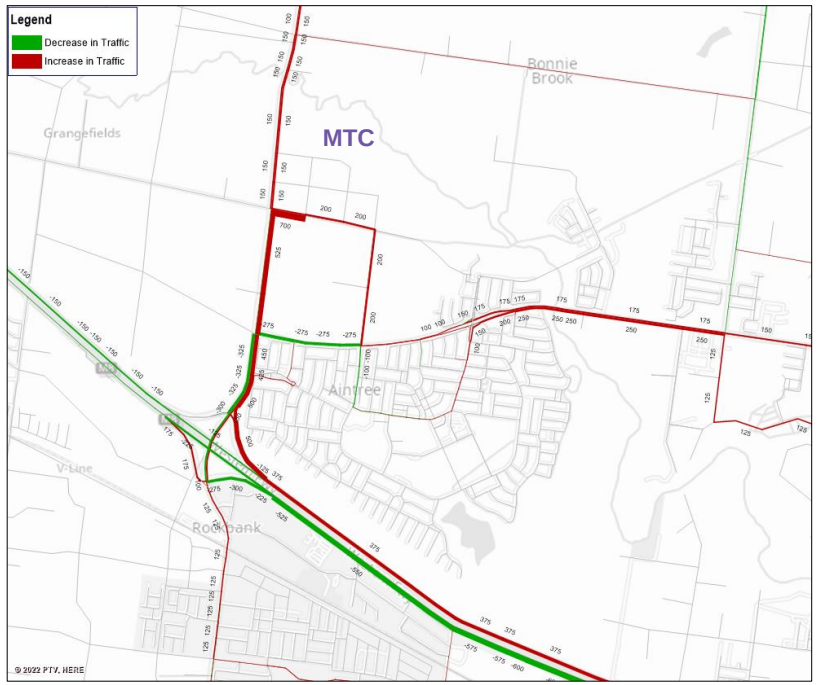
2031 AM Base – Congested Speed



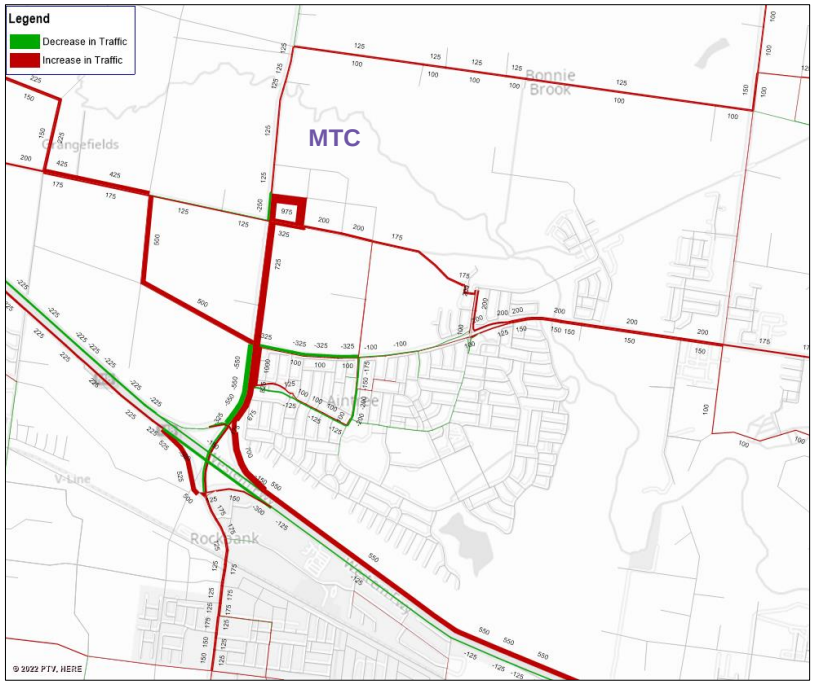
2031 AM MTC Online – Congested Speed

8 – Major Town Centre Impacts on Traffic (PM)

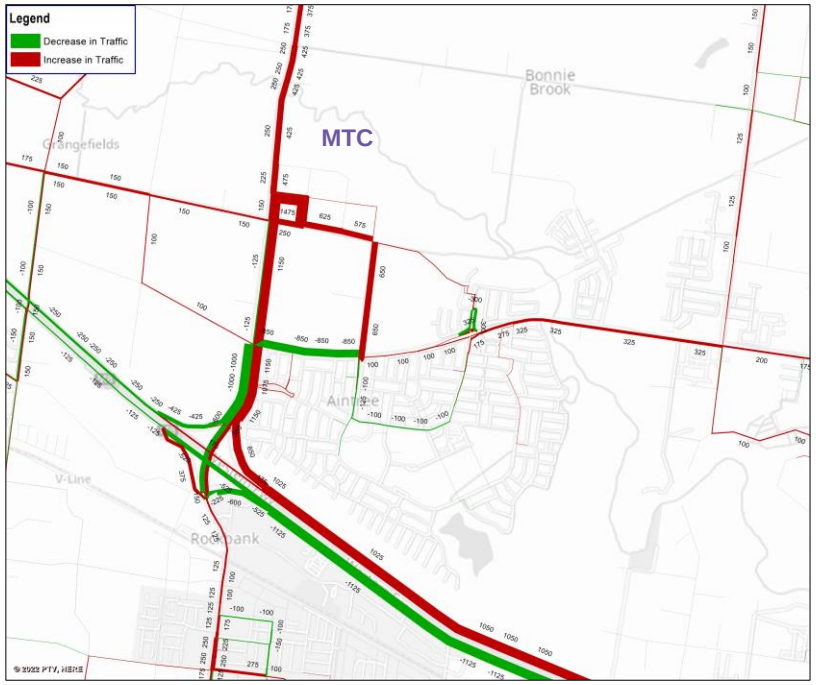
Similar traffic demand observations were noted in the PM peak period for the MTC however in the opposing direction for the return leg of peoples journeys (e.g. heading home following work in the MTC). Leakes Road heading southbound to access the Western Freeway catered for a significant portion of this traffic.



