

PROP. PATEENA RD BUS TURNING CIRCLE
Scale 1:500



Traffic Comment

Pateena Road Bus Stop - General Comment
Illawarra Road/Pateena Road Junction, Tasmania

Author: Andrew Howell,
BEng(Hons), MEngSci

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Rev A

Andrew Howell
BEng (Hons), MEngSci

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ATTACHMENT

1. DSG Crash Stats Summary
2. Sketch Layouts (approx) - Devon Hills / Pateena Rd
3. Key Site Photos

Limitations

This report has been completed based on information provided by the client and available in the public domain, additional information beyond this has not been considered.

Based on the nature of the development, this report has considered general arrangements for this development only, and has not considered in detail the wider impacts beyond the site (upstream network impacts), nor been provided with detailed design plans in order to undertake a full assessment of all aspects of the development in relation to specific regulatory requirements, Australian Standards or further design related requirements, this being beyond the scope of this report providing general comment only.

Any subsequent changes to configuration or arrangements relating to the development which may impact on the content or recommendations of this report must be reviewed and approved by the author.

1. Introduction

Based on instructions from Northern Midlands Council technical staff, a brief review of a proposed Bus Stop upgrade on Pateena Road, near to the junction of Illawarra Road was undertaken.

An existing bus stop on the edge of the existing roadway with unsealed lay down/pull over area exists (refer Fig 1.1), but provides no separation from traffic and does not permit efficient turning of bus traffic to allow change of direction at this site (no ability to turn 180 degrees without turning manoeuvres across road lanes etc.).

A new bus turning area and lay down zone is being considered by Council, similar to a nearby site in Devon Hills, allowing dedicated turning and parking/lay down area for buses that can facilitate safe turning as well as permit entry and departure from any direction (East or West). A proposed area adjacent to the South-western side of the road near to the Illawarra Junction is proposed by Council staff and has been discussed with stakeholders, to form a "loop" turning circle area with separate entry and exit.

This review provides consideration of suitability of this site for such an arrangement, and comments on any improvements the revised layout could provide.



Fig 1.1 – Existing bus stop / pull over area

Crash data for the immediate area was provided by DSG (refer APPENDIX A), with no significant issues identified at this location relating to the existing bus stop/access arrangements, with few crashes of note based on the high volumes of traffic in this area – this is likely based on the proximity to the T-intersection meaning lower vehicle speeds during turning, and the open geometry/sight distance of the existing bus stop on the internal apex of the corner providing sound visibility in general.

2. Road Details

Pateena Road at this location is a sealed, two way road with sealed pavement approx. 7.25m wide. The road is a long straight to the West, with a corner turning to the South East meeting the Illawarra Road immediately adjacent. Pateena Road is a Northern Midlands Council administered road and appears to have open speed limit (100 km/hr). The bus stop in question is on the first corner immediately after exiting the Illawarra Road junction – refer Fig 2.2.

Nearby Illawarra Road is a DSG administered road, and is effectively a link between the Midland Highway – Bass Highway linking Northwest coast traffic to the Midland Highway traffic, with significant current construction works occurring to the East to bypass Perth to the South (*no current works proposed for the Illawarra-Pateena junction to which the author is aware*). The road carries significant volumes, and under ordinary circumstances is posted at 100 km/hr in this general area.

The Pateena-Illawarra intersection is controlled via signage and line marking, and appears to function effectively with deceleration and turning lanes for traffic to exit Illawarra Road on to Pateena Road. Sight distance for vehicles exiting Pateena Road is also sound.

