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Mr Oliver Klein
JBA Urban Planning Pty Ltd
Level 7
77 Berry Street
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Dear Mr Klein,

Penrith Health Campus - Stage 3 Mental Health
Proposed change of traffic flow on the internal road

I refer to a request from Mr Paul Edmiston of Savills Project Management Pty Ltd to carry out a traffic engineering assessment of the proposed change of traffic flow on the internal circulation road at the Penrith Health Campus (PHC), as part of the amended proposal to construct Stage 3A Mental Health Service building. To this end, please find below the results of my assessment.

Proposal description	
• **Original proposal**	• Construction of a new Mental Health Service (MHS) building to the east of the Derby Street entry to the PHC. • No changes to the existing traffic flow (two-way arrangement) for the circulation road between the Derby Street entry and the new East Block (refer to **Figure 1**). • Details of the original proposal were described in TEF Consulting (2010). • One of the results of the assessment of the original proposal was that there would be little or no effect on the operation of the critical intersections.
• **Proposed change of traffic flow**	• It is proposed that the section of the internal circulation road along the frontage of the MHS building be made one way in the north-eastern direction (refer to **Figure 2**). • It is also proposed that the road be made narrower, to provide one traffic lane (instead of the previous two lanes, one for each direction of travel).
• **Benefits of the current proposal**	• Improved pedestrian safety, required due to anticipated increased pedestrian traffic across the circulation road, between the main Hospital entry and the new MHS building. It is also anticipated that the pedestrian traffic will include people with disabilities and patient transportation. Safety improvements will be a result of: ◦ reduced crossing width ◦ installation of a raised platform for vehicle speed reduction ◦ additional width for footpaths

Traffic & Parking Studies and Management
Traffic Impact Assessments
Intersection and Network Modelling
Environmental impact assessment of roads, traffic and transport operations
Road and Traffic Noise
Road Safety Studies
Traffic & Parking Surveys
Car Park Design
Intersection Design
Traffic Accident Investigation
Traffic Accident Reconstruction
Research and development
Expert Witnesses

- Additional road verge width available for construction of accessible parking spaces on the western side of the circulation road.

