Government of Western Australia
Department of Transport
and Major Infrastructure

Empowering a thriving community

BELMONT SAFE ACTIVE STREET

Final Route-Level Evaluation Report

Acknowledgement of Country

The Department of Transport and Major Infrastructure acknowledges the Traditional Custodians of the land throughout Western Australia and pay our respects to Elders past and present.

We acknowledge the members of all Aboriginal communities, their cultures and continuing connection to Country throughout the State.

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SAFE ACTIVE STREETS PILOT PROGRAM

The Department of Transport and Major Infrastructure (DTMI) worked with local governments between 2015 and 2023 to develop, trial and evaluate safe active streets (SASs).

SASs use local area traffic management treatments to reduce car speeds to 30 km/h and create environments that encourage more people to walk, wheel and ride in their communities.

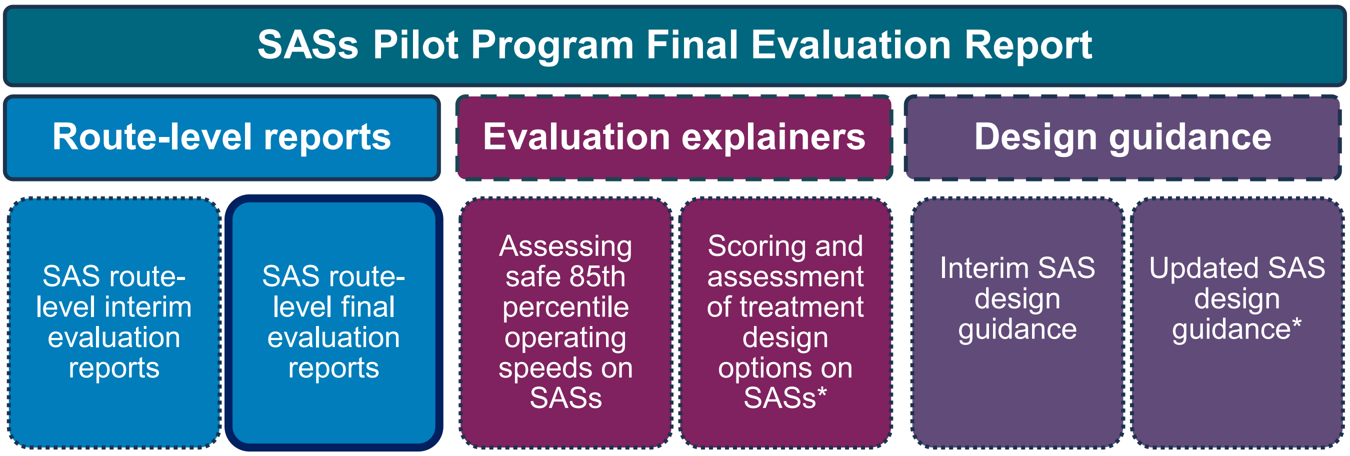
The SASs Pilot Program in Western Australia (WA) was motivated by research which showed that a fear of sharing the road with motor vehicles was a key barrier to many people riding bikes more often. Local research, including a large community-wide cycling survey undertaken in 2015 by the Royal Automobile Club of WA[1] and the 2015 Auditor General's Report into Safe and Viable Cycling,[2] highlighted the need for quieter and more comfortable local bicycle routes to remove barriers to active transport and the perceived lack of safety on local roads.

An evaluation plan and framework were established to test whether redesigning a street using traffic management treatments could reduce vehicle volumes and speeds, leading to increased active travel, and positive community sentiment towards the SAS.

Evaluation document suite

This document forms part of the SASs Pilot Program Evaluation. It provides a summary of results across three key change indicators for one of the nine evaluated projects, and a discussion of how the route performed overall.

The results outlined in this final route-level report should be read in conjunction with the SASs Pilot Program Final Evaluation Report,[3] and other supporting material including methodology explainers and SASs design guidelines.



Suite of interrelated documents to be read in conjunction with the Belmont SAS final route-level report

[1] RAC – WA, 2015. RAC Cycling Survey: 2015. Royal Automobile Club of WA, Perth, WA.
[2] OAG – WA, 2015. Western Australian Auditor General's Report: Safe and Viable Cycling in the Perth Metropolitan Area. Office of the Auditor General, Perth, WA.
[3] DTMI, 2026. Safe Active Streets Pilot Program – Final Evaluation Report. Prepared by the Department of Transport and Major Infrastructure. Perth, WA.
* Document to come.

CITY OF BELMONT SAFE ACTIVE STREET

Executive summary

The 4.4 km Surrey Road SAS route provides a link between Graham Farmer Freeway Principal Shared Path (PSP) and Leach Highway PSP. Consultation, design and delivery spanned three and a half years between 2016 and 2019.

This SAS route generated broadly negative outcomes.

Design treatment changes influenced moderate speed and vehicle volume reductions on the SAS, however, these were insufficient to support safe movement of vulnerable road users.

Bike riding activity on the Belmont SAS route declined, and negative road safety outcomes were observed.

Despite these negative user behaviour outcomes, the route generated positive sentiment from the community, likely due to the minimal amenity, wayfinding and traffic calming treatments applied.

Key project insights

Overall, the design treatments and measures applied on the Belmont SAS led to negative results for user behaviour. Bike riding activity decreased on the SAS and on control streets, but the degree of loss was higher on the SAS, indicating that although bike riding activity declined in the area, it was also less attractive for people to walk on the SAS route. The minimal, low-cost approach applied, including the lack of changed pavement colour and carriageway narrowing, minimal landscaping and infrequent speed signs, appear to have negatively impacted the legibility and awareness of the route for all users.

After construction, vehicle movements along the SAS dropped overall, but increased on the route's northern segment. The fastest vehicle speeds (85th percentile) reduced overall on the SAS route but remained well above the preferred operating range. This indicates there was a substantial proportion of vehicles not observing the lowered speeds nor sufficiently impacted by the changed street conditions – most likely because carriageway widths were not reduced along the route, and treatments were spaced too far apart, leading motorists to be unaware of the changed route conditions and the lowered speed limit.

