

DRONE SURVEYING



3 Sisters – SH1 Safety Assessment

Traditional



Crash History

Traditional Crash Information



1 Serious

1 Minor

6 Non-Injury

10-Year recorded crashes
(2012-2021)



Loss of control



Single vehicle



Wet conditions



Night time



Speeding



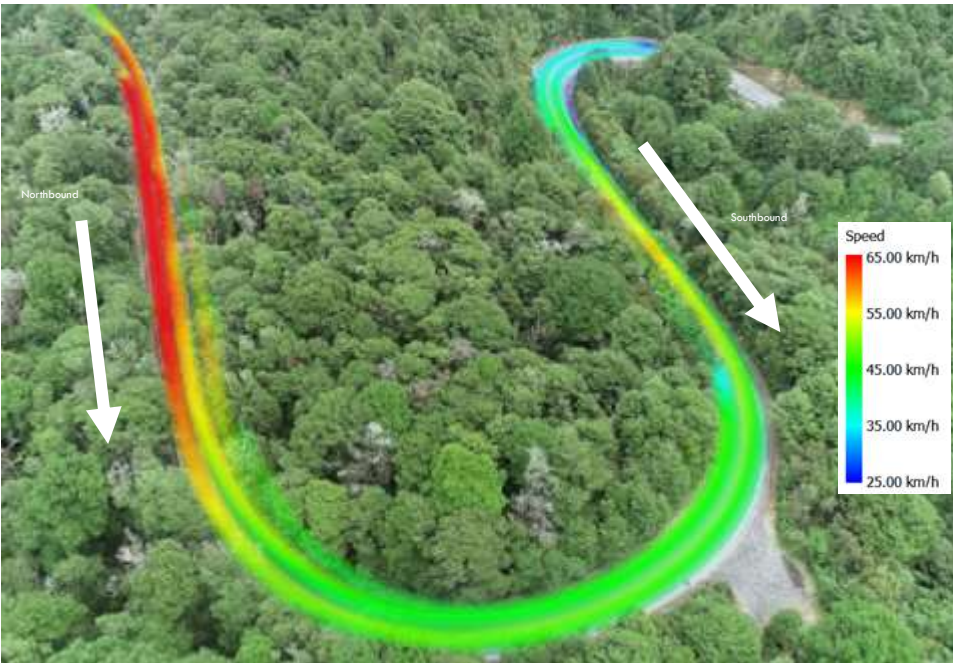
Light vehicle



Northbound

Vehicle Speeds

Speed Heat Maps - Light and Heavy Vehicles



Light Vehicle



Heavy Vehicle

Driver Behavior

UAV Survey Data Analysis



Southbound vehicle close to the centreline



Southbound HCVs unable to stay within the lane



Queue of northbound traffic behind slower vehicles



Northbound vehicle close to the cut face



Behaviour Observations Map – Frequency

Risk Assessment

Probability of a Crash

Movement	Direction / Description	Survey Count LV / HCV	Daily LV / HCV	Daily Frequency Rating (LV/HCV)
A	Southbound tracking over edge line	0 / 22	4 / 85	Infrequent / Frequent
B	Southbound crossing centreline	9 / 0	35 / 0	Common/ Infrequent
C	Northbound hugging cut slope	11 / 3	43 / 12	Common / Occasional
D	Northbound crossing centreline on approach	2 / 2	8 / 0	Infrequent / Infrequent
E	Southbound overtaking	2 / 0	8 / 0	Infrequent / Infrequent
F	Northbound crossing centreline	0 / 1	0 / 4	Infrequent / Infrequent

Frequency Rating	No of Events (Daily)
Infrequent	0 – 9
Occasional	10 – 29
Common	30 – 59
Frequent	>60

Risk Assessment

Probability of a Crash

Severity (likelihood of death or serious injury)	Frequency (probability of a crash)			
	Frequent	Common	Occasional	Infrequent
Very Likely	Serious	Serious	Significant	Moderate
Likely	Serious	Significant	Moderate	Moderate
Unlikely	Significant	Moderate	Minor	Minor
Very Unlikely	Moderate	Minor	Minor	Minor

Movement	Potential Crash Type	Severity Likelihood (DSI)	Frequency	Rating
A	Off road crash due to narrow shoulder (single vehicle crash)	Likely	Common	Significant
B	Head-on crash	Very Likely	Common	Serious
B	Loss of Control (avoidance)	Likely	Common	Significant
C	Loss of control due to high lip (results in head-on)	Very Likely	Infrequent	Moderate
D	Head-on crash	Very Likely	Infrequent	Moderate
D	off road crash (avoidance)	Very Likely	Infrequent	Moderate
E	Head-on crash	Very Likely	Infrequent	Moderate
F	off road crash (avoidance)	Likely	Infrequent	Moderate

Evidence Based Recommendations



Install Gated or electronic warning signs

'No overtaking' line

ATP centreline and edgeline

Review drainage

Reassess curve speed



High skid resistance surfacing



Widen the pavement

Review curve geometry

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Thank you.