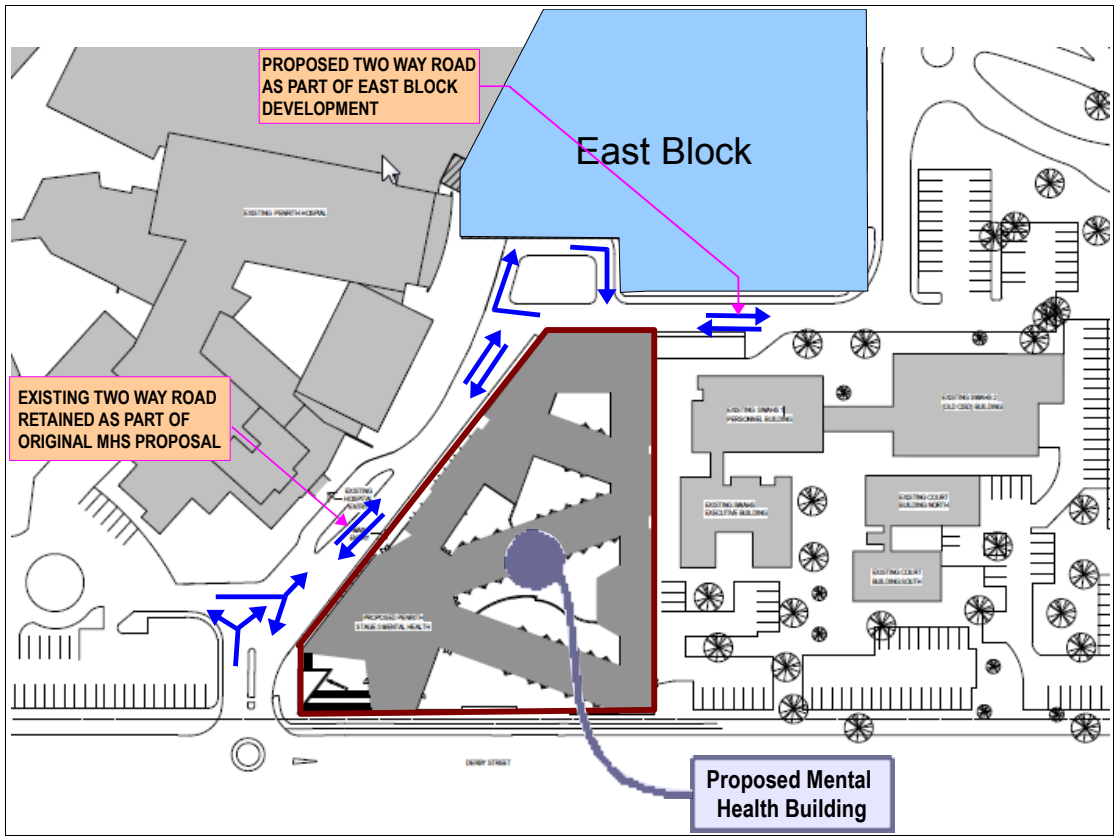


Figure 1. Previously proposed traffic arrangements.

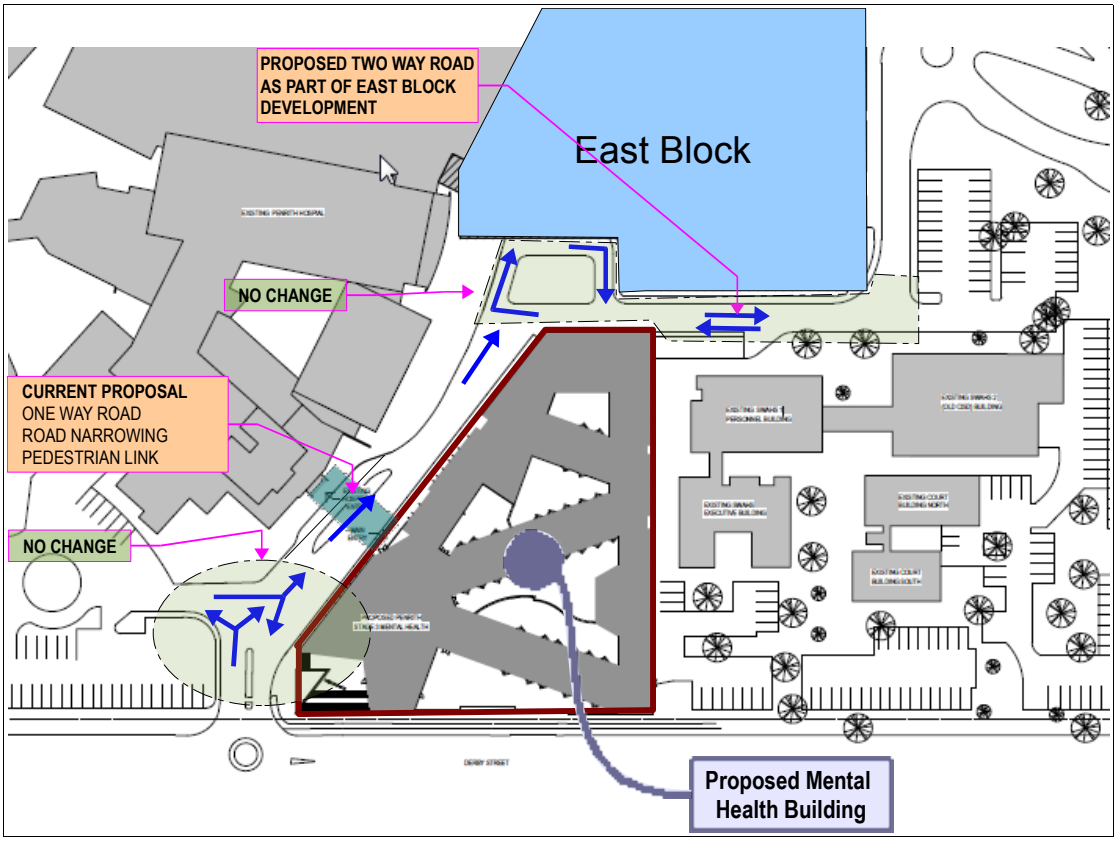


Figure 2. Currently proposed traffic arrangements.