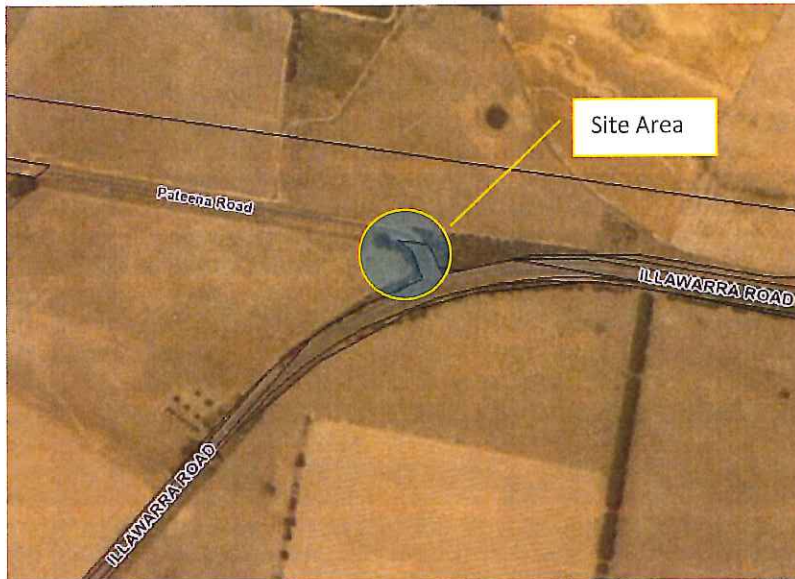


Fig 2.1 – General Site Location (Aerial photo via THELIST.tas.gov.au)



Fig 2.2 – Site Zoom (Aerial photo via THELIST.tas.gov.au)

3. Site Details – Immediate Area

The site has an existing bus stop /pullover area used by various bus routes/operators with vehicles apparently entering and exiting from both directions, and travelling onwards also in various directions, including some requiring 180 degree turns to depart (according to NMC staff).

The main bus stop including shelter is located on the South-western side of the road, and there is difficulty in any bus or vehicle being able to turn 180 degrees to return from the same direction without manoeuvres that would have to occur on and across the existing road lanes, although a pavement widening (unsealed) zone is provided on the Northern side of the road to assist. Similarly, the pavement widening to the Northern road edge appears possibly used for lay down/drop off, requiring passengers to cross the road to any informal parking area in such a case.

Site photos were taken for various locations at the site, including for approximate sight distance lines and any issues noted or potentially impacting on operation – some key photos are provided as APPENDIX B. The majority of the site is flat, with level approaches and minimal but appropriate drainage and with sealed road surfaces in reasonable condition but with unsealed shoulders. Vegetation nearby presents some visual obscuring at certain angles and is discussed further below.

Whilst vertical alignment in this area is sound providing no issues for sight distance, the horizontal alignment has some potential to reduce sight distance, due to the curve of Pateena Road approaching the junction with Illawarra, and existing vegetation. This should be checked carefully during design and construction phases to ensure that SISD can be achieved at all times on final layout, as location of accesses to ensure sound visibility from all directions is critical.

The main Illawarra-Pateena intersection was not considered to have any particularly issues of concern considering the current traffic volumes, and generally satisfactory sight lines and appropriate horizontal and vertical geometry when considered against likely vehicle movements.

Traffic volumes during the period of inspection were generally moderate for this local area on Pateena Road, whilst Illawarra Road experiences significant traffic. On this basis the location of any bus stop would be preferred in the Pateena Road Link as proposed instead of having any access or interaction with the busier Illawarra Road.

Based on the above it is likely that the generally slower, lower volume and mostly local traffic of this zone contributes to a likely appropriate arrangement as proposed in operation, if accesses can be located and constructed to provide appropriate sight distance.

4. Proposed Layout

Council propose a loop driveway, off Pateena Road, generally in the area behind the large pine tree, based on successful operation of the Devon Hills bus stop loop with internal radius 28m, and so a similar arrangement is proposed here. Access would be via entry only on an EAST entry access, and exit only via a WEST driveway access.

Checks on geometry approximately suggest that a min radius of 24m could foreseeably work for typical bus turning templates, so the 28m internal radii proposed should provide additional manoeuvre room and be acceptable.

Final design checks should be undertaken by Council to confirm vehicle turning paths and geometry can be achieved, and that the driveway width and angle with respect to existing Pateena Road geometry is appropriate.

The safe operation of the proposed accesses is highly dependent on ensuring final locations can permit appropriate SISD being achieved, as per NMC interim planning scheme requirements the min SISD for

>60km/hr roads where vehicles are travelling at 50 km/hr is 90m. This is unable to be achieved currently without vegetation clearance, which should be considered to provide SISD in all cases.

