Issue History

File Name	Prepared	Reviewed	Issued	Date	Issued to
P6458.001T HISC – Saturday SCATS Verification SIDRA Sensitivity Response to Resident.docx	A. Grey	D. Bitzios	A. Grey	06/03/26	Dain Greentree<dain.greentree@app.com.au>

Hunter Indoor Sports Centre (SSD-65595459)

Saturday Traffic Volumes Verification

1. Introduction

This Technical Note provides a response to the SIDRA-modelling matters raised in Chris Flower's submission dated 2 October 2025, which referenced the Version 004 SIDRA Modelling Technical Note. It confirms the status of the corrected Version 005 Technical Note and clarifies the use of data, whether the Saturday survey day (6 April 2024) is materially different from a representative "typical" Saturday (31 August 2024) based on SCATS detector data at Turton Road / Young Road.

The scope of this Technical Note is limited to:

(i) Confirming the table consistency correction between Version 004 and Version 005 of the modelling Technical Notes

(ii) Clarifying the data chain for turning-movement counts versus camera usage; and

(iii) Applying SCATS-derived 'uplift' factors to Turton Road through movements only within the existing Saturday SIDRA model to understand whether any change in DoS, delay, or LOS is significant.

Matters relating to trip distribution, parking or broader TIA assumptions sit with SECA as the TIA author and are not addressed here.

2. Consistency between Version 004 and Version 005

Chris Flower's submission referenced the Version 004 SIDRA modelling Technical Note and questioned the consistency between its consolidated comparison table and the underlying peak-period tables. This inconsistency occurred because the Technical Note was updated several times following Transport for NSW review comments. Although the underlying SIDRA outputs were updated correctly, one consolidated summary table was inadvertently not revised to match the final set of peak-period tables.

Version 005 supersedes Version 004 and addresses this oversight to ensure the consolidated *Base vs Project* comparisons match the underlying peak-period outputs. The correction affects only the reported tables. The SIDRA model inputs remain unchanged, and the modelling conclusions are unaffected.

3. Data sources – turning counts and camera footage

Turning-movement volumes used in the SIDRA models are based on the intersection traffic counts. Camera footage was used only as supporting evidence to validate observed back-of-queue conditions where available. Limitations in camera coverage or video quality may affect the completeness of queue observations in some locations, but they do not affect the integrity of the turning-movement counts used for the SIDRA demand inputs.

4. Turton Road/Young Road intersection – PM peak outbound traffic and modelled impacts

This section responds to the submission query questioning how "negligible delays" could occur at Turton Road / Young Road, given the HISC PM peak outbound demand (of ≈200+ vehicles/hour) and the fact that Turton Road / Young Road forms part of the access route for some trips to and from the site.

4.1 PM peak outbound routing

The site access is on Turton Road. During the weekday PM peak, the forecast left-turn traffic out of the site is 215 vehicles per hour, departing northbound on Turton Road, consistent with the adopted trip distribution for the project case. This means that this project traffic primarily adds to the Turton Road northbound through traffic north of Turton Road / Young Road, as shown in Figure 4.1.

