



Position Paper - Transit Oriented Development Zoning

RAIL Back On Track
September 2016



Image: A Defence Housing Australia development opposite Gaythorne Station - five storeys. Google maps



Position Paper - Transit Oriented Development Zoning

RAIL Back On Track

1. Statement of Position

We:

- SUPPORT Transit Oriented Development (TOD) around stations in urban and suburban Brisbane.
- SUPPORT introducing TOD zoning overlay code(s) into Brisbane's City Plan, and indeed for all SEQ councils. Follow the Gold Coast City Council's pioneering example of TOD zoning around transit stations.
- SUPPORT character and heritage home protection inside a TOD zone.
- SUPPORT Park and Ride around stations in outer suburban and rural areas
- SUPPORT diversity within Brisbane's housing stock. In particular, this includes "missing middle" housing - duplexes, triplexes, courtyard apartments, townhouses and mixed use medium density around stations
- SUPPORT reduced infrastructure charges for development within a TOD zoning overlay. Either for specific purposes only, such as student accommodation or aged care, or a modest general reduction reflecting the avoided traffic burden of TOD
- SUPPORT Perth-style parking charges at stations where car park utilisation reaches 80% or more

2. Background

Brisbane City Council should adopt and adapt Gold Coast City Council's TOD zoning example

Brisbane's population (defined as the Brisbane City Council area) is forecast to reach 1 433 000 by 2036.¹ Approximately 135 000 new homes therefore need to be built over the next 20 years. We

¹ Brisbane Community Profiles, Brisbane City Council,
<https://www.brisbane.qld.gov.au/about-council/governance-strategy/business-brisbane/business-opportunities/brisbane-community-profiles>

believe this growth should be focused around existing railway, CityCat, and busway stations through the creation of a dedicated TOD zoning overlay within Brisbane City Council's City Plan. Gold Coast City Council already uses a similar scheme around Light Rail stations.²



Figure 1: Gold Coast City Council has rezoned land surrounding all Light Rail stations to promote TOD. Although Brisbane does not have Light Rail, it could adapt this approach by rezoning land around Queensland Rail train stations, CityCat stops and busway stations.

² Gold Coast City Plan <http://cityplan.goldcoast.qld.gov.au/Pages/plan/viewer.aspx?vid=10133&hid=21958>

Park & Ride expansion is neither cheap nor cost effective

Population growth and development puts pressure on transit station car parks. Naturally, this has led to calls for Park & Ride expansion. However, Park and Ride is not cheap and is not cost-effective at filling buses, trains, ferries, and trams with passengers (**Table 1**). Below, we estimate approximate costs for filling various transit vehicles using Park & Ride based on a unit cost of \$40 000 per parking space:³

Table 1: Estimated costs to fill one transit vehicle using a Park & Ride strategy

Vehicle	Estimated cost to fill one vehicle using Park and Ride
Standard Brisbane Transport bus (65 passengers)	\$2,600,000
CityCat (162 passengers)	\$6,480,000
G-Link Tram (300 passengers)	\$12,000,000
Queensland Rail Train (1000 passengers)	\$40,000,000

Park & Ride and TOD are both expressions of the desire for access to transit stations. In Park & Ride, passengers bring their car to the station. In TOD, passengers bring their house to the station. The massive, outrageous costs of Park & Ride is why we limit our support of Park & Ride to outer areas where bus service upgrades would have a low impact on bus patronage.

Brisbane has been allowed to expand far beyond the reach of rail and busway infrastructure

Large transport infrastructure projects are incredibly expensive and time consuming. Both Brisbane City Council and the Queensland Government know this. For example, Cross River Rail has been in various stages of planning for around nine years. Brisbane City Council's flagship metro is also in planning. However, even if it were built, it would serve only a limited set of inner city stations. Brisbane's growth in outer areas such as Cedar Woods (Upper Kedron) or Bellbowrie has no local dedicated rail, busway or CityCat infrastructure.

Out of curiosity, RAIL Back on Track plotted the location of all existing rail, busway and CityCat stops within the Brisbane City Council area on a single Google map (**Figure 2**). A striking image emerges. Enormous areas of Brisbane have been allowed to develop far beyond the reach of public transport infrastructure. We term these areas Transit Infrastructure Deficit zones (TIDs).