2026 PM Peak Traffic Impact



2031 PM Peak Traffic Impact

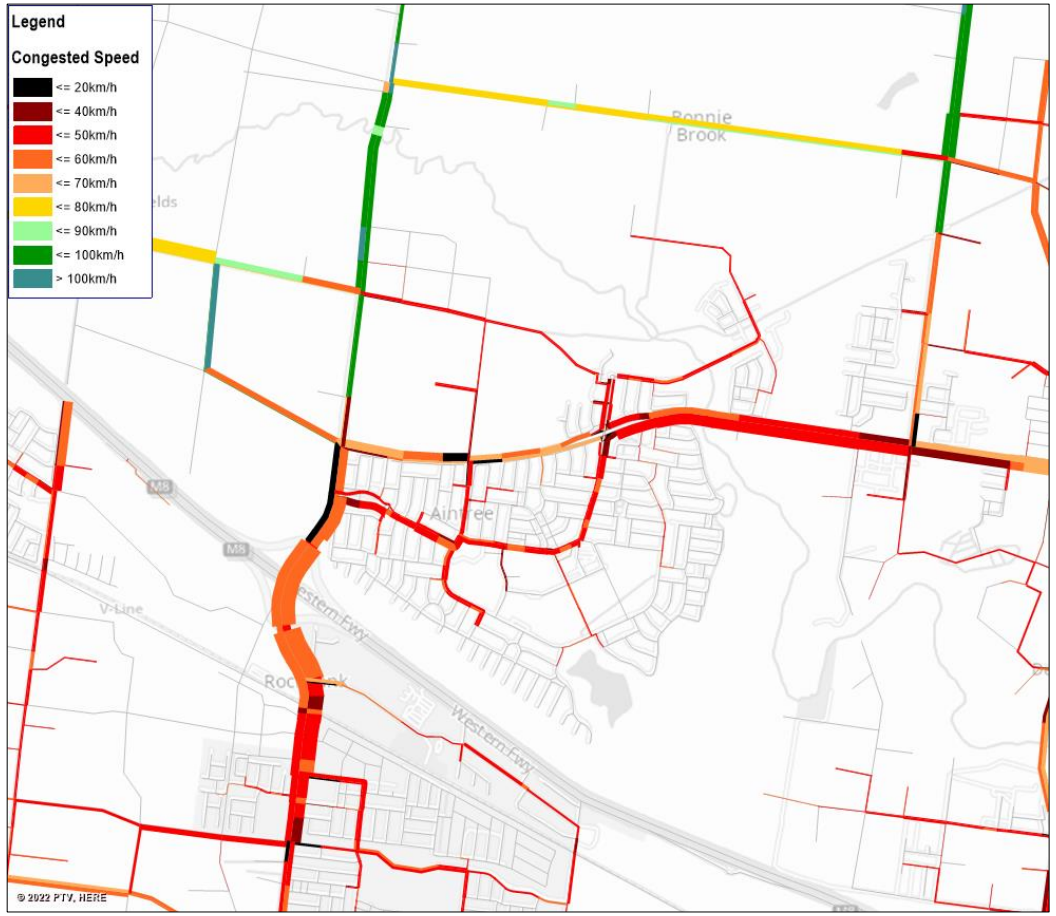


2041 PM Peak Traffic Impact

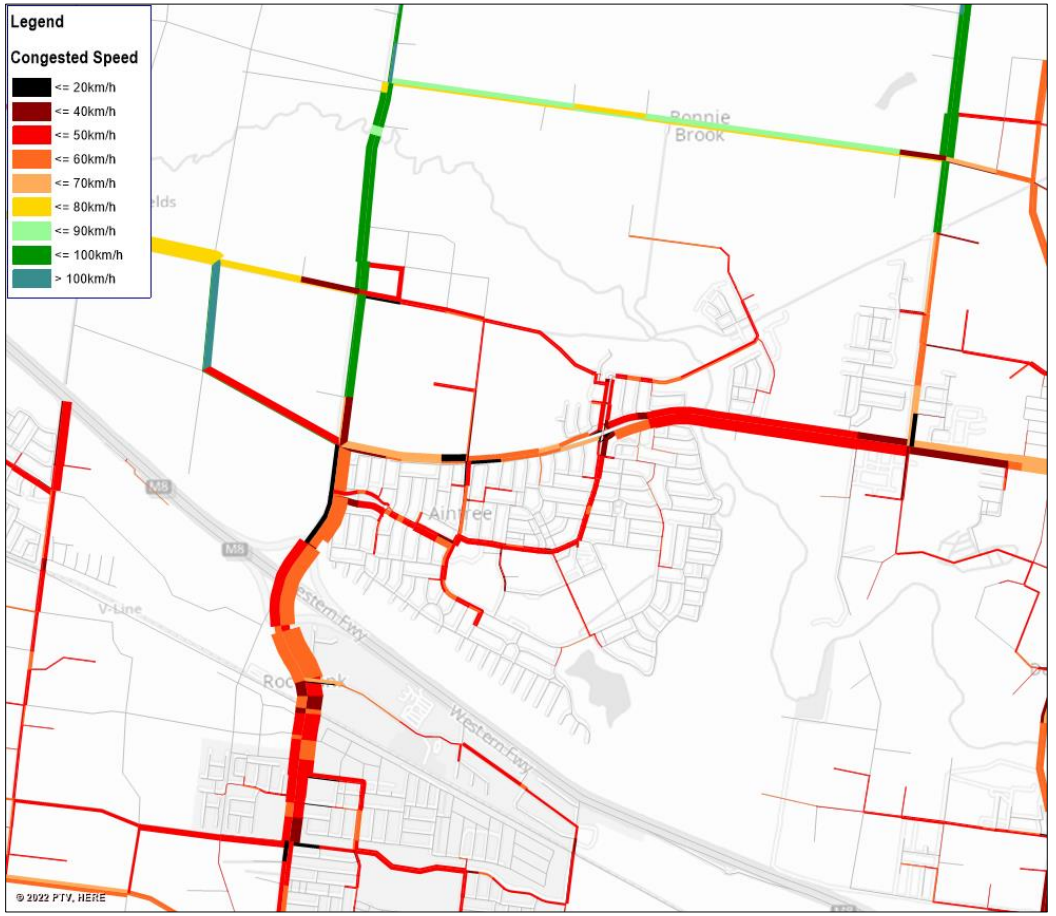
Note ***northbound movements along Leakes Road were constrained by the Taylors/Leakes intersection*** (as outlined in intersection performance tables) and hence there was a drop in traffic, with traffic initially from the freeway diverted to come from the north, east and west.