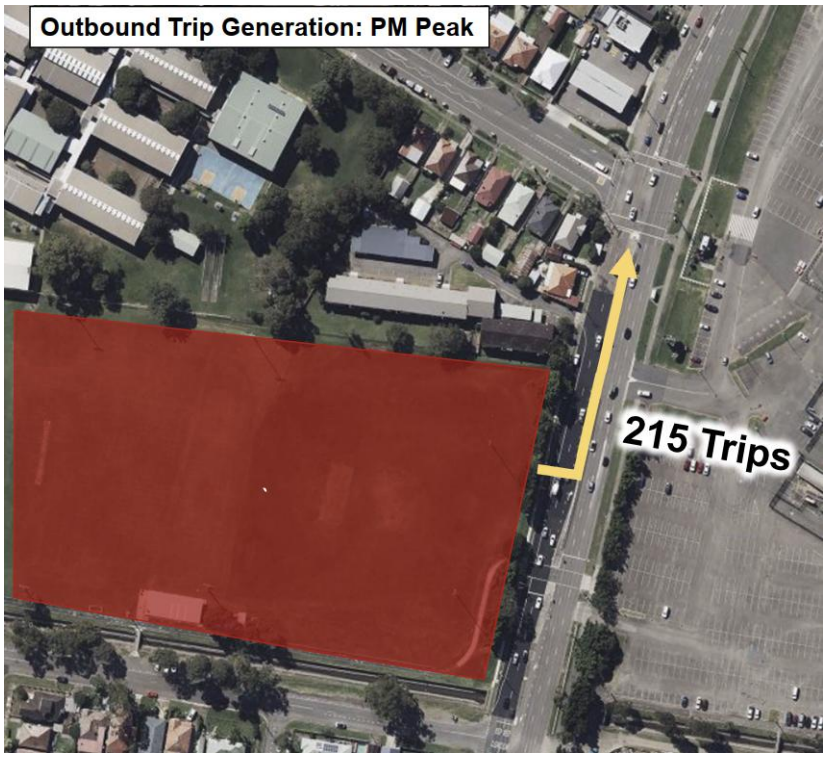

Figure 4.1: PM outbound distribution diagram showing northbound egress

4.2 SIDRA PM peak results at Turton Road / Young Road (Base vs Project)

SIDRA outputs for the weekday PM peak (16:45–17:45) at Turton Road / Young Road show a slight but clear change in performance between the Base and Project cases, consistent with the additional HISC outbound traffic during this period.

At the intersection level, the total demand (All Vehicles – Demand Flows) rises from 3,528 veh/h (Base) to 3,803 veh/h (Project), which is an increase of about 8%. This leads to an increase in average delay from 27.4 s/veh to 33.3 s/veh, with the overall intersection LOS changing from LOS B to LOS C, which is minimal.

The additional PM outbound demand appears where expected, specifically on the Turton Road northbound approach, labelled as “South: Turton Road” in SIDRA, which signifies vehicles heading northbound into the intersection from the south. The flow increases from 1,582 vehicles per hour (Base) to 1,808 vehicles per hour (Project). This results in a marginal increase in average approach delay from 27.9 seconds to 29.7 seconds, with the Level of Service (LOS) changing from LOS B to LOS C.

Note that whilst the PM peak traffic turning left is input into SIDRA 215 vph, it may appear in the SIDRA model as a higher value due to SIDRA’s demand peaking factor.

This demonstrates that the model accurately reflects the increased northbound corridor traffic during the PM peak, and the operational impact is minimal. The key weekday PM peak SIDRA outputs for the Turton Road / Young Road intersection, comparing the Base and Project cases, are summarised in Table 4.1.

Table 4.1: Turton Road / Young Road – PM peak performance (Base vs Project)

Metric	Base PM	Project PM	Change
Total intersection demand (All Vehicles – Demand flows)	3528 veh/h	3803 veh/h	+275 veh/h
All Vehicles – average delay	27.4 s/veh	33.3 s/veh	+5.9 s/veh
All Vehicles – LOS	LOS B	LOS C	One level
Turton Rd NB approach (South: Turton Rd – Approach Demand)	1582 veh/h	1808 veh/h	+226 veh/h[1]
Turton Rd NB approach – delay / LOS	27.9 s / LOS B	29.7 s / LOS C	+1.8 s / one level

[1] *Higher than the input turn flow of 215 vph due to SIDRA demand peaking factor*

4.3 SIDRA outputs logic check

The project's PM peak outbound traffic of approximately 215 vehicles per hour is at a level that can be readily absorbed into Turton Road without significant implications. That is, this volume increase equates to 70 vehicles per lane per hour on a three-lane approach, which is about 1 additional vehicle per lane per minute. With a coordinated cycle length of approximately 132 seconds, this means that there are about 2–3 extra vehicles per lane per green phase at the Turton Road approach to the intersection, and in the predominant green phase of the intersection. This should logically reflect a minimal change in average intersection delay, consistent with the SIDRA results, with an average delay increase of less than 10% in the peak hour.

5. Saturday SCATS data verification

5.1 SCATS site and detector groupings

SCATS detector data was obtained for TCS 3322 (Turton Road / Young Road) as a representative mid-corridor location to test whether the Saturday survey day is materially different to a typical Saturday in terms of Turton Road through volumes. The SCATS detector layout and the detector groups adopted for the Turton Road / Young Road comparison are shown in Figure 5.1.