A review of crash data showed the SAS route experienced five crash incidents after construction, from a base of zero in previous years. Crash incidents on the SAS post construction may be linked with observed reductions in bike riding and vehicle volumes and little reduction of 85th percentile vehicle speeds. The lower overall vehicle usage may have contributed to 'driver complacency' where drivers overestimate their abilities and underestimate risks,[4] increasing the likelihood of higher speed vehicles crashing with vulnerable road users.

Community sentiment was generally positive and did not reflect the user behaviour data collected, indicating a missed opportunity for deeper community consultation and engagement before, during and after construction. High community sentiment post construction, combined with negative route outcomes, indicates dissonance between community understanding of the design intentions and community use of the route.

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[4] ARSF. 2024. Changing the Narrative: Rethinking Road Safety in Australia. A position paper of the Australian Road Safety Foundation. Accessed February 2026.

Project recommendations

Recommendations to improve outcomes on this SAS project, informed by insights summarised in the SASs Pilot Program Final Evaluation Report, include:

- Incorporating activation, consultation and evaluation (ACE) principles[5] throughout all phases of project planning, design, delivery and post construction review.
- Lowering 85th percentile speeds consistently across all segments of the route to within the preferred operating range, by considering additional road treatments as required.
- Applying vertical or horizontal deflection treatments 80-100 m apart and consistent carriageway narrowing for maximum benefit realisation and reduction of unsafe speeds.

Program insights

The SASs Pilot Program was successful in trialling a new approach to road safety and active transport on suburban streets. The program has attracted national and international interest, and the SAS concept is being taken up by local authorities in WA and across Australia.

The SASs Pilot Program Final Evaluation Report detailed the rich array of insights generated through the pilot program, which provide context and relevance to the following individual project key insights and recommendations.

Theory of change supported

- Combining comprehensive physical interventions with a posted speed limit of 30 km/h: increases active travel (walking and bike riding).
- Reduces vehicle volumes and speeds, making streets safer for all users.

Effective design features identified

- Road width narrowing and traffic calming treatments spaced every 80–100 m: these measures physically slow vehicles and change vehicle direction, leading to:
  - lower traffic volumes and speeds
  - increased bike riding and walking.

Critical drivers of benefit realisation determined

- Route selection: must form a direct or indirect connection to key attractors (activity centres, shops, schools, stations, recreation areas) and form part of the long-term cycle network (LTCN).
- Design features: narrowed road widths and treatments 80–100 m apart.
- Cost efficiency: projects costing $600,000 – $1.2 million per km likely achieve a benefit cost ratio (BCR) >1, if the above conditions are met.

Application of ACE principles is essential

- Activation: built infrastructure reflects social needs and the desires of people who will use it.
- Consultation: engagement integrated throughout the project lifecycle is a form of activation and enables community consultation.
- Evaluation: impact measured against anticipated outcomes.

Application of results into future program delivery

The SAS Design Guidance[6] summarises the range of measures that can be applied and the key factors that have been found through this pilot program to influence user behaviour positively. These principles and guidelines will help local governments and practitioners plan and activate routes, consult with impacted communities and evaluate outcomes, whilst considering the application of design treatments and measures appropriate to their local context.

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[5] DTMI, 2023. WA Bicycle Network Grants Program: WABN Grants Program Resources - Activation, Consultation and Evaluation (ACE) Guidance. Department of Transport and Major Infrastructure. Perth, WA.
[6] DTMI, 2025. Planning and Designing for Active Transport: Safe active street design guidance. Prepared by the Department of Transport and Major Infrastructure. Perth, WA.

PROJECT OVERVIEW

The 4.4 km Surrey Road SAS route provides a link between Graham Farmer Freeway PSP and Leach Highway PSP.

The route follows Surrey Road through to Cohn Street and includes upgraded facilities at the Great Eastern Highway underpass. A new path was constructed at Tomato Lake, linking the route to President Street, Jeffrey Street and connecting to the PSP at Leach Highway.

City of Belmont SAS project map

Key route destinations

- Graham Farmer Freeway connection
- Saint Augustine's Primary School
- Carlisle Primary School
- Australian Islamic College
- Jack Ring Park
- Wilson Park
- Riverdale Community Centre
- Belmont Netball Association
- Tomato Lake
- Leach Highway PSP

Unique design features

- Upgraded underpass with improved lighting and amenity
- LED lighting upgrades for safety
- Two bicycle repair stations
- Raised plateaus at all junctions
- Priority intersections
- Single slow lane points
- Enhanced landscaping

Legend

Slow point
Raised plateau
Shared path

Belmont SAS route map

Timelines

Delivery

- Community consultation: 2016
- Construction: January 2017-December 2018
- Lines and signs completion: February 2019
- Official opening: May 2019

Evaluation:[7]

- Pre-construction data collection (user behaviour): April-May 2016
- Post-construction data collection (user behaviour): April-May 2021
- Post-construction data collection (community sentiment): October-November 2022
- Interim evaluation report: 2023
- Final evaluation report: 2026