³ *The Gap Park and Ride* illustrates the extreme cost of Park and Ride expansion. Around \$6 million dollars (2013, nominal \$) was spent to create 85 car parking spaces. This is an average cost of **over \$70 000 per parking space!** The resulting patronage barely fills one and a half BCC buses. Multi-storey car park construction is likely to be even more expensive as *The Gap Park and Ride* is entirely at ground level. 'Lost opportunity' costs such as foregone rates revenue from alternative use of the site were not factored into this calculation.

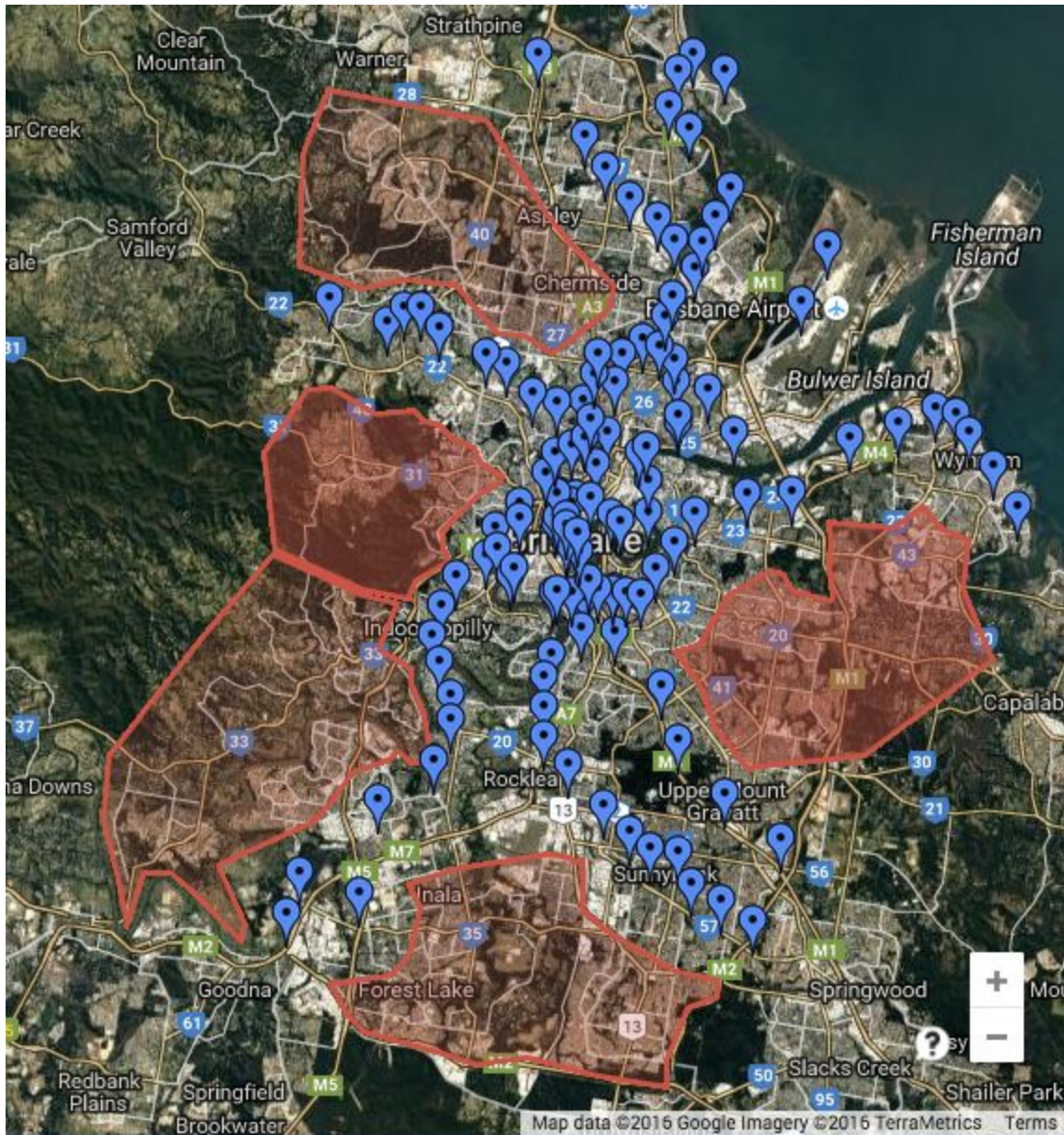


Figure 2: Transit Infrastructure Deficit Zones (TIDs) are indicated broadly in red. Development has simply been allowed to progress without any dedicated public transport infrastructure within the zones indicated in red. Image: Google Maps. Red zones are approximate and a guide only. The red zone near Aspley extends beyond BCC boundaries.