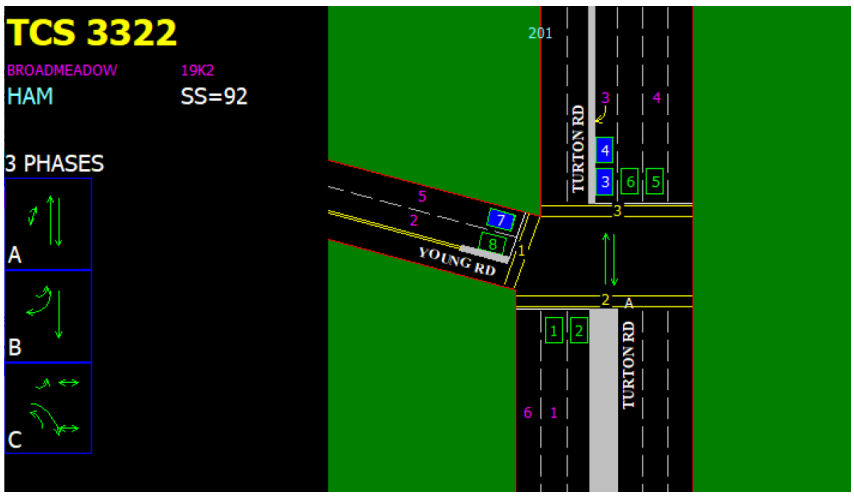

Figure 5.1: SCATS detector layout (TCS 3322)

For the purpose of this check, detector groups were defined as follows:

- Turton Road northbound through: Detectors 1 + 2
- Turton Road southbound through: Detectors 5 + 6
- Young Road (context only): Detector 3 and Detectors 7 + 8 (used to observe side-road variability; not used to synthesise corridor through movements)

5.2 Peak hour and comparison days

The comparison is based on the Saturday peak hour used in the SIDRA weekend assessment, namely 11:15–12:15. Two Saturdays were assessed:

- 6 April 2024 (survey day; wet weather), and
- 31 August 2024 (selected "typical" fine-weather Saturday).

5.3 SCATS detector comparison results

The SCATS comparison indicates higher Turton Road through volumes on the fine-weather Saturday relative to the surveyed Saturday. The side-road detector groups do not show the same increase, supporting our approach of adjusting Turton Road through movements only for the SIDRA input. The SCATS detector totals for the assessed peak hour on the survey Saturday, and the selected typical Saturday are summarised in Table 5.1.

Table 5.1: SCATS detector comparison (11:15–12:15) – survey Saturday vs typical Saturday

Detector group	6 Apr 2024 (survey - wet)	31 Aug 2024 (typical - fine)	Change (veh/h)	Change (%)	Applied in SIDRA
Turton Rd NB (Det 1+2)	1,218	1,307	+89	+7.3%	Yes
Turton Rd SB (Det 5+6)	1,104	1,278	+174	+15.8%	Yes
Turton Rd (Det 3)	55	62	+7	+12.7%	No
Young Rd (Det 7+8)	175	161	−14	−8.0%	No

5.4 Traffic increase factors used for SIDRA

Based on the SCATS comparison, traffic increase factors were used to synthesise a 'typical fine Saturday' condition from the 'wet (survey-day) Saturday' condition used in the original SIDRA model. These factors were only applied to Turton Road through movements (northbound and southbound) and are shown in Table 5.2.

Table 5.2: Traffic increase factors applied to Saturday SIDRA – Turton Road through traffic

Direction	Increase factor (31 Aug / 6 Apr)
Turton Rd northbound through	1.073 (+7.3%)
Turton Rd southbound through	1.158 (+15.8%)

6. SIDRA sensitivity test

6.1 Methodology

The "fine weather" traffic increase factors in Table 5.2 were applied to the SIDRA input volumes for the Turton Road through movements, with key considerations as follows:

- **Adjusted movements**: Turton Road northbound through and southbound through movements were increased at the internal corridor intersections, but not at the corridor-end intersections (Turton Road / Griffiths Road and Turton Road / Lambton Road / Bridges Road), where the SCATS-derived increases are not relevant
- **Unchanged movements**: All side-road and access-leg traffic volumes (including Young Road, Stadium access, Monash Road and Bridges Road movements) were left unchanged
- **Unchanged model parameters**: Intersection geometry, control type, phasing and timing inputs, saturation flows, heavy vehicle proportions and all calibration settings were retained as per existing model settings.