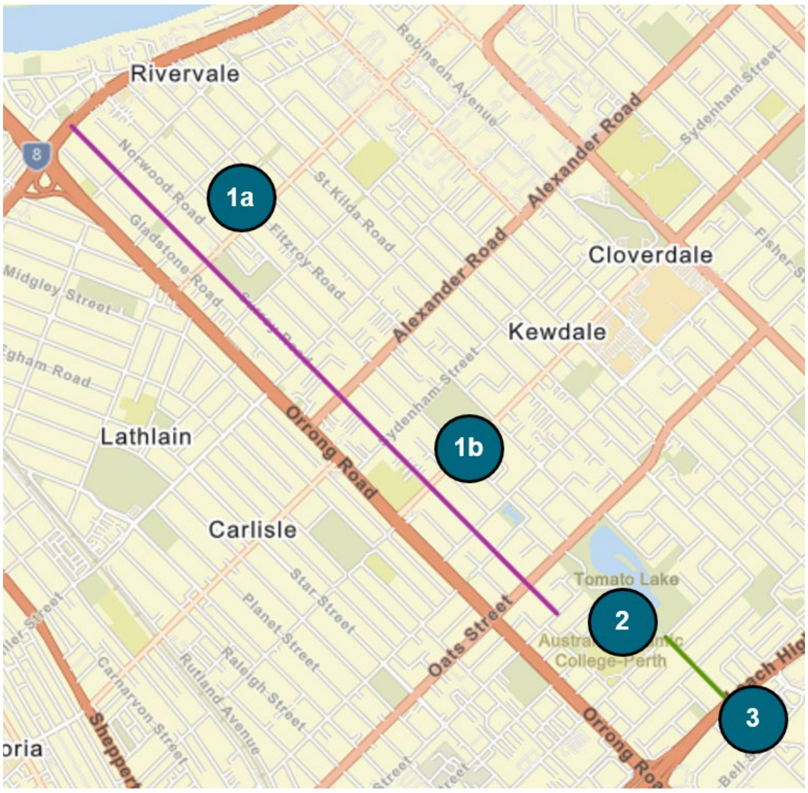
Segments

For monitoring and analysis, the SAS was split into 'segments' based on differences in form of the existing route and treatments applied during delivery of the SAS. This route was separated into segments as follows:

1. Surrey Road (Great Eastern Highway to Cohn Street)
2. Rosina Street (Cohn Street to President Street)
3. Jeffrey Street (President Steet to Leach Highway)

During analysis of user behaviour, segment 1 was further split due to different patterns in usage observed at either end of that long segment, making sub-segments:

a) North of Alexander Road
b) South of Alexander Road



Map of the Belmont SAS route showing 'segments' used for data analysis

[7] Note: Between data collection periods, city-wide travel patterns were disrupted by COVID-19 lockdowns. The post-construction SAS data collection periods, however, were chosen because [DTMI's network monitoring] indicated they were much less affected by these disruptions. Any remaining impacts are expected to have influenced both the treatment (SAS) and control streets equally.

WHY WE COLLECT DATA

Evaluating a project by collecting data on people's behaviour and sentiment helps us to determine:

- whether the aims of a project have been achieved
- what combinations of interventions were most effective
- whether further improvements could still be made to improve outcomes.

These insights help to guide infrastructure investment in local communities that support the growth of active transport.

SASs Pilot Program

The SASs Pilot Program trialled unique combinations of design features that reflected local community needs and contexts, while also complementing each local government's approach to building an integrated active transport network.

Nine SAS projects, including this one, were included in the evaluation study. For more information on the evaluation methodology, theory of change, and overall program insights see the SASs Pilot Program Final Evaluation Report.

Project aims

The following aims were investigated for each project included in the evaluation study, and results were compared across projects to derive program level insights that could lead to improvements in design guidelines and future SAS delivery.

1. Reduce motor vehicle numbers
2. Reduce 85th percentile speeds to within acceptable operating thresholds[8]
3. Increase the number of riding and walking trips made throughout the week
4. Increase the number of people of all ages and abilities making local trips by riding and walking
5. Influence user, resident and wider community perceptions of SAS routes as safe and comfortable places to walk, wheel and ride.

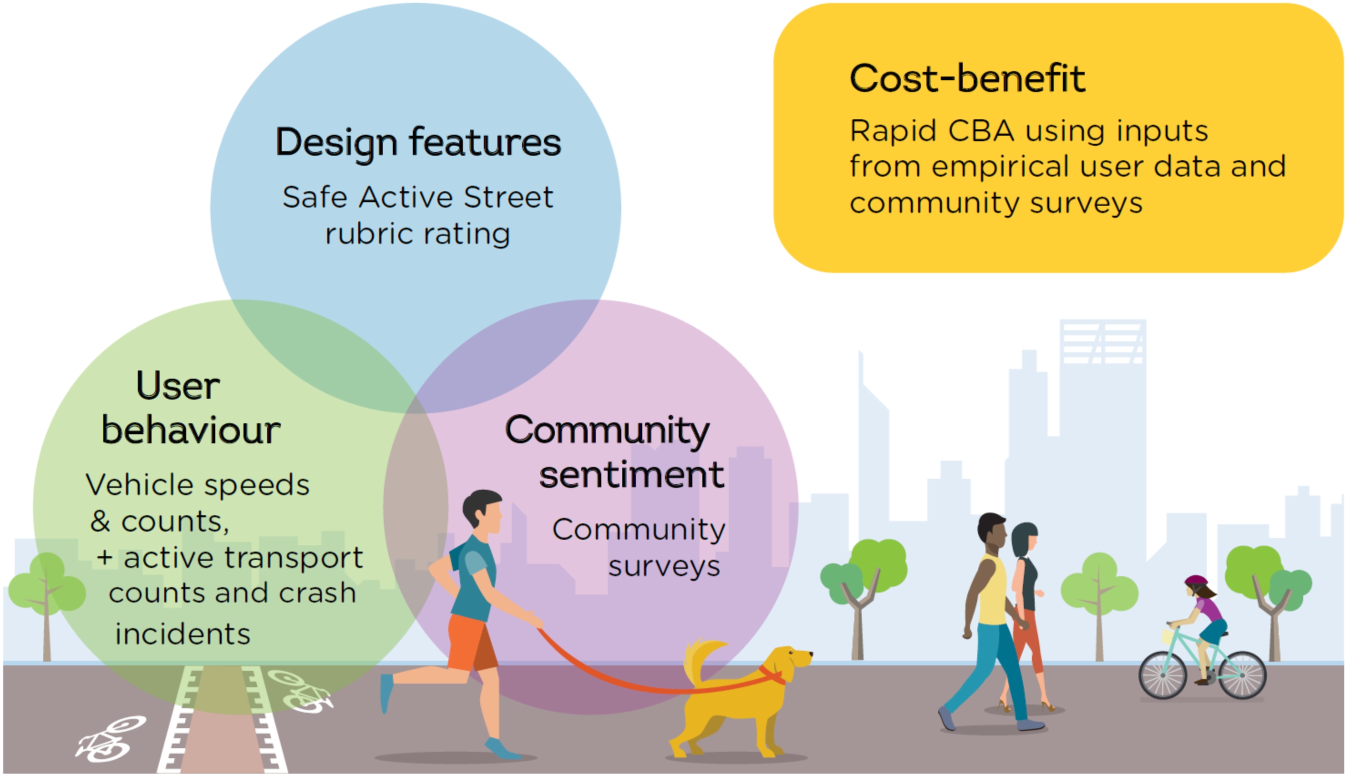
Evaluation framework

A comparative impact evaluation methodology was developed to collect and analyse data on three key change indicators for each SAS:

