

INDEPENDENT REVIEW - 24 APRIL 2026

Critical Assessment of Traffic Impact Assessment

100 Edinburgh Road, Castlecrag — State Significant Development
Application

Report Under Review: Transport Impact Assessment — Conquest Group of Companies, 100 Edinburgh Road, Castlecrag SSDA — 90134958

Prepared By: ptc. (Suite 502, 1 James Place, North Sydney NSW 2060) — Authors: C. Pariyar / J. Jansen / S. Wellman

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Submitted To: NSW Department of Planning, Industry and Environment / Willoughby City Council

1. Executive Summary

This document constitutes an independent critical review of the Traffic Impact Assessment (TIA) prepared by ptc. and submitted in support of the State Significant Development Application (SSDA) for 100 Edinburgh Road, Castlecrag (SSDA No. 90134958). The proposed development comprises 150 residential dwellings and approximately 3,139m² of retail/supermarket floor area.

This review finds that the TIA is substantially reliant on desktop data, standardised formulas, and a single day of field measurement. The cumulative effect of multiple methodological shortcuts is a traffic baseline and development impact assessment that is likely to materially understate the traffic impacts that residents and road users will experience upon completion of the development.

The principal deficiencies identified are:

- The entire existing traffic baseline rests on one survey day only (Thursday 16 October 2025), with no multi-day averaging, no weekend data, and no seasonal variation analysis.
- The PM peak hour identified (3:00pm–4:00pm) is anomalously early for a mixed-use residential and retail development, and is inconsistent with typical Sydney commuter peak patterns.
- No Saturday traffic survey was conducted, despite the proposed development including a supermarket and retail premises whose peak demand occurs on weekends.
- Trip generation for both the retail and residential components is derived entirely from generic state-wide formula rates, with no validation against local analogues or comparable development studies.
- The 75/25 east-west catchment split, which conveniently deflects the majority of development traffic away from the most stressed intersection on the network (Edinburgh Road / Eastern Valley Way, currently operating at Level of Service F in AM peak), is derived from a desktop visual analysis with no empirical data support.
- Road geometry underpinning the SIDRA model is sourced from Google Maps screenshots and Nearmap aerial imagery dated 2023 — not from current field survey measurements.
- No pedestrian or cyclist counts were conducted at any of the five surveyed intersections.
- Swept path assessments are acknowledged within the report itself as having been completed without physical ground survey.

This review requests that the consent authority require ptc. to address each of the deficiencies identified herein before the TIA is accepted as a basis for development assessment.

2. Background and Context

2.1 The Proposed Development

The subject development at 100 Edinburgh Road, Castlecrag, proposes:

- 150 residential dwellings (78 x 2-bedroom, 54 x 3-bedroom, 8 affordable units, 8 penthouses)
- Supermarket and retail premises with a Net Leasable Area (NLA) of 3,139m²
- 203 basement car parking spaces (residential) and 175 spaces (non-residential)

The site is located at the gateway to the Castlecrag peninsula, at the intersection of Edinburgh Road and Eastern Valley Way — a signalised intersection which the TIA itself identifies as already operating at Level of Service (LoS) F during the AM peak hour in existing conditions.

2.2 The Report Under Review

The TIA was prepared by ptc. (North Sydney) and authored by C. Pariyar, J. Jansen, and S. Wellman. The report underwent six issues between 10 November 2025 and 10 February 2026 before submission as Appendix Q of the SSDA. The guiding framework for the assessment is the TfNSW Guide to Transport Impact Assessment (GITA), as required under the SEARS conditions (Item 9).

3. Identified Deficiencies

3.1 Single-Day Traffic Survey — Insufficient Empirical Baseline

Report Reference: Section 5.2, Existing Network Traffic — Page 19

Section 5.2 Figure 15–17	Page 19–21	<i>"Traffic count survey was undertaken on Thursday 16th October 2025 (outside of school holiday period) between 7:00am–10:00am and 3:00pm–7:00pm at the key intersections mentioned above."</i>
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The entire existing traffic baseline underpinning this TIA is derived from a single day of observation. This is the most fundamental methodological deficiency in the report.