The Saturday peak hour SIDRA model outputs were then compared for:

- The original (wet-survey) Saturday (6 April 2024 demand set)
- The higher volume (fine-weather) Saturday (31 August 2024)

6.2 SIDRA results comparison

Across the assessed internal intersections, the northbound and southbound through movements retain the same level of service classifications both before and after the correction or fine weather was applied. The dominant Turton Road / Young Road signalised intersection determines the overall corridor performance, while the priority-controlled intersections at the stadium access and the hockey centre exit remain unchanged in their through-movement performance.

The through-movement comparison is summarised in Table 6.1.

Table 6.1: Turton Rd 'wet-day Saturday' vs 'fine-day Saturday' outputs summary

Intersection	Northbound **through traffic**		Southbound **through traffic**	
	Wet (survey) Day (DoS / Delay / LOS)	**Fine (test) Day (DoS / Delay / LOS)**	**Wet (survey) Day (DoS / Delay / LOS)**	**Fine (test) Day (DoS / Delay / LOS)**
Turton Rd / Young Rd	0.390 / 1.3s / LOS A	0.437 / 1.1s / LOS A	0.445 / 20.8s / LOS B	0.471 / 19.0s / LOS B
Turton Rd/ McDonald Jones Stadium Southern Access	0.269 / 0.0s / LOS A	0.301 / 0.0s / LOS A	0.270 / 0.0s / LOS A	0.295 / 0.0s / LOS A
Turton Rd / Monash Rd / Hockey Centre Northern Exit	0.258 / 0.0s / LOS A	0.290 / 0.0s / LOS A	0.294 / 0.1s / LOS A	0.319 / 0.1s / LOS A

6.3 Results interpretation

The results in Table 6.1 indicate that applying the SCATS-derived traffic increase factors to account for fine weather does not significantly change the operating performance of Turton Road through traffic in the Saturday peak hour. The DoS increases marginally, well below the capacity threshold, and average delays and LOS are essentially unaffected.

At the priority-controlled intersections (stadium access and hockey centre exit), Turton Road movements are unimpeded with negligible delays, as expected.

At the Turton Road / Young Road signalised intersection, the small reduction in reported delay for the southbound through movement despite a minor volume increase is not unusual in SIDRA modelling and reflects minor variations in platoon arrival patterns and rounding of delay outputs in network mode under coordinated signal operation. These results essentially identify no noticeable change to operations experienced by drivers on Turton Road, reflected in movement LOS classifications that remain unchanged.

The current survey-based Saturday SIDRA assessment is therefore considered reliable for the TIA/RTS response, and there is no warrant for re-survey work or a revised network model as a consequence of the original data being collected under wet-weather conditions.

7. Conclusions

Key conclusions of the assessments undertaken for this Technical Note are:

- Version 005 of the SIDRA Modelling Technical Note supersedes Version 004 and corrects the content transcription error in the table found in Version 004. The SIDRA inputs and the modelling conclusions remain unchanged from version 004 to version 005
- Camera footage was used only to support back-of-queue observations, where they were available, not for the turning-movement count data
- The Turton Road / Young Road (weekday PM peak) does not “fail” under the project case. The project adds northbound demand consistent with approximately 215 outbound trips, and SIDRA shows a minimal increase in delay due to this additional traffic (equivalent to 1-2 extra vehicles per lane per signal cycle), with a one-band change from average LOS B to LOS C at the intersection. This impact is minimal to negligible
- The current survey-based Saturday SIDRA assessment is reliable for the TIA/RTS response, and there is no warrant for re-survey work or a revised network model as a consequence of the original data being collected during wet-weather conditions, as evidenced by the SCATS data comparison and sensitivity test modelling
- Overall, the SIDRA modelling used for the TIA/RTS remains fit-for-purpose, and there is no basis for requiring a re-survey of traffic volumes or the re-running of SIDRA network models.