- **Design features** – scores to quantitatively differentiate between the types and scale of features, treatments and supporting measures applied to the route.
- **User behaviour** – vehicle counts and speeds (using pneumatic tube surveys), and active travel counts (using video surveys), collected pre- and post-construction. Small samples of available crash data were reviewed and discussed at the project level only, to aid interpretations of other data.
- **Community sentiment** – qualitative data on sentiment and perceptions, collected via community, resident and user surveys post-construction.

[8] DTMI, 2026. Planning and Designing for Active Transport: Explainers - Assessing 85th percentile speeds on safe active streets. Prepared by the Department of Transport and Major Infrastructure. Perth, WA.

At the program level, the evaluation framework included a fourth key indicator: cost benefit. The [SASs Pilot Program Final Evaluation Report] includes discussion of outputs from a cost benefit analysis conducted on data from each of the nine evaluated projects and provides a summary of the factors that influenced whether a project received a BCR >1, indicating a positive return on investment.



Data sources for each safe active street key indicator, illustrated to show theoretical interactions

OUTCOMES

Design features

Evaluation of the design features applied on each SAS route was a complex task due to the wide range of measures and treatments available, which could be chosen to influence different unique, yet complementary effects on user behaviour and community sentiment.

Assessment rubric

To assess the types and scale of treatments and supporting measures applied in each pilot project, a consistent scoring rubric and guidelines were developed for the SASs Pilot Program, which required a group of invited transport engineers and planners to agree on scores during focus group sessions.

Twenty-one criteria were identified across five design categories:

1. Active transport infrastructure
2. Connectivity
3. Traffic calming
4. Parking bay infrastructure
5. Placemaking and legibility.

Through facilitated consultation, design scores (0-4) were determined, where scores reflected the degree of improvement applied for each criterion per route segment assessed. Total average scores per route segment and category (grouping of criterion) could then be interpreted as:

<1 = minimal improvements	1-2 = moderate improvements	2-3 = major improvements	>3 = substantial improvements

Results

Table 1 provides a breakdown of scores per route segment and design category.

Overall, the route averaged a design score of 1.41, indicating moderate improvement was achieved across the whole route. Scoring was not undertaken for segment 2, as this location consisted of upgrades to local off-road paths surrounding Tomato Lake.

- The route score was brought up by major improvements to 'connectivity', with connections to several key destinations adjacent to the route. The score of 2.17 is low compared with other SAS routes, however, indicating route selection could have been improved.
  - A route would score higher for 'connectivity' if additional key destinations were included along and at either end of the route, such as a shopping centre, recreational facilities, council offices and community halls, and if connections to other transport options such as shared paths or bus interchanges were incorporated.
  - The SASs Pilot Program Final Evaluation Report determined that route selection is a critical driver of benefit realisation, with direct influences on current and latent demand.
- The route score for 'traffic calming' was major, with improvements made to slow point widths and upstand heights but no changes made to average carriageway widths and insufficient distances between treatments to adequately slow vehicle speeds.
  - The SASs Pilot Program Final Evaluation Report found that use of formalised 'parking bay infrastructure' had a traffic calming effect by narrowing the road carriageway, and should be considered as a supportive design feature for the goal of reducing traffic volumes and speeds.

- The SASs Pilot Program Final Evaluation Report found that application of vertical or horizontal deflection treatments 80-100 m apart was effective for consistent reduction of unsafe speeds.

- Scores for 'traffic calming' were moderate as limited narrowed slow points were installed along the route, however, the carriageway narrowing provided by the provision of alternating restricted parking (non-formalised) would have contributed to reduced vehicle speeds and volumes.
- The route had minimal scores for 'parking bay infrastructure', 'placemaking and legibility', and moderate scores for 'active transport infrastructure', as there were few changes to the road surfacing and landscaping, reflecting the low-cost approach that was undertaken for this SAS.

Table 1: Design scores per category, segment and overall for the Belmont SAS route*

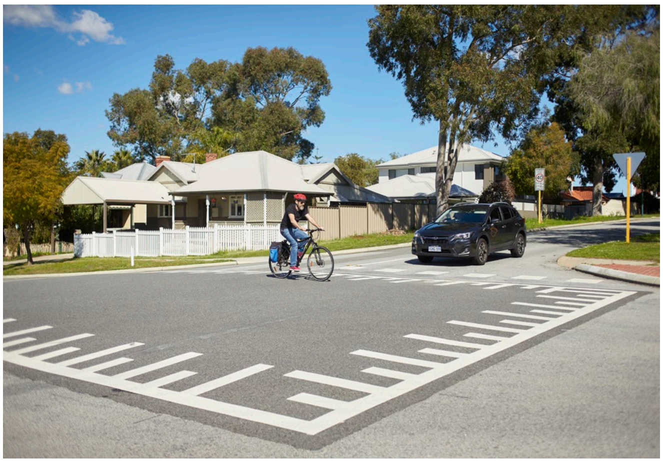
Segment	Active transport infrastructure	Connectivity	Traffic calming	Parking bay infrastructure	Place-making and legibility	Total*
Segment 1: Surrey Rd (Great Eastern Hwy to Cohn St)	1.5	2.33	2	0.5	1.4	**1.67**
Segment 2:^ Rosina St (Cohn St to President St)	N/a	N/a	N/a	N/a	N/a	N/a
Segment 3: Jeffrey St (President St to Leach Hwy	0.5	2	2	0	0.4	**1.14**
Overall average route score	**1**	**2.17**	**2**	**0.25**	**0.9**	**1.41**

*Total average scores per segment and category can be interpreted as: <1 = minimal improvements, 1-2 = moderate improvements, 2-3 = major improvements, >3 = substantial improvements.