Best practice under the TfNSW GITA and general Australian traffic engineering standards requires that traffic counts be conducted over a minimum of three to five consecutive weekday periods to establish a statistically valid baseline. Day-to-day traffic flows on suburban arterial and local road networks routinely vary by 15–25% depending on weather conditions, local events, school schedules, and network incidents. A single Thursday count cannot account for this natural variability.

The following deficiencies arise directly from the single-day survey approach:

- No Tuesday, Wednesday, or Friday comparison counts were undertaken and no average or standard deviation calculated.
- No acknowledgement of the limitation of single-day data appears anywhere in the body of the report.
- The selected peak hours (AM: 7:45–8:45am; PM: 3:00–4:00pm) are derived from this single-day data set with no cross-validation against TfNSW Traffic Volume Viewer data for these specific intersections.

Requirement: The consent authority should require ptc. to conduct a minimum of three consecutive weekday classified traffic counts at all five surveyed intersections, with results averaged, before the baseline traffic volumes are accepted.

3.2 Anomalous PM Peak Hour Identification

Report Reference: Section 5.2, Existing Network Traffic — Page 19

Section 5.2	Page 19	<i>"Network PM Peak Hour: 3:00pm – 4:00pm"</i>
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The PM peak hour identified from the survey data — 3:00pm to 4:00pm — is materially inconsistent with typical Sydney suburban PM peak hour patterns. The standard commuter return peak on metropolitan arterial and collector roads in Sydney generally occurs between 4:30pm and 6:30pm, reflecting the concentration of journey-to-work return trips from the CBD, North Sydney, and Chatswood employment centres.

A 3:00–4:00pm PM peak is more consistent with school pickup traffic concentrated on roads adjacent to primary and secondary schools. The TIA notes that two of the five surveyed intersections are located adjacent to school zones. However, the development's proposed land

uses — residential dwellings and a supermarket/retail centre — will generate their highest traffic demands during the commuter evening peak, not during the school pickup window.

The consequence of this is significant: all SIDRA modelling for PM peak scenarios (Scenarios 1B, 2B, 3B and 4B) is conducted against a baseline that captures a short-lived school-related traffic spike, not the sustained evening commuter peak that the development will generate for the duration of its operational life. This approach systematically understates PM peak impacts at Edinburgh Road / Eastern Valley Way.

Requirement: ptc. should be required to confirm, by reference to TfNSW SCATS data for Edinburgh Road / Eastern Valley Way, what the historically typical PM peak hour is at that intersection, and to re-run all PM peak scenarios against a 4:30–6:00pm window if data supports a later peak.

3.3 Absence of Saturday/Weekend Traffic Survey

Report Reference: Section 5.2 and Section 5.5 — Pages 19 and 25

Section 5.5.1 | Table 18

Page 25–26

Supermarket/Retail classified as Shopping Centre with Thursday peak hour rate applied per Section 5.6.5 of GITA. No Saturday or weekend survey undertaken.

The proposed development includes a supermarket and retail premises with a combined NLA of 3,139m². Supermarkets and neighbourhood retail centres consistently generate their highest vehicular traffic on Saturdays, not on weekday AM or PM peaks. This is a well-established characteristic of Australian retail traffic behaviour documented in both the GITA and RMS published research.

Despite this, the report contains no Saturday traffic data for any of the five surveyed intersections. The consultants have substituted a Thursday peak hour trip generation formula (drawn from GITA Section 5.6.5) in place of actual weekend measurement. While GITA permits use of a Thursday rate as a proxy, this substitution does not eliminate the need to understand what existing Saturday traffic conditions are at Edinburgh Road / Eastern Valley Way — the intersection that will bear the primary loading from retail trip generation.

The report's conclusion that development traffic causes "no change to the Level of Service of any modelled intersection" is therefore drawn without any empirical understanding of Saturday baseline conditions. It is entirely possible that the Edinburgh Road / Eastern Valley Way intersection, already at LoS F in the weekday AM peak, also experiences material stress on Saturday mornings under existing conditions — a scenario never tested in this report.

Requirement: A Saturday peak hour traffic count (minimum 8:00am–12:00noon) should be required at Edinburgh Road / Eastern Valley Way and Edinburgh Road / Raeburn Avenue. Saturday development trip generation should be assessed and modelled separately.