Transit Infrastructure Deficit zones (TIDs) encompass large parts of:

- **Brisbane’s northern suburbs** (i.e. Chermside, Stafford Heights, Bridgeman Downs, red zone continues over the BCC boundary into neighbouring council area)
- **Brisbane’s Eastern suburbs** (i.e. Camp Hill, Carina, Carindale, Capalaba)
- **Brisbane’s Southern suburbs** (i.e Calamvale, Algester, Sunnybank and Sunnybank Hills - known public transport high demand area)

- **Brisbane’s Western Suburbs** (i.e. Bellbowrie, Riverhills, Mt Ommaney, Fig Tree Pocket, Kenmore, Chapel Hill)
- **The entire suburb of The Gap**

Note: These zones are a rough guide only, and do not represent hard boundaries.

Operating public transport outside of a dedicated corridor (i.e. stuck in congestion) means reduced farebox revenue from passengers put off by the lower quality of service, higher costs for fuel, driver labour, and extra vehicle purchases to run the same timetable.

Brisbane has grown far beyond the reach of rail and busway corridors because road expansion has facilitated it. **Roads are the lowest capacity, least reliable, least efficient, and least safe mode of transport.** Road expansion offers inferior peak hour capacity when compared to dedicated rail or busway corridors (**Figure 3**). At best, a road can carry 2000 people per hour per lane.⁴ In comparison, a rail line or busway has five to ten times this capacity per hour.⁵ Roads are unreliable - in peak hour, a single accident can cascade congestion across large parts of Brisbane’s road network (i.e. Coronation Drive, Riverside Expressway).

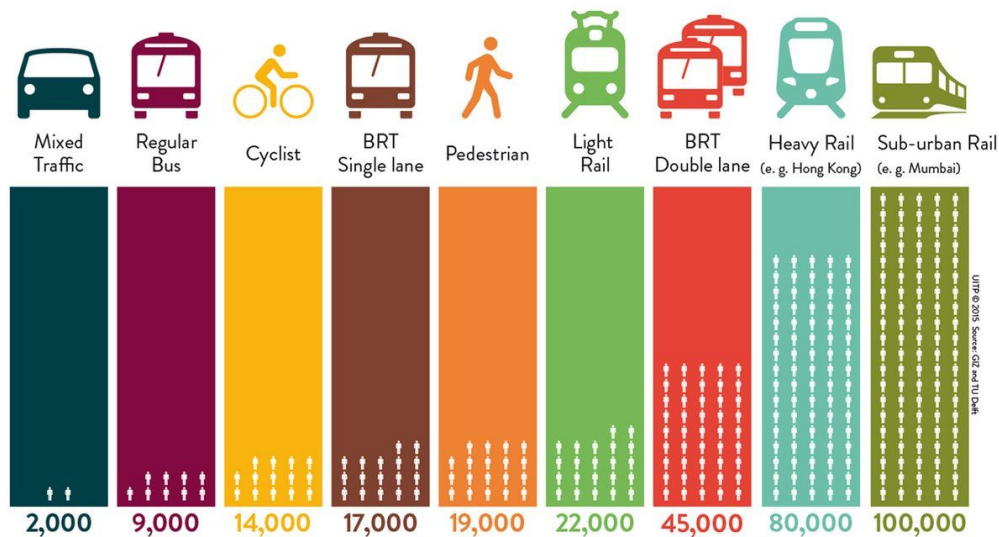


Figure 3: Corridor maximum capacity of urban transport modes, in persons/hour/direction (UTIP).