However, practically and following site observations, the approaching junction and turning vehicles appear to provide lower vehicle speeds in the immediate zone around this junction, with 40 km/hr estimated for turning vehicle speeds generally. On this basis, and extrapolating the planning scheme vehicle speeds down to 40 km/hr, the SISD would likely reduce to approx. 78-80m and the current sight distance would generally comply. This appears to be why the current bus stop arrangement operates in generally safely; however removing further vegetation would improve the sight distance and ensure a safer overall arrangement.

Appropriate advance warning signage should also be installed on all approaches, to advise drivers of the bus stop location, to further slow traffic.

5. Traffic & Crash Data

NMC advised no specific traffic count data was available for this zone on Pateena Road. Observed site volumes as noted were low to moderate during the inspection periods, with regular traffic movements but no likely capacity issues identified.

Traffic Crash data from DSG for the general area was requested, to identify any existing issues. No significant issues were identified compared to the high volume of traffic near to this junction, which was likely expected based on sound visibility & junction geometry, site inspection and local appreciation of the site. The DSG Crash Statistics data is attached to the report for reference (REFER APPENDIX A). The few vehicle crashes in the area which were identified related to uncontrolled vehicle crashes or a failure to give way at the main junction, and not to the bus stop or related access issues in this area otherwise. These few minor crashes, based on the high volume of traffic in this area, are not considered significant.

6. Review of General Arrangement, Sight Distances

The site has been considered by Council staff for a similar arrangement to the Devon Hills bus stop/turning loop arrangement with layout as below, following feedback of successful operation of this site by local bus operators/drivers to Council works staff.



Fig 5.1 Devon Hills (Image via NMC staff JG, May19)

The Devon Hills site has entry only (East) and separate exit via the West access. The approx. radius of the internal curve is around 28m from aerial mapping tools.

Comparison to likely bus turning templates (14.5m BUS) indicates approximately that a minimum radius of 24m internal could work, and the 28m as proposed provides more than enough capacity including additional space should this arrangement be replicated.

The Site is proposed for separate entry and exit. Entry only via the EAST access, and exit only via the WEST access. This is a preferred option for visibility for all likely traffic movements available at this site.

Sight Distance

Based on a site specific review, it appears that the loop arrangement as proposed can likely operate satisfactorily, based on some site checks for final design and layout. It is noted that the location of the accesses is critical, to ensure that turning traffic can be seen from both directions. This should be undertaken by design to confirm specific turning paths and sight distances comply, and inspected on site by the author or suitably qualified traffic professional during construction to confirm.

Sight distance is estimated for likely key movements as follows:

Entry (East Access)

1. Entering bus or vehicle visible by vehicles from West – visible from vehicles behind in excess of 300m – SISD exists.
2. Entering bus or vehicle visible from East - visible from vehicles at or approaching junction (estimated turning vehicle speed approx. 40 km/hr) – 75m approx. This could be improved for traffic on Illawarra turning into Pateena by removing some vegetation on the inside fence line on each side.

Exit only (West Access)

3. Exiting – sight distance to WEST – in excess of 300m – SISD exists.
4. Exiting bus or vehicle visible to East – sight distance approx. 75m with appropriate clearance of vegetation – considered likely sound based on assumed low speeds for vehicles turning on to Pateena Road, estimated approx. 40 km/hr max at junction location and initial curve. Note the large pine tree specifically provides some obscuring of sight lines, and should be considered for removal if permitted to improve this sight line, as well as trimming of other roadside vegetation impeding this sight line.

Due to the possible reduced sight distance from vegetation on the main curve of Pateena Road at this junction it is recommended some vegetation clearance is undertaken to where possible increase sight distance to 80m plus, with 90m suggested as most appropriate if this can be achieved. Based on turning and approach traffic speeds estimated at 40 km/hr, 80m is however adequate in accordance with NMC Interim Planning Scheme.

7. Conclusion

The revised loop turning circle layout for new bus stop and lay down area as proposed by NMC staff, similar to the Devon Hills arrangement, will provide an improvement to the existing bus stop arrangements at this site, with final design details TBC to ensure access and turning radii comply with necessary requirements.

Sound sight distance for the proposed separate entry and exit access driveways appears can likely be achieved based on careful access location selection and removal of some vegetation at the site to ensure min 90m SISD can be achieved at all locations in accordance with NMC Interim Planning Scheme.