8 – Major Town Centre Impacts on Congestion (PM)

The increase in congestion was less prevalent in the PM peak period, indicating egressing the MTC posed less impact on congestion than accessing it, with vehicles more easily able to head southbound to the Western Freeway than travel from it in the morning peak to the MTC. Additional congestion was however noted on western approaches to Leakes Road.



2031 PM Base – Congested Speed



2031 PM MTC Online – Congested Speed

8 – Major Town Centre Impacts on Intersections

The additional congestion in the network translated to ***intersection performance impacts in the AM peak, with the 2041 results showing intersection impacts at Leakes/Taylors, Leakes/Beattys and Leakes/Tareletons all now a LoS D or E***. In the PM peak the intersection impacts were less notable, with Leakes/Taylors decreasing slightly in delay driven by the aforementioned wider diverting of traffic to avoid the corridor and hence the intersection.

AM Peak (8 to 9am)

Intersection	Type	2041 Base (8am)		2041 MTC (8am)	
		Delay	LoS	Delay	LoS
1 - Leakes Road / Taylors Road	Signalised	48	D	64	E
2 - Taylors Road / Frontier Avenue	Signalised	27	C	29	C
3 - Taylors Road / Aintree Boulevard	Signalised	25	C	22	C
4 - Taylors Road / Plumpton Road	Signalised	80	F	82	F
5 - Leakes Road / Beattys Road	Give way	14	B	61	E
6 - Leakes Road / Tarletons Road	Give way	7	A	43	D

PM Peak (5 to 6pm)

Intersection	Type	2041 Base (5pm)		2041 MTC (5pm)	
		Delay	LoS	Delay	LoS
1 - Leakes Road / Taylors Road	Signalised	170	F	161	F
2 - Taylors Road / Frontier Avenue	Signalised	31	C	28	C
3 - Taylors Road / Aintree Boulevard	Signalised	26	C	22	C
4 - Taylors Road / Plumpton Road	Signalised	74	E	77	E
5 - Leakes Road / Beattys Road	Give way	16	B	16	B
6 - Leakes Road / Tarletons Road	Give way	6	A	14	B

8 – Major Town Centre Impacts on Intersections (AM)

Visualisations of increasing queuing at Taylors/Leakes intersection in the AM peak are shown below for reference, as well as additional queueing at Leakes/Beattys.

8 – Major Town Centre Impacts on Intersections (PM)

Visualisations of less demand at the Taylors/Leakes intersection in the PM peak are are shown below for reference, noting this traffic is now filtering through the local network instead.

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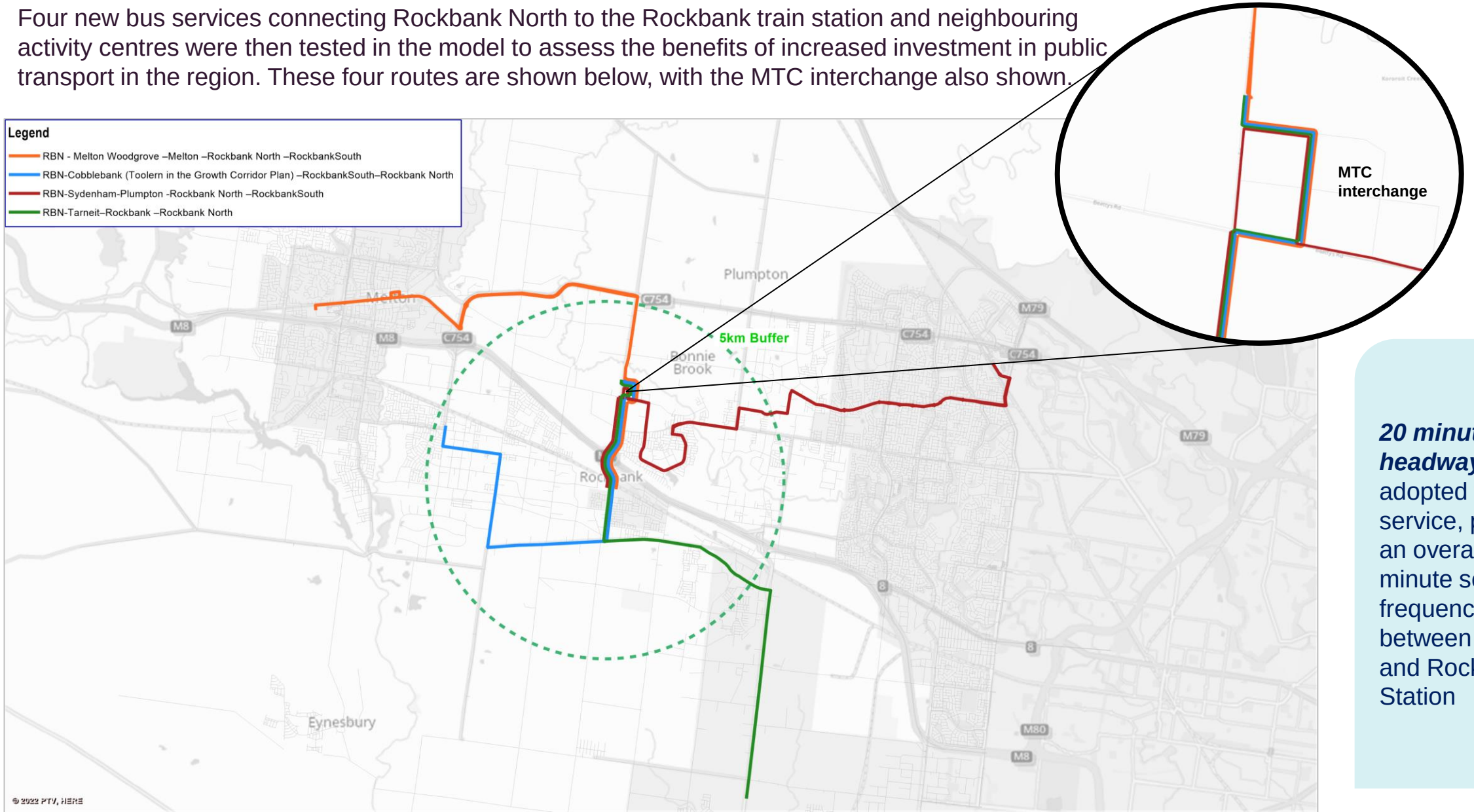
F - Public Transport Investment Testing