3.4 Trip Generation Derived Entirely from Desktop Formula Rates

Report Reference: Section 5.5.1, Trip Generation; Table 18 — Pages 25–26

Section 5.5.1 Table 18	Page 25–26	<i>Trip generation for all land uses derived from GITA formula rates only. No local analogue studies, no comparable development data, no site-specific calibration cited.</i>
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The development trip generation of 311 AM peak trips and 403 PM peak trips (Table 18) is derived entirely from generic state-wide GITA formula rates. No local analogue studies, no comparable supermarket or mixed-use development traffic surveys, and no site-specific calibration are cited anywhere in the report.

Two specific desktop assumptions embedded in these figures require scrutiny:

3.4.1 The 25% Linked Trip Discount

Section 5.5.1	Page 26	<i>"Under Section 3.6.2 of Guide to Traffic Generating Developments (2002), 25% discount is applied on GFLA for linked/multi-purpose trips. This equates the trip generating NLA to 2,354m²."</i>
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A blanket 25% reduction in retail NLA (from 3,139m² to 2,354m²) is applied on the basis of a 2002 guideline with no local validation. The Guide to Traffic Generating Developments cited is over two decades old and pre-dates significant changes in retail and commuter behaviour patterns in Sydney. No origin-destination survey, no intercept survey, and no comparable Castlecrag retail study is cited to support the assumption that 25% of supermarket and retail customers will be making linked trips to this site.

Furthermore, Castlecrag is a peninsula suburb with limited through-traffic. The nature of a gateway site at the entry to a residential peninsula does not self-evidently generate high rates of linked trip activity of the kind typically associated with roadside shopping centres on major arterials.

3.4.2 Application of High Public Transport Accessibility Residential Rate

Section 5.5.1	Page 25	<i>Residential rate applied: AM 0.19 per dwelling / PM 0.15 per dwelling — high public transport accessibility category.</i>
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The report applies the lower 'high public transport accessibility' residential trip generation rate on the basis that the site is ranked Level 6 (very high PT accessibility) on the TfNSW public transport accessibility map (Section 3.2.4, Page 14–15). However, the report itself acknowledges that bus services to Castlecrag are limited to routes 194, 203, 205, 206, 207, 208, 209, 260 and 275, serving primarily the North Sydney to Chatswood corridor, and that cycling amenity is 'relatively poor' to the west of the site.

Applying the high-PT-accessibility residential rate produces a lower trip generation figure, which is directly beneficial to the proponent. The report does not reconcile the tension between the Level 6 PT accessibility classification and the acknowledged relative transport isolation of the Castlecrag peninsula, nor does it test the sensitivity of the model to application of a medium-PT-accessibility rate.

Requirement: ptc. should be required to (a) validate the linked trip discount against local intercept survey data or comparable Castlecrag retail studies; (b) conduct a sensitivity test using a medium PT accessibility residential trip generation rate; and (c) reference a post-2010 trip generation guideline for the linked trip discount.

3.5 Unvalidated 75/25 Catchment Split Deflecting Traffic from the Most Stressed Intersection

Report Reference: Section 5.5.2, Zone of Influence; Figure 19–20 — Pages 26–28

Section 5.5.2 Figure 19–20	Page 26–28	<i>"On the basis of the catchment area, approximately 75% of the area is occupied by the Castlecrag East Region... 75% of the trip generated by the non-residential component comes from east and returns east, not utilizing the intersection of Eastern Valley Way and Castlecrag Road."</i>
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The report asserts, without empirical evidence, that 75% of retail and supermarket trips will originate from the Castlecrag East catchment (east of Eastern Valley Way) and return east — meaning they would not traverse the Edinburgh Road / Eastern Valley Way signalised intersection, which already operates at LoS F in the AM peak.

This 75/25 split is derived from a visual analysis of suburb boundary polygons overlaid on a map, and from an assessment of the location of competing retail stores in adjacent suburbs. No customer origin survey, no intercept survey, no GPS trace analysis, and no comparable supermarket origin study is cited. This is a pure desktop assumption.