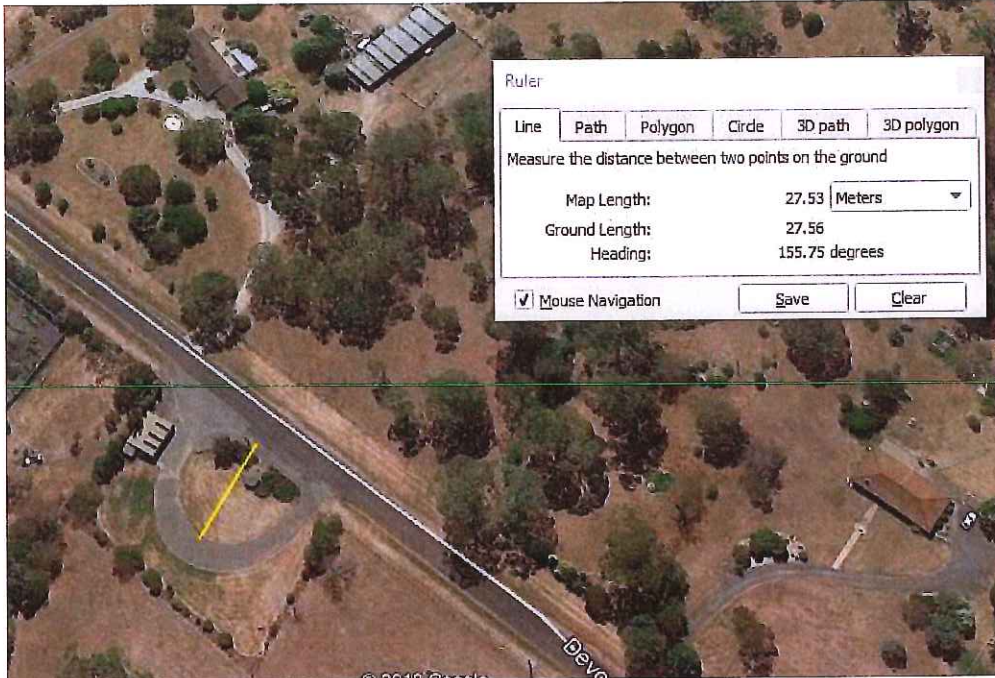
Further details on options and likely requirements for any design details can be provided as needed by the author through further discussion with Council staff as required.

Andrew Howell

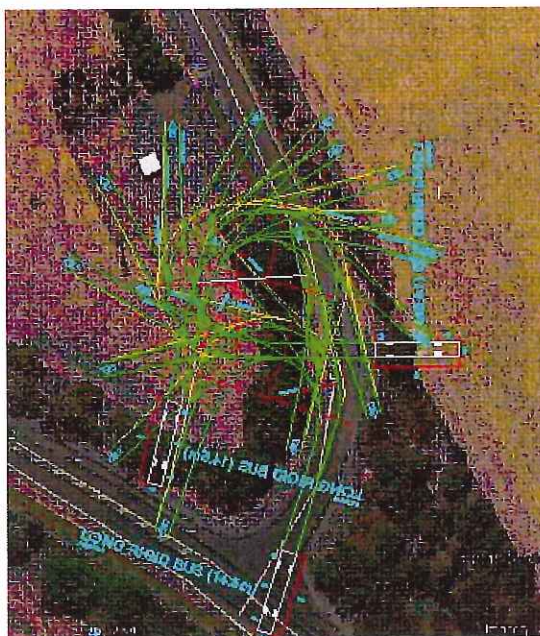
BEng (Hons), MEngSci

ATTACHMENT 1 – DSG CRASH STATS

ATTACHMENT 2 – SKETCH LAYOUTS (DEVON HILLS, PATEENA) – APPROX ONLY



DEVON HILLS – APPROX RADIUS (28m min)



PATEENA – APPROX RADIUS (24m min – suggest 28m similarly TBC) / TURNING TEMPLATES APPROX

Traffic Comment – Bus Stop Improvements, Pateena Road, Tasmania

ATTACHMENT 3 – KEY SITE PHOTOS