9 – Bus Investment Scenario Assumptions

Four new bus services connecting Rockbank North to the Rockbank train station and neighbouring activity centres were then tested in the model to assess the benefits of increased investment in public transport in the region. These four routes are shown below, with the MTC interchange also shown.



20 minute headways were adopted for each service, providing an overall five minute service frequency between the MTC and Rockbank Station

9 – Bus Investment Scenario Testing

With the additional bus routes representing enhanced investment in public transport in the region, an additional third scenario set was run for “Public Transport Investment” or more precisely “Bus Investment”. This third scenario set was also run for all three future years (i.e. 2026, 2031 and 2041) and both peak periods (i.e. AM and PM peaks) and compared back to the Major Town Centre scenario.

The scenario sets compared in this assessment are :

2. **Major Town Centre (MTC) scenario** – updating population and employment assumptions in the MTC

3. **Bus Investment scenario** – adding four new bidirectional 20 minute headway routes connecting Rockbank North Major Town Centre to the Rockbank train station and ultimately to the north-east, north-west, west and south of Melton

The modelling results in this chapter are therefore exploring the ***benefits of public transport investment in the region to align with the major town centre coming online,*** noting there is very limited public transport assumed otherwise

10 – Bus Investment impacts on Mode Share

The new proposed bus services resulted in significant improvements to public transport mode share of trips to/from Rockbank North, as well as very strong uptake from the now well connected Major Town Centre (MTC).

AM Peak

- ✓ Wider Rockbank North area improved its public transport mode share by 5 - 6 percentage points
- ✓ ***Major Town Centre achieved mode shares for public transport of between 12 and 14%, improving over time as more jobs come online***

Area	Year	MTC Base Case		+ Bus Investment		Change
		PT Trips	Mode Share	PT Trips	Mode Share	
Rockbank North	2026	141	1.7%	550	**6.5%**	4.8%
	2031	209	1.8%	834	**7.3%**	5.5%
	2041	268	1.9%	1,128	**8.1%**	**6.1%**
Rockbank North MTC	2026	-	-	154	**12.8%**	**12.8%**
	2031	-	-	316	**13.6%**	**13.6%**
	2041	-	-	545	**14%**	**14.0%**

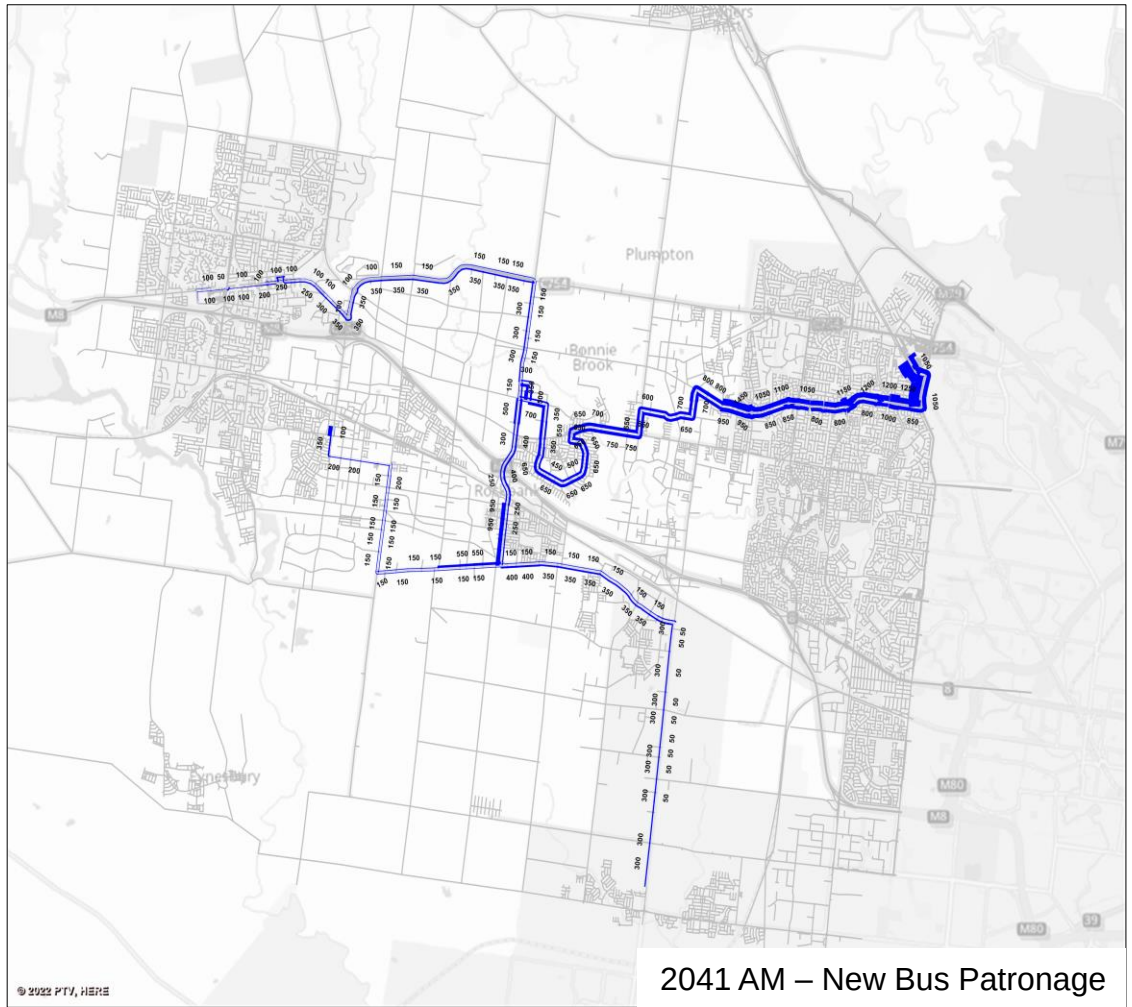
PM Peak

- ✓ Wider Rockbank North area improving public transport mode share by 4 to 5.4 percentage points
- ✓ ***Major Town Centre achieved mode shares for public transport of around 12%***