Traffic impacts of the current proposal	
Effect on vehicular access within the site	• Access to the western part of the site from Derby Street will not be affected.
	• Access from the western part of the site to the north-eastern part of the site will not be affected
	• Access from the north-eastern part of the site to the western part of the site will be prevented. Vehicles currently travelling through the site will instead have to travel southbound in Somerset Street and then westbound in Derby Street. Traffic redistribution due to this is discussed in the next section below.
Traffic redistribution	• At present, the circulation road subject to the proposed change of traffic flow is closed due to the East Block construction.
	• All vehicles that previously used the circulation road currently travel around the south-eastern corner of the site, via the Somerset St / Derby St intersection. This affects both northbound and southbound traffic movements that previously used the internal circulation road (the current proposal will affect the southbound traffic movements only).
	• Thus the existing traffic travelling southbound in Somerset Street and turning right into Derby Street includes traffic movements which would be displaced by the current proposal.
	• Traffic volume counts at the Somerset Street/ Derby Street intersection were undertaken in September 2010 (when the internal road was closed to traffic). These were compared with the base traffic volumes undertaken before the East Block construction (before the internal circulation road was closed).
	• The difference in the number of traffic movements turning right from Somerset St (southbound) to Derby St (westbound) between the base case and the September 2010 counts would be the same as the number of movements redirected as a result of the current proposal to convert the internal circulation road to one-way northbound. The resulting changes in turning movements are shown in **Figure 3**.
Intersection performance	• Traffic modelling was undertaken using SIDRA Intersection version 5.0.
	• Modelling results have shown that the proposed change of traffic flow to one-way operation will have no negative effect on the operation of the two intersections where traffic redistribution is expected, namely the Somerset St / Derby St intersection and the main PHC entry from Derby St (refer to **Table 1**). There will be virtually no change in average delays and queuing between the two scenarios.
	• There will be no change in turning movements at other intersections near the PHC site due to the proposed amendment.
Conclusion	• The proposed change of traffic flow on the internal circulation road to one way operation is supported on traffic grounds.