The implications of this assumption are material. If the true catchment split is 60/40 or 50/50 (reflecting the reality that many Castlecrag West residents may prefer the proposed new supermarket over existing alternatives in Northbridge or Chatswood), the traffic loading on Edinburgh Road / Eastern Valley Way would increase substantially above what the SIDRA model has assessed — at an intersection already at breaking point.

Requirement: The 75/25 catchment split must be validated by empirical data. ptc. should be required to conduct or reference a comparable supermarket customer origin study, and to conduct a sensitivity test of the SIDRA model at a 50/50 and 60/40 east-west distribution.

3.6 Background Growth Rate Sourced from Desktop Tool Without Local Calibration

Report Reference: Section 5.4, Future Network Assessment — Page 25

Section 5.4	Page 25	<i>"A background traffic growth of 1% per annum has been derived from the Traffic Volume Viewer from TfNSW and applied to the 10 years background traffic growth."</i>
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The 1% per annum background growth rate, applied over 10 years to generate the future network scenarios (Scenarios 2A/2B and 4A/4B), is taken directly from the TfNSW Traffic Volume Viewer — an online desktop data portal. No explanation is provided for why 1% was selected, whether this rate is calibrated to traffic volumes specifically on Edinburgh Road or Eastern Valley Way, or whether it reflects local growth pressures in the Willoughby LGA.

Notably, the report acknowledges in its own conclusion (Section 5.8, Page 32) that the PM peak hour 'begins to operate near capacity in the 10-year horizon scenario' even without development traffic. This is a significant finding that is not adequately explored. If the background growth rate

were modestly higher — say 1.5% per annum, consistent with the growth pressures implied by the SSDA itself — the 10-year future scenarios would be materially worse.

Additionally, the report acknowledges (Section 5.8) that the DA2024/13 already-approved development on the site has not been deducted from the net trip generation. However, no cumulative impact assessment of all approved and foreseeable developments in the Castlecrag precinct is presented.

Requirement: ptc. should provide the source data from the Traffic Volume Viewer supporting the 1% growth rate for the specific road segments assessed, and should conduct a sensitivity analysis at 1.5% per annum. A cumulative impact assessment including all development approvals in the precinct should also be provided.

3.7 Road Network Geometry Based on Dated Desktop Sources

Report Reference: Section 3.1, Road Hierarchy; Figures 5–13 — Pages 6–14

Figures 5–10 Figure 11 Figure 13	Pages 7–14	<i>Road network characterisation sourced from Google Maps (undated) and Nearmap aerial imagery (2023). Cycling network from TfNSW Cycleway Finder (2023).</i>
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The physical road environment characterisation that provides geometric inputs to the SIDRA model is based on the following desktop sources:

Figure	Source	Date
Figure 5 — Eastern Valley Way (Southbound)	Google Maps	Undated
Figure 6 — Edinburgh Road (Westbound)	Google Maps	Undated
Figure 7 — Raeburn Avenue (Northbound)	Google Maps	Undated
Figure 8 — Rutland Avenue (Northbound)	Google Maps	Undated
Figure 9 — The Postern (Southbound)	Google Maps	Undated
Figure 10 — Sunnyside Crescent (Westbound)	Google Maps	Undated
Figure 11 — Walking & Cycling Catchment	Nearmap aerial imagery	2023
Figure 13 — Cycling Network	TfNSW Cycleway Finder	2023

Lane widths, kerb radii, sight distance, and turning pocket geometry used in SIDRA should be based on current, field-verified measurements. Using undated Google Maps screenshots and two-year-old aerial imagery introduces unquantified geometric error into the modelling foundation, particularly at the Edinburgh Road / Eastern Valley Way intersection where the model is already reporting LoS F instability in SIDRA.

Requirement: All geometric inputs to the SIDRA model should be verified against current field survey measurements, not desktop imagery sources.

3.8 Swept Path Assessments Conducted Without Physical Ground Survey

Report Reference: Swept Path Assessment Appendices (multiple instances)

Swept Path Appendices (multiple pages)	Appendix drawings	<i>"This swept path assessment has been completed utilising aerial imagery/scaled PDF in the absence of detailed survey. It should be noted that aerial imagery/scaled PDF can have an element of error, and all swept paths... should be verified."</i>
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The swept path assessments verifying heavy vehicle access to the proposed loading dock are acknowledged, in the report itself and in multiple appendix drawings, to have been completed using aerial imagery and scaled PDFs — without any physical ground survey of access geometry.