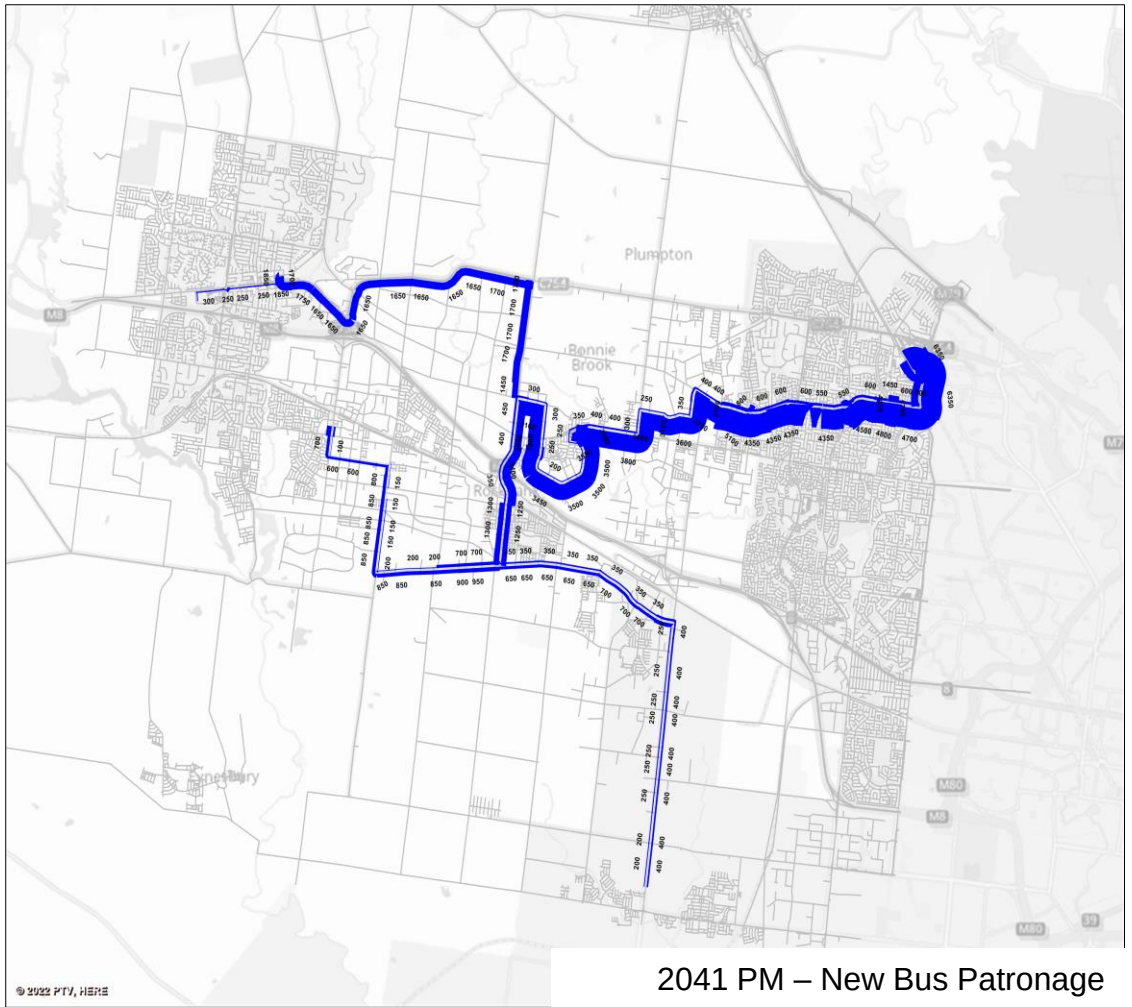
Area	Year	MTC Base Case		+ Bus Investment		Change
		PT Trips	Mode Share	PT Trips	Mode Share	
Rockbank North	2026	184	1.3%	796	**5.5%**	4.3%
	2031	273	1.4%	1,221	**6.2%**	4.8%
	2041	355	1.5%	1,652	**6.8%**	**5.4%**
Rockbank North MTC	2026	-	-	241	**12.1%**	**12.1%**
	2031	-	-	486	**12.2%**	**12.2%**
	2041	-	-	800	**12.1%**	**12.1%**

10 – Bus Investment Patronage

Bus patronage on each of the four new routes can be seen below for both 2041 AM and PM peak periods. This shows ***particularly strong uptake of the Sydenham to Rockbank line (north eastern line) eastbound in the AM peak and westbound in the PM peak.***