^Segment 2 could not be assessed for SAS design features as most of this segment was delivered as a shared path around Tomato Lake connecting to segment 3 of the SAS to the south.

Examples of applied design treatments

Narrowed slow points



Raised internal intersection

User behaviour

Evaluation of user behaviour followed a comparative impact approach, with before-after, control-intervention (BACI) data collection design.

Data collection design

A BACI data collection design was applied to differentiate between the effects of interventions applied on the treatment route and changes that may have occurred 'naturally' in the surrounding area.

Data was collected before construction at carefully selected sites on the SAS (treatment) and at comparative sites on similar nearby streets (control) and repeated at the same sites after construction at consistent times of the year to minimise influence of seasonal variation.

With a BACI design, traffic and movement flow on control streets did not need to match with treatment streets, and an appropriate an analysis of change (odds ratio) was determined.

Odds ratio analysis

To assess changes in counts of vehicles, walkers and bike riders on the treatment compared to control routes, a statistical measure of probability was applied known as an 'odds ratio', which compares the odds of an outcome occurring in one group to the odds of it occurring in another group (regardless of differences in raw counts across groups).

Odds ratios were used to estimate whether the outcomes observed on the SAS route were likely attributable to the SAS, unlikely attributable, or consistent with trends observed on the control streets.

Scores range from 0-2 and sometimes higher, with scores >1 indicating higher odds of the treatment influencing the outcome and scores <1 indicating decreased odds. It is common, however, that during interpreation of results, a middle range is determined that indicates a neutral or indeterminate result. During analysis of the SAS user behaviour data, a middle range of 0.93 and 1.08 was determined as neutral change or change on the SAS that was consistent with trends observed on the control routes.

Assessing 85th percentile speeds

It was not suitable to apply odds ratios for 85th percentile speeds because the posted speeds were intentionally reduced on the SAS route. Instead, a method was developed specifically to assess the effectiveness of the lowered speed limits and changed street conditions of SAS routes on driving behaviour, through which DTMI identified an acceptable operating range and upper bound for 85th percentile speeds. For more information, see the supporting document: Assessing Safe Operating Speeds on 30 km/h Streets.

Calculating average daily results

Vehicle counts and speeds were detected across 14 consecutive days, including weekdays and weekends, at consistent seasonal and temporal periods before and after SAS construction. Active transport counts were detected across three weekdays and one weekend day, at consistent seasonal and temporal periods before and after SAS construction.

Data collection periods were carefully selected to avoid local area events, public holidays and school holiday periods. If collection technology failed, samples were repeated immediately.

Calculations of average daily results were undertaken by:

i. averaging the available weekday and weekend data per collection period
ii. applying weightings for the number of weekday and weekend days per week
iii. adding the result to determine average weekly activity
iv. dividing by seven to achieve an average daily estimate.

This method was applied to achieve consistency across the available dataset, and smooth out any day-of-the-week fluctuations that may have occurred. In this way, data between control and treatment sites, and across SAS locations could be compared consistently.

Vehicles

Method

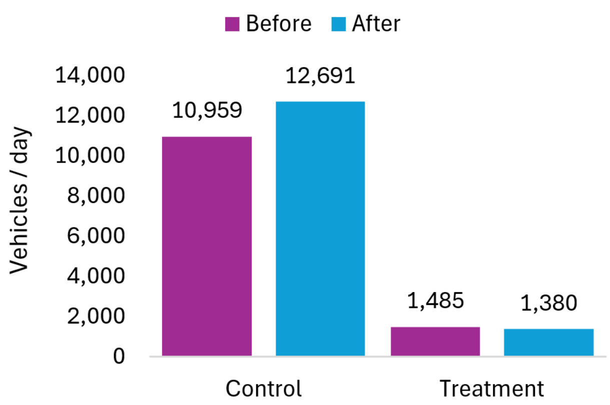
Pneumatic tube counters were used to detect vehicle traffic volumes and speeds. They were placed at strategically selected midblock locations on the SAS route (treatment) and comparable locations on adjacent streets (control). Depending on segment length, between 1 - 4 counters were placed on each.

Results

Vehicle volumes - overall

- Vehicle counts reduced slightly on the treatment route (-7 per cent) and increased on the control streets (+16 per cent), indicating the treatments applied were effective in encouraging drivers to switch to alternative routes.
- Comparing changes on the treatment and control routes, the odds ratio generated a high score of 1.2, **indicating the SAS was likely responsible for the decreases observed enroute**.

Figure 1: Belmont – average daily vehicles

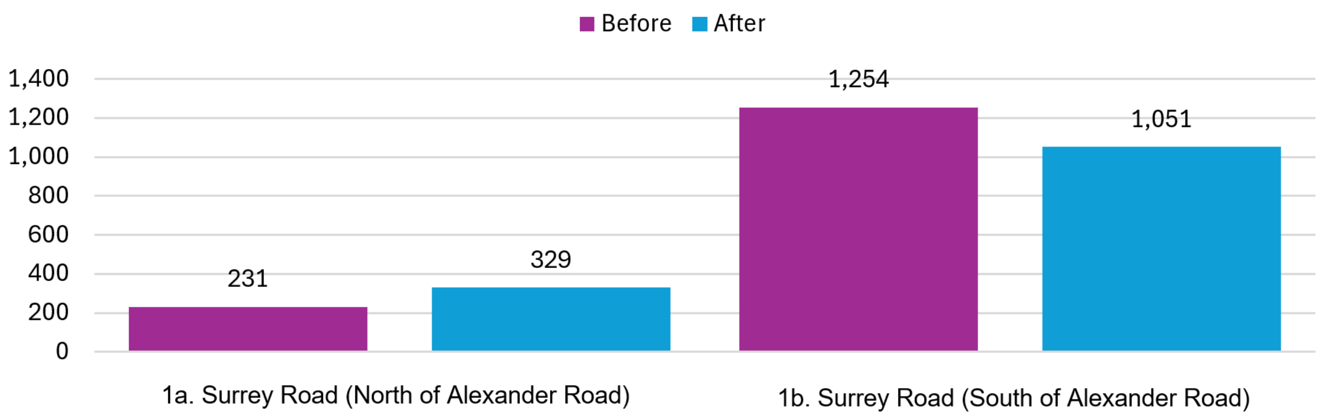


Vehicle volumes on the SAS decreased to a relatively larger proportion than control streets. The odds ratio indicated the decrease in vehicle volumes on the SAS route after construction was likely attributable to the SAS when compared with trends on control streets.

