



**GUMERACHA ROAD, O'SULLIVAN BEACH
CODE AMENDMENT**

TRANSPORT INVESTIGATIONS REPORT



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APPENDIX A: Preliminary Concept Plan prepared by e=mc2studio

1. INTRODUCTION

CIRQA has been engaged to provide traffic impact investigations in relation to the proposed rezoning of land at Gumeracha Road, O'Sullivan Beach. Specifically, CIRQA's investigations relate to the proposed rezoning of land on the eastern side of Gumeracha Road from Strategic Employment Zone to General Neighbourhood Zone.

This report includes assessment of the forecast traffic generation associated with the proposed rezoning and redevelopment of the subject land, the associated impact on the adjacent existing road network, active and sustainable transport provisions and consideration of potential infrastructure provisions and upgrades.

2. BACKGROUND

2.1 SUBJECT SITE

The subject site is located on the eastern side of Gumeracha Road, O'Sullivan Beach, immediately south of Baden Terrace. The 60 ha site (approx.) comprises two existing allotments, namely:

- Allotment 67 (#64) Baden Terrace, O'Sullivan Beach (CT 6136/727); and
- Allotment 20 (#36-70) Gumeracha Road, O'Sullivan Beach (CT 6214/427).

The suburb of O'Sullivan Beach is bound by the former Port Stanvac Oil Refinery to the north, Dyson Road to the east, Christie Creek to the south and St Vincent Gulf to the west. Located within the suburb, the site is bound by Baden Terrace to the north, industrial development to the east, residential housing to the south (with frontage to Moorong Road) and Gumeracha Road to the west.

The Planning and Design Code identifies that the site is located within a Strategic Employment Zone, with the following overlays applicable:

- Hazards (Bushfire – Urban Interface);
- Hazards (Flooding – Evidence Required);
- Native Vegetation;
- Prescribed Wells Area; and
- Regulated and Significant Tree.

The subject site is currently vacant (undeveloped). Vehicle access to the site is currently provided via three access points on Gumeracha Road, at which all turning movements are permitted.

Figure 1 illustrates the location of the subject site and adjacent road network.



Figure 1 – Location of the subject site and adjacent road network

2.2 ADJACENT ROAD NETWORK

Gumeracha Road is a collector road under the care and control of the City of Onkaparinga. Adjacent the site, Gumeracha Road comprises a 10.5 m wide carriageway (approximate) accommodating two-way traffic movements. On-street parking is currently permitted on both sides of Gumeracha Road. Traffic data obtained from the City of Onkaparinga indicates that Gumeracha Road has an Annual Average Daily Traffic (AADT) volume in the order of 450 vehicles per day. A default urban speed limit of 50 km/h applies on Gumeracha Road.

Baden Terrace is also a collector road under the care and control of the City of Onkaparinga. Adjacent the site, Baden Terrace comprises a 10.5 m wide carriageway (approximate) with a single traffic lane in each direction. On-street

parking is currently provided on both sides of Baden Terrace. Traffic data obtained from the City of Onkaparinga identifies that Baden Terrace has an AADT in the order of 1,900 vehicles per day. A 50 km/h speed limit applies on Baden Terrace.

Gumeracha Road and Baden Terrace intersect at a T-intersection, with Baden Terrace forming the priority approaches. No separated turn lanes are provided at the intersection, albeit all turning movements are accommodated.

2.3 WALKING AND CYCLING

Sealed footpaths are provided on the western side of Gumeracha Road and the northern side of Baden Terrace. No footpaths are provided immediately adjacent the site alongside either road.

No bicycle lanes are provided on either Gumeracha Road or Baden Terrace. Cyclists are required to share the carriageway with vehicles or ride on the adjacent footpath (where a footpath is provided).

2.4 PUBLIC TRANSPORT

Public bus services operate on Baden Terrace, with bus stops located within 100 m walking distance of the subject site on both sides of Baden Terrace. These stops are serviced by the 734 bus route (Colonnades Centre Interchange to Marion Centre Interchange).

The Lonsdale and Christie Downs Railway Stations are also located within relatively close proximity of the site (approximately 2.0 km). Both stations offer high frequency services along the Seaford Railway Line, providing access to the southern metropolitan area and Adelaide CBD (with connections to broader metropolitan areas).

3. PROPOSED REZONING

3.1 SITE CONCEPT

The proposal comprises the rezoning of the subject site to enable residential development. Based upon initial concepts, it is anticipated that the site could be developed to accommodate in the order of 114 lots (each with a detached dwelling). A preliminary concept layout for the potential redevelopment of the site is attached in Appendix A.

It should be noted that the internal allotment and road layout is a concept only for use as part of the subject rezoning investigations. The concept has been developed to consider access arrangements to the existing road network as well as land provisions for road reserves among other site considerations (including stormwater detention).

3.2 INITIAL COUNCIL LIAISON

Initial high-level liaison has been undertaken with the City of Onkaparinga in relation to potential traffic matters arising from the proposed rezoning. While no objection was raised by Council's traffic engineering staff (in principle) to the proposed rezoning, it is understood that Council is investigating traffic calming measures on Baden Terrace directly adjacent the site (in the form of a wide painted central median).

3.3 VEHICLE ACCESS AND ROAD INFRASTRUCTURE

Vehicle access provisions to the site should be consolidated where possible. Generally, it is considered that new intersections on Gumeracha Road would be appropriate to provide access to new internal roads given the lower existing traffic volumes. These connections should link into the site with local roads (noting the collector road function of both Baden Terrace and Gumeracha Road). Direct vehicle access may also be provided to (and is considered suitable for) lots with direct frontage to Baden Terrace or Gumeracha Road, with no other access opportunities.