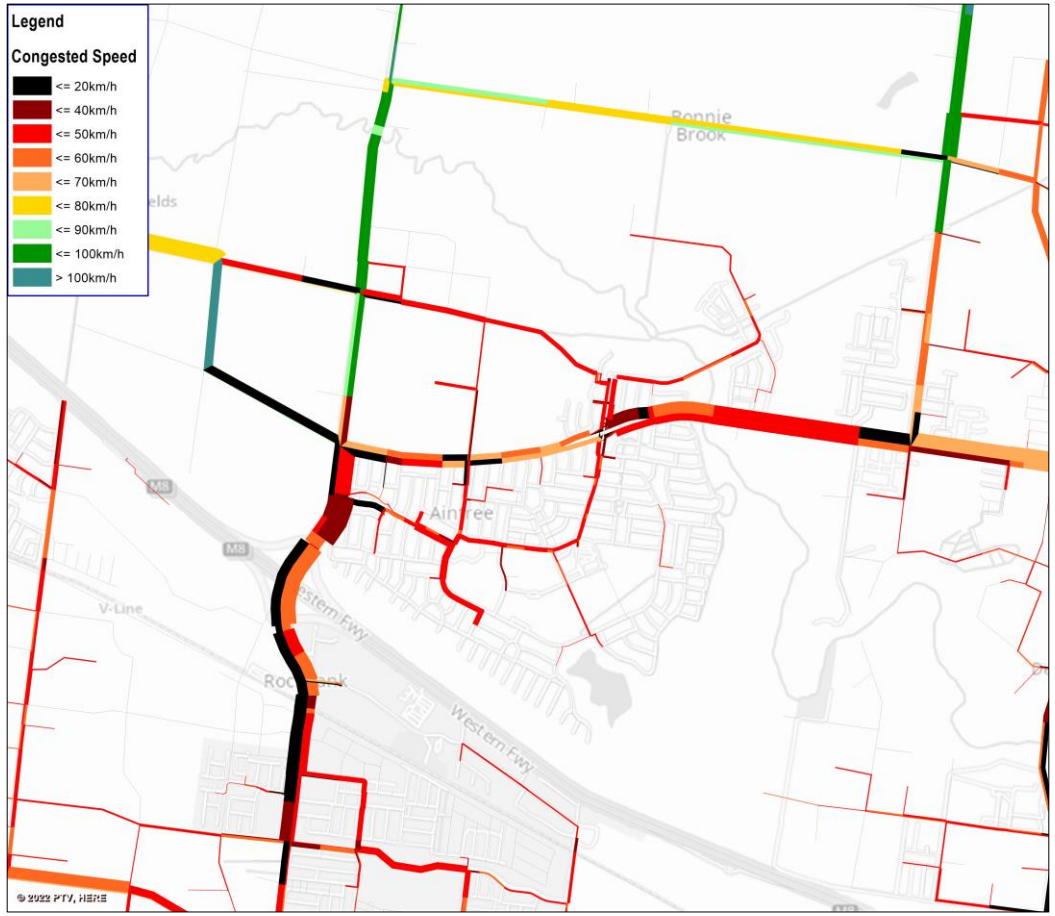
2041 AM – New Bus Patronage



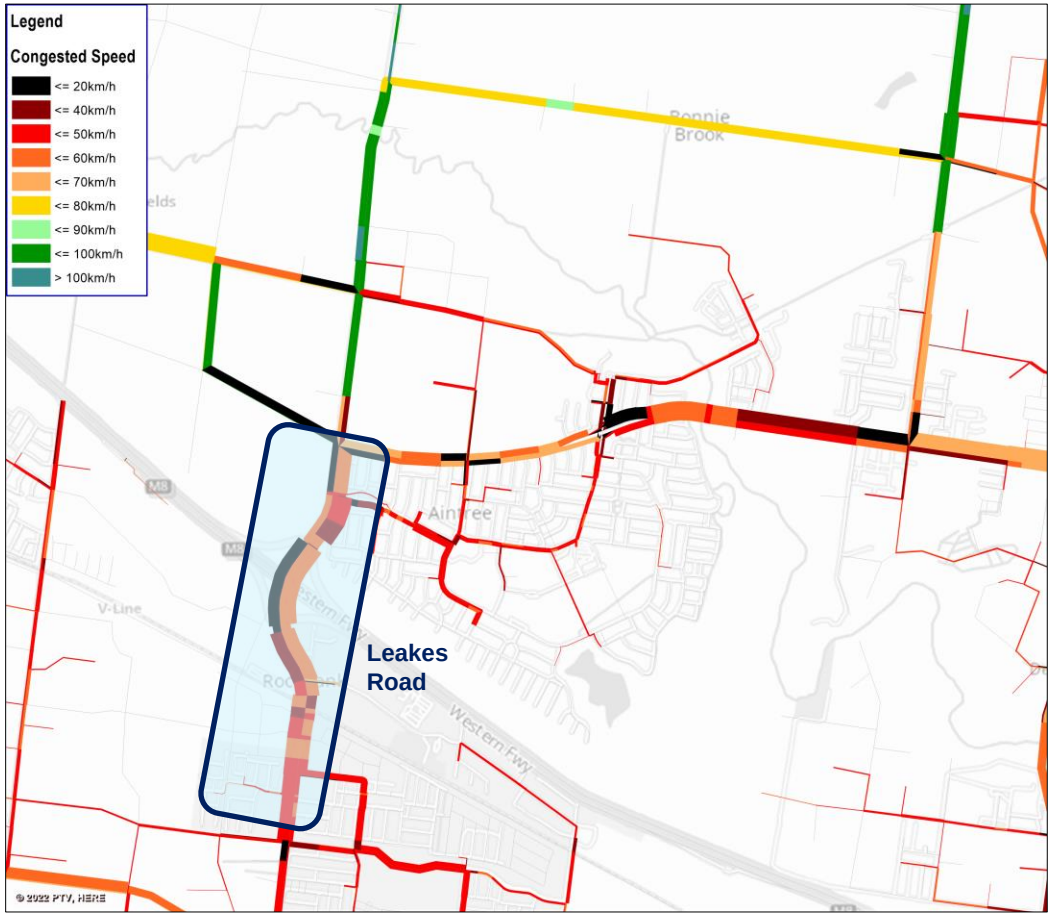
2041 PM – New Bus Patronage

10 – Bus Investment benefits to Congestion (AM)

The uptake of new bus services also took vehicles off the road network in the Rockbank North area, resulting in improvements in traffic network performance. This can be seen clearly for the Leakes Road corridor as shown below for the AM peak period, with queueing and congestion significantly reduced.