Vehicle volumes – segment comparison

- Vehicle counts reduced on segment 1b but increased on segment 1a.
  - Segment 1b, between Alexander Road and Oats Street, includes access to the primary school and these results suggest possible reductions in vehicle use for student pick-ups and drop-offs.

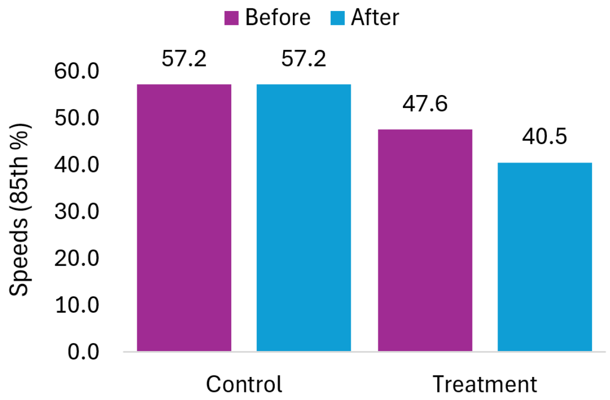
Figure 2: Belmont – average daily vehicles on SAS segments



Vehicle speeds - overall

- There was an observed reduction in vehicle speeds on the treatment route, however, the 85th percentile speeds remained high, well above the preferred operating range: 32.1 km/h to 38.1 km/h. This indicates there was a substantial proportion of vehicles not observing the lowered speeds nor sufficiently impacted by the changed street conditions. This was most likely because carriageway widths were not reduced along the route.
- To reduce 85th percentile speeds further, recommendations could include continued monitoring of speeds and a design review to consider minor or localised interventions where context warrants, including carriageway narrowing treatments or targeted speed reductions at specific locations.

Figure 3: Belmont – 85th percentile speeds

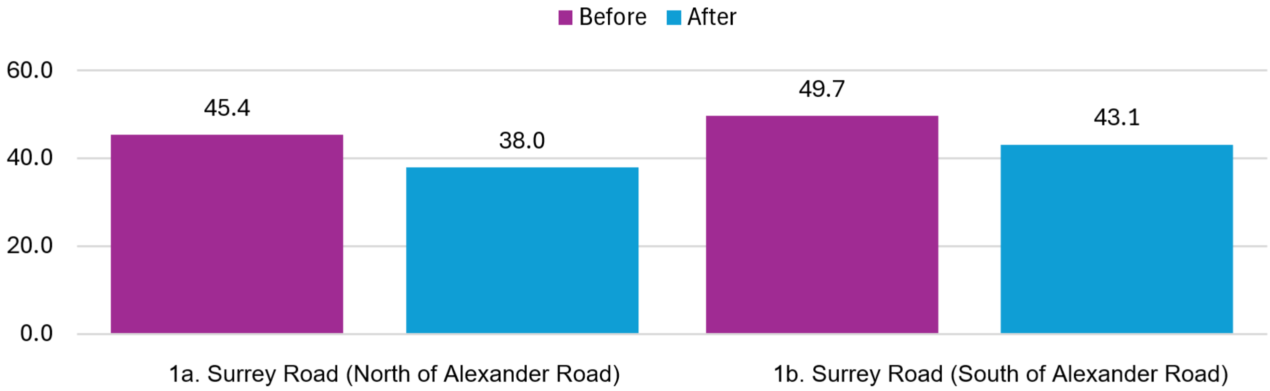


This result indicates poor SAS performance in supporting the safety of vulnerable road users by sufficiently lowering the fastest vehicle speeds.

Vehicle speeds – segment comparison

- All segments took a very similar design approach, with no use of speed humps, but slow points installed and raised internal intersection plateaus. The route scored well for ‘traffic calming’, but traffic calming treatment distances were greater than 100 m apart. The route scored poorly for ‘parking bay infrastructure’, with average carriageway widths not reduced along the route.
- Segment 1b saw the largest reduction in daily vehicle use, however, the few and far spaced out traffic calming treatments and lack of carriageway narrowing was not sufficient to reduce 85th percentile speeds, which remained far too high for a shared SAS route.
  - Recommendations for this segment could include carriageway narrowing and additional traffic calming to bring treatment spacing to 80-100 m apart.
- Segment 1a joined the upgraded Great Eastern Highway underpass at one end and passed a large recreational area (Wilson Park) before connecting via Alexander Road. This segment did achieve reduced 85th percentile speeds to within the preferred operating range, but saw increased vehicle use after construction, indicating that additional treatments would still be required to improve safety for vulnerable road users on this segment of the SAS route.

Figure 4: Belmont – 85th percentile (fastest) speeds on SAS segments



Active transport

Method

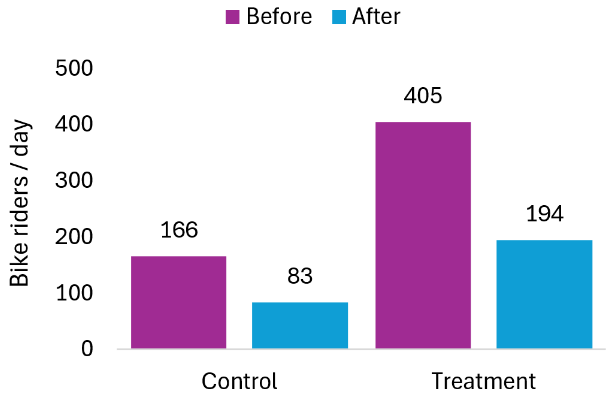
Video surveys were used to detect rates of active transport. Video cameras were placed at strategically selected intersections on the SAS route (treatment) and comparable locations on adjacent streets (control). Depending on segment length, between 1 - 4 counters were placed on each.