The internal road network should generally be designed in accordance with the City of Onkaparinga's engineering requirements. In particular, the design of the road network should include consideration of on-street parking provisions, pedestrian and cyclist movements, and waste collection provisions. Permeability to the existing footpath and cycling networks is also highly desirable.

Intersection locations should consider appropriate traffic management treatments and available sight distance provisions. It is however noted that Gumeracha Road has a straight horizontal and flat vertical alignment, thereby enabling numerous appropriate locations along the site frontages.

In respect to on-street parking, the Planning and Design Code requires the provision of 0.33 on-street spaces per allotment created. It is considered that such a requirement could be readily achieved noting the site's concept internal road layout and existing road frontages (Baden Terrace and Gumeracha Road).

While it is noted that Council is investigating the installation of traffic calming measures (a wide painted central median) on Baden Terrace, development of the subject site may positively assist in reducing vehicle speeds. This would be due to an increased on-street parking demand resulting in a narrowing effect of the available carriageway, the same principle in which Council's solution will achieve.

4. TRAFFIC ASSESSMENT

Daily traffic generation rates for traditional dwellings in the order of 7.5 to 8.0 trips per dwelling are commonly applied within Adelaide (with 10% occurring during the am and pm peak hours). For conservatism, the higher of the above range (8.0 daily trips per dwelling) has been adopted for the following assessment.

On the basis of 114 lots, the future development of the proposed allotments (each with a detached dwelling) could generate in the order of 912 daily vehicle trips (or approximately 92 peak hour trips based upon 10% occurring during the peak hours).

Noting that the subject site is currently vacant (undeveloped), no existing traffic movements would be associated with the subject site. as such, the above volumes are forecast to be additional vehicle movements on the adjacent road network.

Based on the initial concept layout (attached in Appendix A), 26 allotments will distribute vehicle movements directly via the adjacent road network (i.e. a direct crossover due to having frontage only to an existing road).

The remaining 88 allotments are anticipated to distribute vehicle movements to new internal roadways, which have been identified to connect to the existing road network via three new T-Intersections on Gumeracha Road. Of the three intersections, based upon the concept plan, it is anticipated that:

- the northern intersection will provide access to approximately 16 allotments (approximately 128 daily or 13 peak hour vehicle movements);
- the central intersection will provide access to approximately 31 allotments (approximately 248 daily or 25 peak hour vehicle movements); and
- the southern intersection will provide access to approximately 41 allotments (in the order of 328 daily or 33 peak hour vehicle movements).

The above volumes indicate that the roads within the site would all be likely to function as low volume, local roads.

Travel distances to broader employment, educational and recreational areas are relatively equidistant between the north and south (noting the suburb's bounding constraints). As such, it is anticipated that potential traffic volumes generated by the subject rezoning will be distributed relatively evenly between Baden Terrace, Moorong Road and Gumeracha Road (south of Moorang Road).

Accordingly, upon full development and occupation of the subject site, traffic volumes at any one point on Gumeracha Road adjacent the site are forecast to be in the order of 900 to 1,000 vehicles per day. Such volumes are well within the capacity envisaged for a collector road (also within the capacity of a local road) and will not impact upon Gumeracha Road's hierarchy or function.

Similarly, traffic volumes on Baden Terrace are forecast to be in the order of 2,350 vehicles per day upon completion and occupation of the development site. Again, such volumes are within the capacity envisaged for a collector road and will not impact upon the hierarchy or function of Baden Terrace.

Due to the permeability of the O'Sullivan Beach road network and the existing infrastructure located where connectivity is provided to the broader road network (i.e. a roundabout located at the intersection of Gumeracha Road and Galloway Road, and traffic signals at the intersection of Dyson Road and O'Sullivan Beach Road), it is considered that traffic volumes associated with the subject rezoning (based upon the concept yield) will be readily accommodated with negligible impacts to existing conditions.

Similarly, due to limited future development areas within O'Sullivan Beach, it is not expected that traffic volumes will detrimentally increase beyond the capacity of the broader road network or its existing infrastructure. However, should the allotment yield within (and subsequent traffic generation from) the subject site vary significantly from those envisaged by the concept during a future land division stage, detailed intersection analyses may be required.

5. SUMMARY

The proposed rezoning of the subject site will facilitate the future redevelopment of the study area for residential development. Based upon the concept plan, it is anticipated that in the order of 114 detached dwellings could ultimately be developed within the overall site.

It is anticipated that vehicle access for the subject site would primarily be accommodated via three new intersections on Gumeracha Road, with direct access provided to allotments with frontage to the existing road network. The intersections will provide connections into and through the site with associated lower order local roads.

An assessment has been undertaken of the traffic generation associated with the subject site. The forecasts identify that the ultimate redevelopment of the site will result in the distribution of approximately 92 additional peak hour movements on to the adjacent road network. The majority of additional movements would be undertaken to/from the site and Gumeracha Road. Traffic volumes generated by development of the subject site will not impact upon the function or hierarchy of either Gumeracha Road or Baden Terrace.

Due to the low volumes forecast to be generated by the development of the site, it is anticipated that traffic distribution beyond the immediate vicinity of the site would have negligible impact upon the existing road network's operation. Should development yields vary significantly during further development stages, additional detail assessment may be required.

APPENDIX A
PRELIMINARY CONCEPT PLAN
PREPARED BY E=MC2TUDIO, DATED AUG 2021