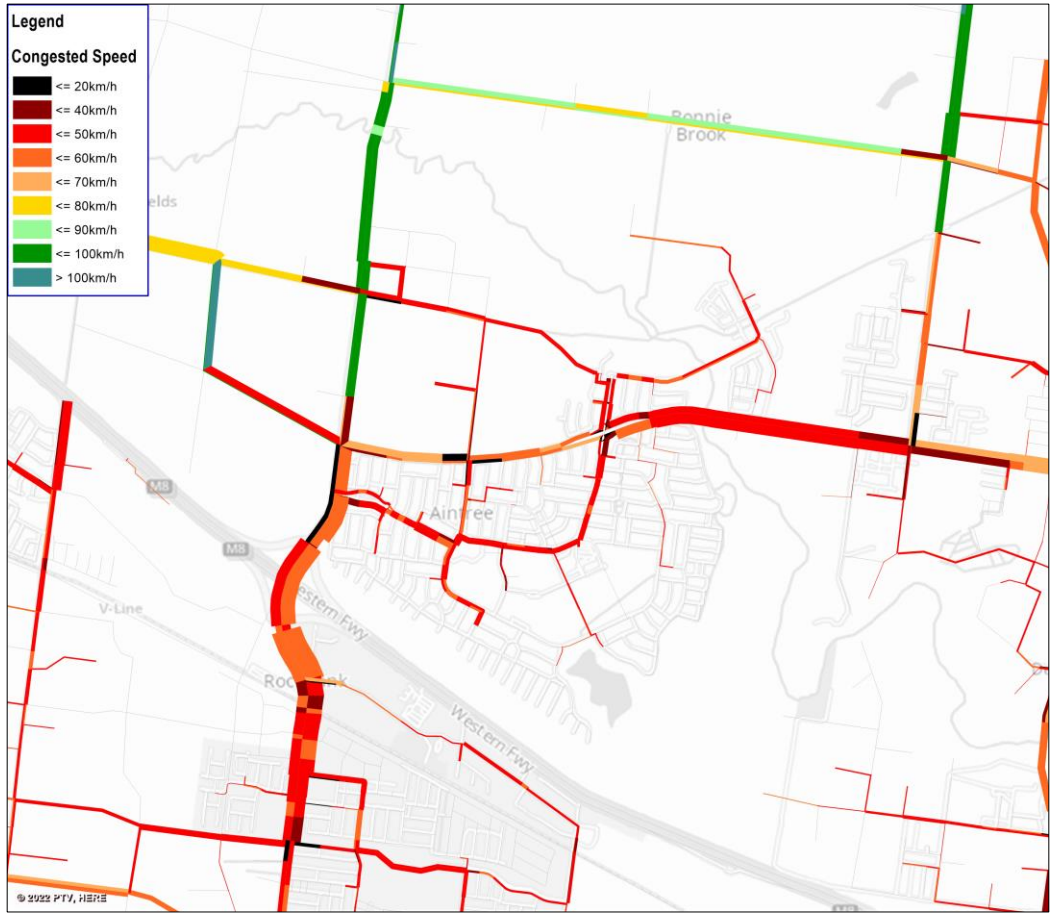
2031 AM MTC – Congested Speed



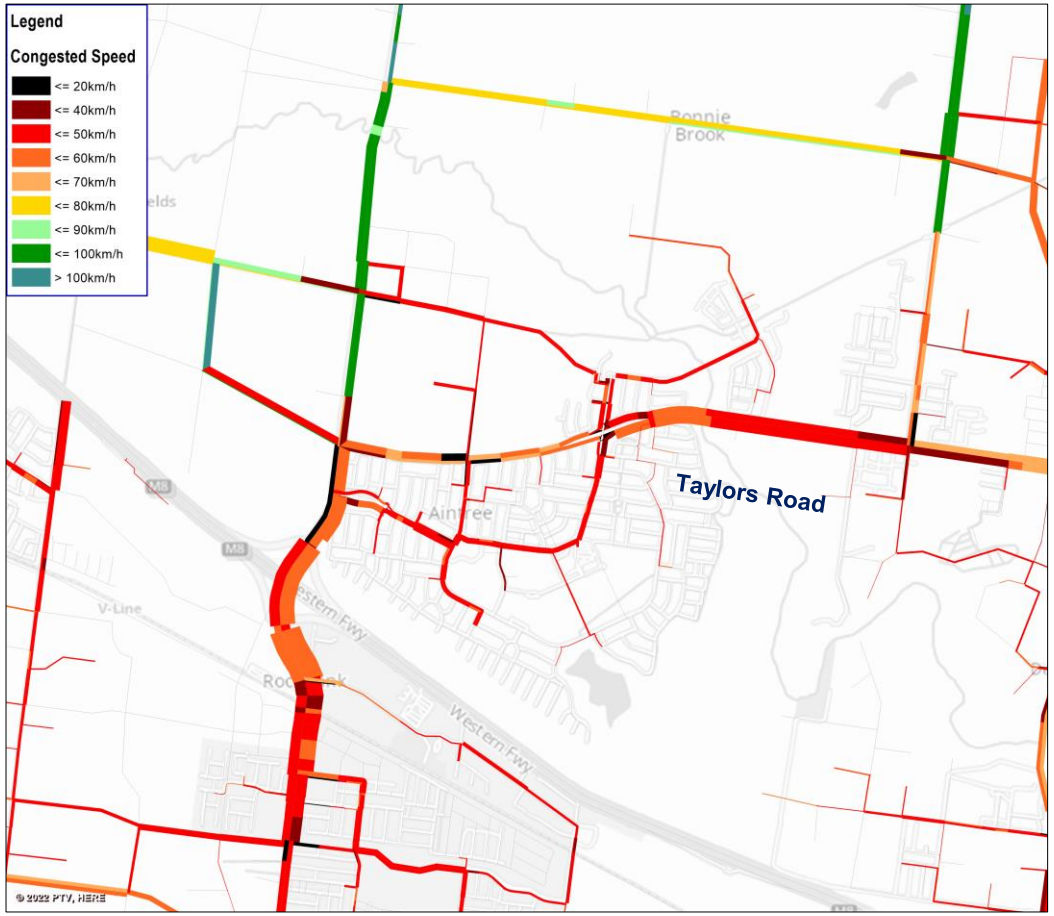
2031 AM PT – Congested Speed

10 – Bus Investment benefits to Congestion (PM)

Performance improvements were less notable in the PM peak period, again stemming from less congestion egressing the MTC as opposed to traveling to it in the morning.