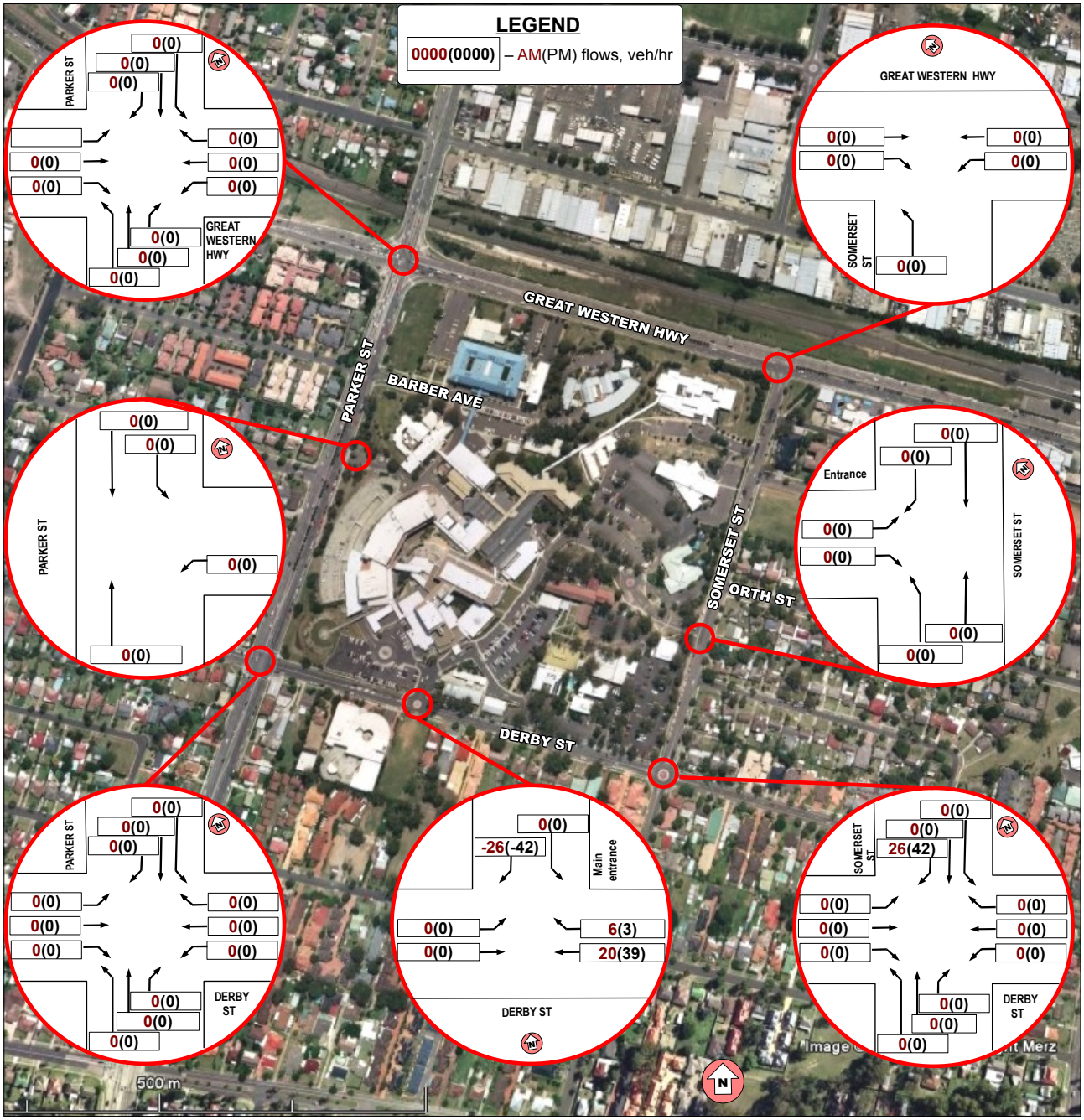


Figure 3. Traffic redistribution due to the proposed change to one way traffic on the internal road.

Table 1. Results of SIDRA modelling.

	Intersection	After Stage 3A Mental Health											
		AM						PM					
		AVD	LOS	Queue				AVD	LOS	Longest queue, m, on			
Original proposal	Derby St - Main hospital entrance	13.0	A	28.9	DS	EB	T	13.6	A	23.8	DS	WB	T
	Derby St - Somerset St	12.7	A	17.8	DS	WB	T	14.1	A	25.1	DS	WB	T
With one-way internal link	Derby St - Main hospital entrance	12.9	A	29	DS	EB	T	13.5	A	25.4	DS	WB	T
	Derby St - Somerset St	12.9	A	17.8	DS	WB	T	13.8	A	25.2	DS	WB	T

Legend:

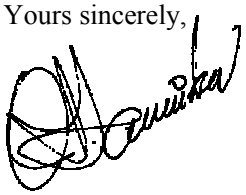
AVD	Average delay, sec	T	Through movement
LOS	Level of Service	R	Right hand turn
		L	Left hand turn
GWH	Great Western Hwy		
PS	Parker St	EB	Eastbound
DS	Derby St	WB	Westbound
ST	Somerset St	NB	Northbound
HE	Hospital Entrance	SB	Southbound

Level of Service criteria for intersections

Level of Service	Average delay per vehicle (sec/veh)	Traffic signals, roundabout
A	< 14	Good operation
B	15 to 28	Good with acceptable delays & spare capacity
C	28 to 42	Satisfactory
D	43 to 56	Operating near capacity
E	57 to 70	At capacity; at signals, incidents will cause excessive delays; Roundabouts require other control mode

Please do not hesitate to contact the undersigned should you have any queries or require further information.

Yours sincerely,



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MIEAust, PEng
MAITPM

References:

- TEF Consulting (2010) A traffic and parking impact assessment for Penrith Health Campus Stage 3A Mental Health. 15 September 2010.