This is a significant admission. Swept path analysis for a supermarket loading dock accessed by 19.0m Truck & Dog combinations (identified in Section 8.7, Page 46) requires accurate kerbline geometry, footpath widths, and lane marking dimensions that cannot be reliably extracted from aerial imagery. The report itself states these assessments ‘can have an element of error’ and should be ‘verified.’

Requirement: All swept path assessments should be re-conducted using current, field-verified survey data before they are accepted as demonstrating compliance with AS2890 standards.

3.9 No Pedestrian or Cyclist Counts Conducted

Report Reference: Section 3.2.2 Walking; Section 3.2.3 Cycling; Figure 11, Figure 13 — Pages 11–14

Sections 3.2.2–3.2.3 Figure 11, 13	Pages 11–14	<i>Walking and cycling environment assessed entirely from Nearmap (2023) aerial imagery and TfNSW Cycleway Finder (2023). No pedestrian or cyclist counts conducted at any surveyed intersection.</i>
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The report asserts that the site has good pedestrian infrastructure and that active transport to the east of the site is viable. Despite this, no pedestrian or cyclist counts were conducted at any of the five intersections surveyed during the October 2025 traffic count. The entire active transport environment assessment is conducted from desktop imagery sources dated 2023.

For a mixed-use development of 150 dwellings and a neighbourhood supermarket at a signalised intersection on a collector road, pedestrian and cyclist conflict points are directly relevant to intersection safety design, to the modal split assumptions applied in the residential trip generation rates, and to the credibility of the Green Travel Plan (Section 7) which relies on active transport uptake to offset vehicle trip generation.

Requirement: Pedestrian and cyclist counts should be conducted at Edinburgh Road / Eastern Valley Way during both AM and PM peak periods as part of a supplementary survey program.

3.10 No Parking Occupancy Survey of the Surrounding Street Network

Report Reference: Section 4, Parking Assessment — Pages 16–18

Section 4.2 Parking Summary	Pages 16–18	<i>Parking demand assessed against planning policy rates only. No field survey of existing on-street parking utilisation or occupancy.</i>
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The parking demand assessment for the proposed development is assessed entirely against DCP and GITA policy rate benchmarks. No field survey of current on-street parking utilisation in the Edinburgh Road / Castlecrag area has been conducted.

Edinburgh Road adjacent to the site operates under 2P time-restricted parking conditions (Monday–Friday 8:30am–6:00pm and Saturday 8:30am–12:30pm). Given the constrained parking environment on the Castlecrag peninsula and the addition of 175 retail parking spaces to a suburb that currently has no comparable retail centre, an actual parking occupancy survey of the surrounding street network would be standard practice for a development of this scale and type.

Requirement: A parking occupancy survey of Edinburgh Road and adjoining streets within 400m of the site should be required to establish a baseline against which post-development parking demand and potential spillover can be assessed.

3.11 Construction Traffic Assessment Based on Generic Estimates

Report Reference: Section 8, Preliminary Construction Traffic Management Plan; Section 8.7 — Page 46

Section 8.7 Section 8.4	Page 46	<i>"Based on similar sized construction projects, it is expected that the peak construction heavy vehicle activity will result in up to 35 trucks to and from the site per day."</i>
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The construction traffic assessment, including the estimate of up to 35 trucks per day at peak, is described as being based on 'similar sized construction projects.' No comparable project data, construction program, or site-specific excavation volume estimate is provided to support this figure.

The access geometry for construction vehicles — particularly 19.0m Truck & Dog combinations navigating Edinburgh Road, which does not permit vehicles to access the southern side of the road without a turning manoeuvre (Section 8.9, Page 47) — is not assessed in detail. The detailed Construction Traffic Management Plan (CTMP) is deferred entirely to post-SSDA approval.

Requirement: A more detailed preliminary CTMP should be provided at SSDA stage that includes (a) a site-specific estimate of construction vehicle movements by stage, (b) a swept path assessment based on surveyed road geometry for the heaviest vehicle types, and (c) an assessment of impacts at Edinburgh Road / Eastern Valley Way during the construction period.