2031 PM MTC – Congested Speed



2031 PM PT – Congested Speed

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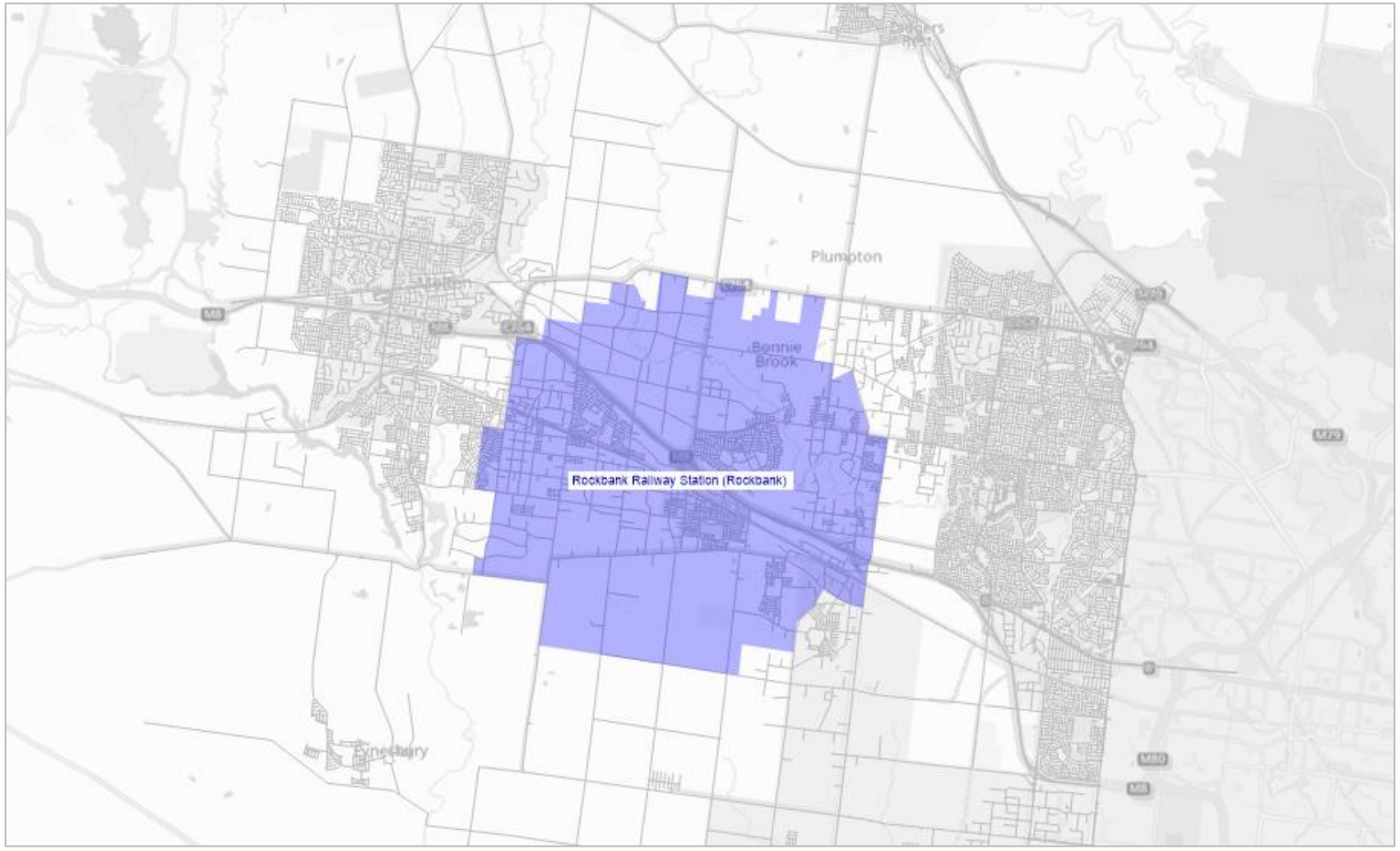
G - Cycling Investment Sensitivity Testing

11 – Cycle Investment Sensitivity Testing

In addition to testing the benefits of enhanced public transport investment in Rockbank North, ***additional sensitivity testing was undertaken for cycling investment benefits.***

This included updating walk access speeds within a 5km boundary of Rockbank Station from 5 km/h to 16 km/h, ***to replicate the cycling speed of a dedicated cycling network***. This catchment is shown to the right.

Note this is a ***rapid sensitivity assessment only*** given there are several external factors that drive active transport mode choice and dissuade its uptake. This modelling approach is therefore assuming these external factors aren't in play and therefore provides an upper limit of latent cycling demands to/from the Rockbank train station.



11 – Cycle Investment Mode Share Change

By enabling a high grade cyclist network connecting the surrounding network to the Rockbank train station, further ***improvements on public transport mode share were able to be achieved*** by providing a better connection for cycling to public transport facilities (i.e. the Rockbank Train Station). This results in:

- A further 3.3% improvement in mode share in the AM peak resultant of ***up to 475 cyclist trips to Rockbank station***
- A further 2.5% improvement in mode share in the PM peak resultant of ***up to 625 cyclist trips from Rockbank station***

Peak Period	Year	Bus Investment		+ Cycling Investment		Change	Cyclist Demand
		PT Trips	Mode Share	PT Trips	Mode Share		
AM Peak	2026	550	6.5%	821	9.6%	3.1%	275
	2031	834	7.3%	1,206	10.5%	3.2%	375
	2041	1,128	8.1%	1,597	11.3%	3.3%	475
PM Peak	2026	796	5.5%	1,181	8.2%	2.7%	375
	2031	1,221	6.2%	1,757	8.9%	2.7%	525
	2041	1,652	6.8%	2,265	9.3%	2.5%	625

Whilst an upper limiting assessment of the potential latent demand for cycling, this modelling provides an indication that ***if such dedicated cycling facilties existed there could be a meaningful uptake in the Rockbank North region.***

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