

Ref: 20018|BNW

17 May 2022

Mr Stephen Holmes
Holmes Dyer
Level 3, Reid House, 15 Featherstone Place
ADELAIDE SA 5000

Dear Stephen,

HACKHAM CODE AMENDMENT SUPPLEMENTARY TRANSPORT INVESTIGATIONS

I refer to our recent discussions regarding the Hackham Code Amendment and associated transport investigations. As requested, I have prepared the following supplementary information in relation to access opportunities for the site and associated transport intervention options.

BACKGROUND

Transport Investigations have previously been prepared by CIRQA for the Hackham Code Amendment. The previous investigations considered the transport impacts associated with the potential rezoning and subsequent development of the Affected Area (land generally bound by Hepenstal Road, Piggott Range Road, Main South Road, Patapinda Road and Church Hill Road).

This letter supplements the previous Hackham Code Amendment Transport Investigations report (dated 28 October 2021 and supersedes relevant assumptions and findings of that report including:

- the location of the future Activity Centre and associated change in the forecast distribution associated with the future development of the Affected Area;
- updated expectations in respect to development staging; and
- additional options for access options for the Affected Area to/from the external road network.

The investigations have been based on the potential future development of 2,000 dwellings and a centrally located activity centre (5,000 m² of retail/commercial/community gross floor area). Based on the assessment of the impacts of these yields, the following

external upgrade options were identified (in the October 2021 report) to accommodate the additional movements generated by the rezoning and subsequent development of the Affected Area:

- (1) signalisation of the intersection of Main South Road with Melsetter Road;
- (2) signalisation of the intersection of Main South Road with Hepenstal Road;
- (3) construction of a new signalised intersection of Main South Road located between Hepenstal Road and the Southern Expressway (this could either be a T-intersection or a four-way intersection with Brodie Road);
- (4) construction of a single lane roundabout at the intersection of Church Hill Road/ Patapinda Road/River Road;
- (5) realignment of the priority at the River Road/River Road Access Road intersection (priority to be between the southern and eastern legs with the northern leg of River Road to be the minor leg); and
- (6) construction of a separated, direct connection between the River Road Access Road and the Southern Expressway (or alternative major improvement to connectivity to the Southern Expressway).

The above interventions are identified on the attached plan.

It should also be noted that there will also be internal road network infrastructure required as part of the future development of the Affected Area (including a central collector road). However, it is assumed that these will be developed as each stage/parcel progresses and have not been included in the external intervention assessment.

For the purposes of the further investigations, it was assumed that improved access to the Southern Expressway would be achieved via the direct connection from River Road Access Road, as was previously discussed with Department for Infrastructure and Transport (DIT). However, it is noted that DIT is undertaking broader transport modelling based on its Strategic Model which includes consideration of alternative upgrade options. The results of the DIT modelling were not available at the time of the preparation of this supplementary information. Nevertheless, the assumed treatment option can be revisited should the DIT modelling identify an alternative option be preferred.

Subsequent to the previous investigations, CIRQA has been requested to consider additional outcomes and opportunities associated with the Affected Area. Specifically, CIRQA has been requested to review:

- the impact of relocation of the potential Activity Centre site from the previously assumed central location to a position further north (adjacent Hepenstal Road); and
- opportunities for different central/southern access provisions for the Affected Area including:

- the previously identified central signalised T-intersection or four-way with Brodie Road (CIRQA has been requested to review the location and nature of this intervention); and/or
- a new connection on Patapinda Road (south of its on/off ramps with Main South Road and in the vicinity of an existing road reserve).

The following sections provide further information in respect to the above opportunities.

ACTIVITY CENTRE RELOCATION

The relocation of the Activity Centre from a central location to adjacent Hepenstal Road will result in alteration of the previously assumed distribution of movements associated with the centre. The primary impact of the redistribution will be an increase in movements at the intersection of Hepenstal Road and Main South Road. Other intersections included in the previous assessment will be associated with either lower forecast volumes or no change compared to that previously assessed.

Accordingly, an updated SIDRA model has been prepared for the intersection of Hepenstal Road/Main South Road based on the redistributed movements. The SIDRA analysis indicates that the proposed signalisation of Hepenstal Road/Main South Road would adequately accommodate the additional (redistributed) volumes associated with the 'relocation' of the Activity Centre.

CENTRAL INTERSECTION (BRODIE ROAD/KIMBER AVENUE)

As noted above, a central signalised intersection was previously recommended as part of the Transport Investigations (including provision for right turn movements into and out of the site as well as left turns). Such a treatment was considered desirable to achieve a balanced distribution of movements associated with the site noting capacity constraints associated with movements to the Southern Expressway. In particular, the right-out movement to Main South Road from the Affected Area was considered desirable to appropriately distribute traffic generated by future development.

While the demand associated with the right turn movements has reduced as a result of the 'relocation' of the Activity Centre, the volumes associated with the overall residential development still warrant accommodation of such movements in a central or southern location. Additionally, it is noted that CIRQA has been requested to consider other access opportunities (discussed in subsequent sections). However, given capacity constraints with access to the Southern Expressway, it is still considered desirable that the central access (with right turns) be provided (unless DIT's broader review identifies alternative options).

As detailed in the original Transport Investigations report, there is opportunity to locate the central intersection within the area between the existing intersection of Main South Road/Brodie Road (the southern end of the access 'window') and the primary alignment

of Brodie Road north of its eastern 90 degree bend (the northern end of the access 'window'). This area was specified to achieve adequate separation of a new intersection between the intersections of Hepenstal Road and the Southern Expressway with Main South Road.