4. Summary of Deficiencies

The table below summarises the methodological deficiencies identified in this review and the minimum standard that should have been applied.

Element of Assessment	Method Used	Standard Practice	Assessment
Existing traffic baseline	1 day (Thu 16 Oct 2025 only)	Min. 3–5 day averaged count	Deficient — single day, no averaging
PM peak hour identification	3:00–4:00p m (single-day data)	Multi-day / SCATS validated peak	Deficient — inconsistent with commuter peak patterns
Weekend/Saturday survey	Not conducted	Saturday peak count required for retail	Deficient — supermarket peak not assessed
Trip generation rates	GITA formula rates only (desktop)	Local analogue studies / intercept surveys	Deficient — no site-specific validation
Linked trip discount (25%)	Applied from 2002 guideline (desktop)	Validated by local OD data	Deficient — 2002 guideline, no local evidence
Residential trip rate (high PT)	Applied from GITA desktop category	Sensitivity test at medium PT required	Deficient — no reconciliation with limited local bus services
75/25 catchment split	Visual desktop analysis only	Customer intercept or GPS origin data	Deficient — key assumption with no empirical support
Background growth rate (1% pa)	TfNSW Volume Viewer (desktop)	Locally calibrated, sensitivity tested	Deficient — no local calibration, no sensitivity analysis
Road network geometry	Google Maps + 2023 Nearmap (desktop)	Field survey — current measurements	Deficient — undated/aged imagery sources
Pedestrian/cyclist counts	Not conducted	Field counts at all surveyed intersections	Deficient — entirely absent from survey program

Element of Assessment	Method Used	Standard Practice	Assessment
Parking occupancy	Policy rates only (desktop)	On-street occupancy survey	Deficient — no field measurement
Swept path geometry	Aerial imagery (admitted in report)	Licensed surveyor ground measurements	Deficient — acknowledged in report itself
Construction traffic volumes	Generic estimate (35 trucks/day)	Stage-by-stage site-specific estimate	Deficient — no project-specific basis provided

5. Requests to the Consent Authority

On the basis of the deficiencies identified in this review, we respectfully request that the consent authority:

1. Direct ptc. to conduct a supplementary traffic survey program comprising a minimum of three consecutive weekday classified traffic counts at all five intersections, plus a Saturday AM peak count at Edinburgh Road / Eastern Valley Way and Edinburgh Road / Raeburn Avenue, before accepting the TIA baseline.
2. Require ptc. to validate the PM peak hour identification against TfNSW SCATS data for Edinburgh Road / Eastern Valley Way, and to re-run all PM peak SIDRA scenarios against a commuter-consistent peak window if warranted.
3. Require ptc. to assess Saturday peak hour development trip generation for the supermarket and retail component and model Saturday impacts at Edinburgh Road / Eastern Valley Way.
4. Require ptc. to provide local empirical support for the 25% linked trip discount, or to remove the discount and reassess trip generation.
5. Require ptc. to conduct a sensitivity test of the residential trip generation using a medium public transport accessibility rate and to reconcile the Level 6 PT accessibility classification with the acknowledged limitations of bus services to the Castlecrag peninsula.
6. Require ptc. to validate the 75/25 east-west catchment split by empirical data, and to conduct SIDRA sensitivity testing at 50/50 and 60/40 catchment distributions.
7. Require ptc. to re-confirm road geometric inputs to the SIDRA model against current field survey data.
8. Require ptc. to conduct pedestrian and cyclist counts at Edinburgh Road / Eastern Valley Way and incorporate these into the intersection model.
9. Require ptc. to conduct a field parking occupancy survey of Edinburgh Road and adjacent streets.
10. Require ptc. to conduct all swept path assessments using field-surveyed geometry before compliance with AS2890 is accepted.
11. Require a more detailed preliminary CTMP addressing construction vehicle movements by stage and construction-period impacts at Edinburgh Road / Eastern Valley Way.

This review has been prepared in good faith on the basis of the published TIA (Appendix Q of SSDA 90134958, Issue 6, dated 10 February 2026) and reference to standard Australian traffic engineering practice and the TfNSW Guide to Transport Impact Assessment. The authors of this review are available to provide further information to the consent authority upon request.