Results

Bike riding - overall

- Riding activity decreased on the treatment route (-52 per cent), however riding counts also decreased on the control streets (-51 per cent) by a similar proportion, suggesting there may have been external factors affecting overall riding activity in the area.
- Comparing changes on the treatment and control routes, the odds ratio generated a high score of 1.22, **indicating the SAS was likely responsible for the decreases observed enroute**.

Figure 5: Belmont – average daily bike riders



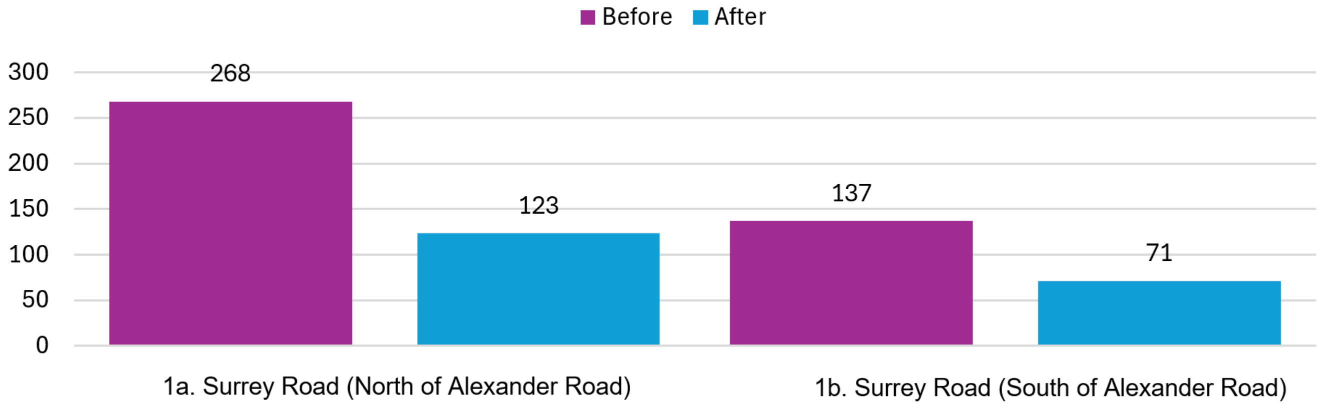
Bike riding activity decreased on the SAS and on control streets, but the degree of loss was higher on the SAS, indicating that although bike riding activity declined in the area, it was also less attractive for people to walk on the SAS route.

The odds ratio indicated the decrease in bike riding on the SAS route after construction was likely attributable to the SAS when compared with area-wide trends.

Bike riding – segment comparison

- Daily bike riding activity decreased on both route segments, showing consistent decreases in overall demand along the entire SAS route. Whilst it's possible area-wide trends affected the route, odds ratios show a high probability that the SAS itself influenced the decrease in bike riding.
  - On segment 1b the decline in bike riding could have been related to the combination of lower vehicle volumes but higher 85th percentile vehicle speeds, suggesting that vulnerable road users may perceive this location as unsafe.

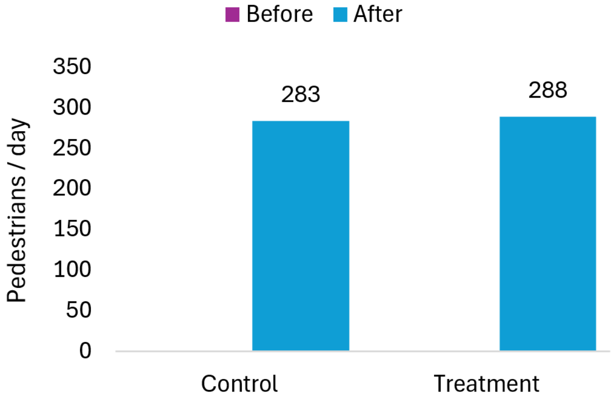
Figure 6: Belmont – average daily bike riders on SAS segments



Walking – overall

- Walking data from before construction on treatment or control routes could not be analysed for the Belmont SAS route due to problems with data formatting and file corruption. Consequently, odds ratios could not be calculated for walking activity to compare before and after change.
- Based on comparisons of treatment and control route data after construction, there was little difference between activity on the SAS route and on surrounding streets, suggesting that SAS activity was consistent with area-wide trends.

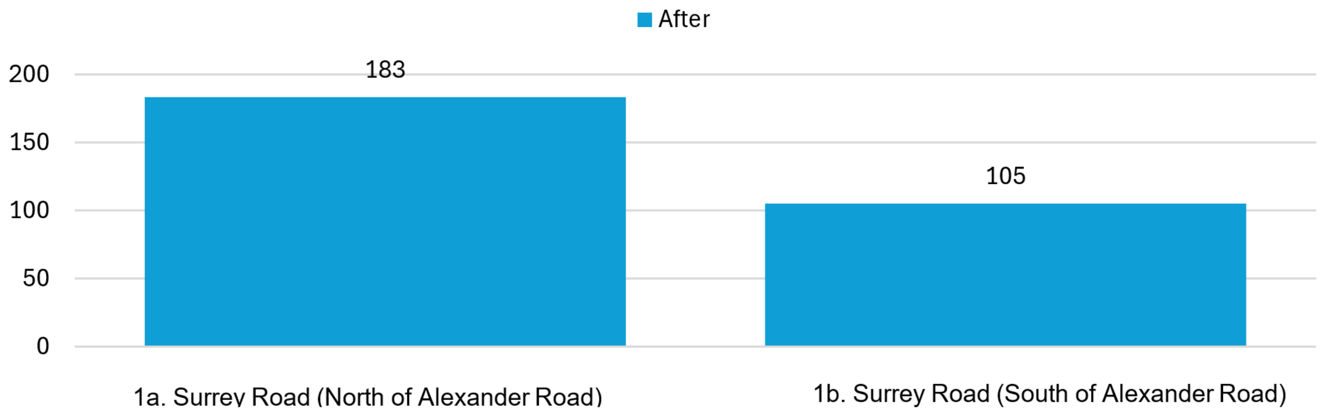
Figure 7: Belmont – average daily walkers