A concept layout was previously prepared by CIRQA based on the central signalised intersection being aligned at the northern end of the access 'window' (either as a T-intersection or with the potential realignment of Brodie Road's connection to Main South Road to form a four-way intersection). The previous modelling prepared as part of the Transport Investigations indicated that either option (T-intersection or four-way) would be feasible.

It is noted, however, that there is an existing road reserve within the Affected Area that is located opposite the existing Brodie Road intersection of Main South Road (at the southern end of the access 'window'). I understand that use of this existing road reserve would provide opportunity for internal access to development parcels under separate ownership and allow greater flexibility for staging of the future development.

As per the earlier investigations, a signalised intersection in this location would be able to be achieved with appropriate capacity whether provided as a T-intersection (albeit the Brodie Road connection to Main South Road would need to be relocated) or a four-way intersection with Brodie Road.

If provided as a four-way intersection, there would be some constraints associated with the proximity of the intersection of Kimber Avenue with Brodie Road to Main South Road. While further design review would be required, if retained in the current location, it may be desirable to restrict right-out movements from Kimber Avenue to Brodie Road (due to proximity to a future signalised intersection, if proposed). Should this be necessary an alternative turnaround treatment could be provided further east on Brodie Road to allow drivers exiting Kimber Avenue to U-turn and then access Main South Road (so as not to remove the existing level of accessibility). It should be noted that provision of a roundabout at the intersection of Kimber Avenue and Brodie Road is not considered appropriate in such close proximity to Main South Road and the potential signalised intersection.

An alternative treatment of a four-way intersection at the above location would be to close Brodie Road and connect Kimber Road to Main South Road and the new central access road within the Affected Area. This would remove the turning movements at the local road intersection and allow an improved and safer design to be achieved for the four-way intersection (if proposed). Detailed design would need to further consider appropriate access provisions for the existing dwellings adjacent the intersection. Brodie Road could then be fully closed at its southern end or provided with a left-in/left-out connection to Main South Road further north. There may also be other options for connectivity within the area north of Main South Road such as connection of Yeltana Avenue to Brodie Road (connecting to a four-way intersection on Main South Road) with

the closure of the eastern end of Kimber Avenue (albeit this would likely have greater impacts on the adjacent creek and additional land acquisition requirements). Similarly, the Kimber Road/Brodie Road connection could be relocated north and the new signalised intersection be provided as a T-intersection. Nevertheless, it is considered that there are design and access solutions available to achieve the four-way arrangement which can be discussed further between the various stakeholders (including the City of Onkaparinga).

NEW PATAPINDA ROAD INTERSECTION

An additional option for access for the Affected Area has been identified on Patapinda Road in the vicinity of existing road reserves located within the subject land (south of the on and off ramps for its intersection with Main South Road). The road reserves are located approximately 240 m south-west of Main South Road. This would easily allow for adequate deceleration as well as storage provisions for a new intersection aligning with the existing road reserves.

An intersection in this location would desirably be treated with a roundabout to efficiently accommodate movements into and out of the Affected Area as well as existing movements currently distributed to/from the south via Patapinda Road. A roundabout could also tie directly into the existing on-ramp to Main South Road (albeit there would be opportunity to locate the roundabout further south if redirection of the road reserve was not desired).

Such a treatment would provide a relatively high level of connectivity to the site from the Southern Expressway and Main South Road (north of Patapinda Road) and Main South Road (south of Affected Area). Modelling of this option (assuming no central intersection is provided on Main South Road) indicates that the forecast volumes could be accommodated at such a roundabout. However, this access option would not provide a high level of capacity for movements to the north via Main South Road or the Southern Expressway. Hence, as noted above, the central access option (with right turn movements) is considered more desirable. However, in the event the central connection is not provided, a connection to Patapinda Road as detailed above would still provide a positive outcome for site accessibility and could be considered further.

SUMMARY

Previous transport investigations have been prepared in respect to the Hackham Code Amendment including identification of potential access opportunities and associated treatments. Subsequent to the previous investigations, the location of the proposed Activity Centre has changed (shifted north) and additional access options have been considered.

An assessment of the impact of the 'relocation' of the Activity Centre confirms that the previously identified signalisation of the Hepenstal Road/Main South Road intersection would be sufficient to accommodate the redistribution of forecast traffic movements.

The signalised intersection of Hepenstal Road/Main South Road would form the primary northern access for the subject site. However, additional access provisions will be required further south to achieve a balanced distribution of future movements to and from the site.

A central signalised intersection (in the vicinity of Brodie Road) was previously identified with additional connectivity via Church Hill Road/Patapinda Road. The central signalised intersection is considered desirable to allow accommodation of right-out movements to Main South Road and balanced distribution of future volumes (given the capacity constraints associated with access from the site to the north, particularly in the am peak period). The previous concept sketch identified a T-intersection with potential connection to Brodie Road's northern (primary) alignment. However, the intersection could be aligned with the existing road reserve within the Affected Area with various options available in respect to connection to Brodie Road and Kimber Avenue (either as a four-way intersection or staggered T-intersections).

Consideration has also been given to alternative access options towards the south of the site. These include creation of a new intersection on Patapinda Road south of its intersection with Main South Road (tying into an existing road reserve within the Affected Area). This could be located to achieve sufficient deceleration and storage provisions for vehicles exiting Main South Road on to Patapinda Road. Such an option would provide a reasonable level of connectivity for the site, albeit would not address the limited capacity for northbound movements.

As detailed above, it is considered that the central access option is the desirable outcome from a capacity perspective (unless other upgrades are identified as part of DIT's broader network planning). Nevertheless, the additional southern access option could still be considered to provide further accessibility for the site.

Please feel free to contact me on (08) 7078 1801 should you require any additional information.

Yours sincerely,



BEN WILSON

Director | CIRQA Pty Ltd

Encl. - Updated Transport Interventions Location Plan