Image: UTIP <https://twitter.com/UITPnews/status/777790983178190848>

⁴ Proof by simple division. Each hour has 3600 seconds. Assuming that a car is 3 seconds away from the next car, this means 1200 pax per hour (i.e. 3600s divided by 3s). If a car is 2 seconds away from the next, such as in heavy congestion, this figure rises to 1800 pax/hour. If 20% of these vehicles also have a passenger, then the figure is multiplied by 1.2 to give 2160 pax/hour. (pax = persons)

⁵ It can be demonstrated experimentally that even a bicycle lane has a higher transport capacity than a road lane. If the purpose is to reduce congestion as much as possible, why choose the lowest capacity option? See *Experimental Study for Estimating Capacity of Cycle Lanes*, Seriani, Fernandez and Hermosilla (2015), Transportation Research Procedia, Volume 8, Pages 192-203, <http://www.sciencedirect.com/science/article/pii/S2352146515001301>

Future growth should be refocused around our existing transit infrastructure assets because it is not possible to extend new infrastructure into new deficit areas within a reasonable time or cost. In addition to refocusing growth around TODs, we also propose restructuring of the entire Brisbane City Council bus network. This would provide a 'stop-gap' solution for the short to medium term (see our New Bus Network Proposal at <http://tiny.cc/newnetwork>).

Neighbourhood Planning - Not a substitute for TOD zoning

The current neighbourhood planning scheme deals with TOD in an incidental way. As over 70 neighbourhood plans exist, it would take around two decades to review each plan assuming that each took only three months to conceive, consult and complete.⁶ Similar circumstances appear to be treated differently in different parts of Brisbane - the rationale for this inconsistent treatment is not clear. For example, The Milton Station Neighbourhood plan allows development up to 30 storeys. In comparison, Toombul station, within the Toombul-Nundah Neighbourhood plan, allows for 5-8 storeys. Another example is the Holland Park West busway station. The Holland Park West-Tarragindi neighbourhood plan does not define what heights are acceptable around the busway station, and unlike other areas within the plan, the area around the busway station isn't included in its own precinct.

⁶ List of Neighbourhood Plans, Brisbane City Council <http://eplan.brisbane.qld.gov.au/?doc=Part7LocalPlans>

3. Suggested TOD Zoning Overlay

Key provisions of a TOD overlay code would include:

- TOD overlay to apply to all busway, railway and CityCat stations within Brisbane, except for closed stations (i.e. Tennyson)
- No residential minimum parking requirements within 200 m of a station
- Relaxed minimum parking within 200-800 m of a station - minimum to be satisfied with any combination of car parking, share car parking or high-quality bicycle parking
- Mixed use, high and medium density around stations, progressively adapted to the surrounding land use as distance from the station platforms increases
- Consistent treatment of land around stations - the similar rules should apply to a station in one part of the city as compared to a station in another part of the city, all else being equal
- Where a more permissive zoning already applies, the more permissive zoning should take precedence
- Protection of character and heritage housing within such zoning
- If a more permissive zoning already exists, the more permissive zoning heights should apply (i.e. CBD, Fortitude Valley)

4. Conclusion

RAIL Back on Track does not advocate banning or limiting people from living far away from rail, busway or CityCat stations if they are paying and that is their choice. However, we also believe that people who want to live close to rail, busway, or CityCat stations should have that choice. Brisbane's City Plan should thus include a new TOD zoning overlay to actively facilitate the development of these community and lifestyle choices. Rather than only allowing passengers to take their car to the station, we must also allow passengers the option to take their home to the station (**Figure 4**).



Figure 4: An example of what we are proposing across Brisbane. A Defence Housing Australia development at Gaythorne Station - five storeys, opposite railway station. Image: Google Maps.

5. General References

People have a human right to housing under Article 25 of the Universal Declaration of Human Rights. This implies a right to build housing. <http://www.un.org/en/universal-declaration-human-rights/>

Local area boundary maps

<https://www.ecq.qld.gov.au/electoral-boundaries/find-my-electorate/local-government-electoral-maps-new>

List of Neighbourhood Plans

<http://eplan.brisbane.qld.gov.au/?doc=Part7LocalPlans>

Population figures - Brisbane Community Profiles, Brisbane City Council,

<https://www.brisbane.qld.gov.au/about-council/governance-strategy/business-brisbane/business-opportunities/brisbane-community-profiles>

Houston (USA) is a city where different land uses are permitted to mix, single use zoning is not mandated, mixed density is allowed by default, micro housing is permitted, and there is no minimum lot size for multi-family, commercial or industrial uses. It is a contrast to how other cities approach planning and zoning.

How Houston Regulates Land Use

<http://marketurbanism.com/2016/09/19/how-houston-regulates-land-use/>