Walking – segment comparison

- Daily walking activity per segment, based only on post construction data, showed greater activity occurred on the northern end of the route, between Alexander Road and the upgraded Great Eastern Highway underpass. This pattern is consistent with bike riding activity which was also higher on segment 1a.
  - It could be assumed the new underpass influenced rates of active transport, however, the decline in bike riders on segment 1a suggests this was unlikely. It may instead have been a slightly busier segment for active transport, compared to the southern segment that passed the primary school.

Figure 8: Belmont – average daily walkers on SAS segments



Crash incidents

Additional to the count data collected to assess user behaviour, a review of available crash data provided an indication of safety performance of the road environment before and after implementation of the SAS.

Objective evidence on the number, type and severity of crashes occurring in the area, in light of the changed user behaviour along the route, helps identify whether the SAS treatments have influenced road safety outcomes.

Method

Crash incidents were downloaded from the Main Roads WA data warehouse via Data WA. Eleven years of reported incidents across the State, from 1 January 2013 to 31 December 2023,[9] were available which included midblock and intersections.

Data was filtered to anything involving bike or pedestrian, and geospatially mapped to visualise their location, type and injury severity against the SAS routes.

Sample sizes were low, which limited analysis to a simple visual count. Nevertheless, patterns were assessed alongside the design features of the route and user behaviour count results for vehicles, people walking and bike riders.

Sample sizes in active transport related crash data were typically low due to:

- frequency of incidents being generally low in the specific areas of interest
- the incident dataset only containing medical, hospital, fatal or property damage reports.

Results

Table 2 provides a summary of incidents between vehicles and people walking or riding, before, during or after SAS route construction, shown for each stage of the SAS route and corresponding control street locations. Notable data patterns:

- The completed Belmont SAS route experienced five crash incidents enroute, from a base of zero in previous years.
- Several incidents involving bike riders or pedestrians were recorded on control streets before, during and after SAS construction.

Crash incidents post construction on the SAS may be linked with reductions in bike riding and vehicle volumes observed post construction, but little reduction of 85th percentile vehicle speeds. The lower overall vehicle usage may have contributed to 'driver complacency' where drivers overestimate their abilities and underestimate risks,[10] increasing the likelihood of higher speed vehicles crashing with vulnerable road users.

The three bike related incidents occurred at intersections on segment 1b, which was the poorest performing segment of the route for 85th percentile vehicle speeds. Recommendations for this route segment could include carriageway narrowing and additional traffic calming treatments, spaced 80-100 m apart, consistent with insights from the SASs Pilot Program Final Evaluation Report.

This pattern indicates poor SAS performance in supporting the safety of vulnerable road users.

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[9] Note: At the time of analysis (late 2025), data for 2024 and 2025 was not available to download.
[10] ARSF. 2024. Changing the Narrative: Rethinking Road Safety in Australia. A position paper of the Australian Road Safety Foundation. Accessed February 2026.

The two pedestrian related incidents occurred on Cohn Street, near the intersection with Surrey Road, where segments 1b and 2 intersect. This is a 170 m section of road which links the SAS to a shared path that passes adjacent to Tomato Lake. This SAS segment could also be reviewed for additional road safety improvements.

Table 2: Incidents between vehicles and bike riders or pedestrians, before, during or after SAS route construction

Years of data reviewed[11]	SAS construction status	Crashes on SAS route – Bike	Crashes on SAS route – Pedestrian	Crashes on control street – Bike	Crashes on control street – Pedestrian
4 years	Before	Nil	Nil	1 hospital 1 medical	1 hospital
2 years	During	Nil	Nil	2 hospital	Nil
5 years	After	3 medical	2 hospital	1 hospital	1 hospital

[11] Years of data reviewed reflects the combined total of all available incident data analysed relative to the SAS's construction status. Due to the limited sample size and targeted location, averaging incidents per year was not suitable for this analysis.

Community sentiment

Community sentiment was collected to understand how residents and road users perceived the SAS and how they reported using the street before and after implementation. These insights provide valuable context on perceived safety, comfort and self-reported travel behaviours that cannot be captured through traffic counts alone. Incorporating community perspectives enables a more complete assessment of SAS user experience and helps to inform decisions about future refinement or expansion of the program.

Method

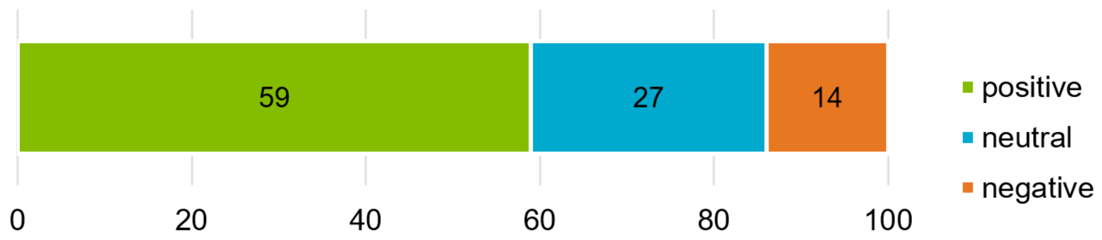
Community surveys were undertaken in 2022, three and a half years following the opening of the SAS. Questions focused on the design treatments and effectiveness in delivering the project objectives, self-reported usage of the route (frequency, trip purpose) and demographics.

Results

Community sentiment and perceptions

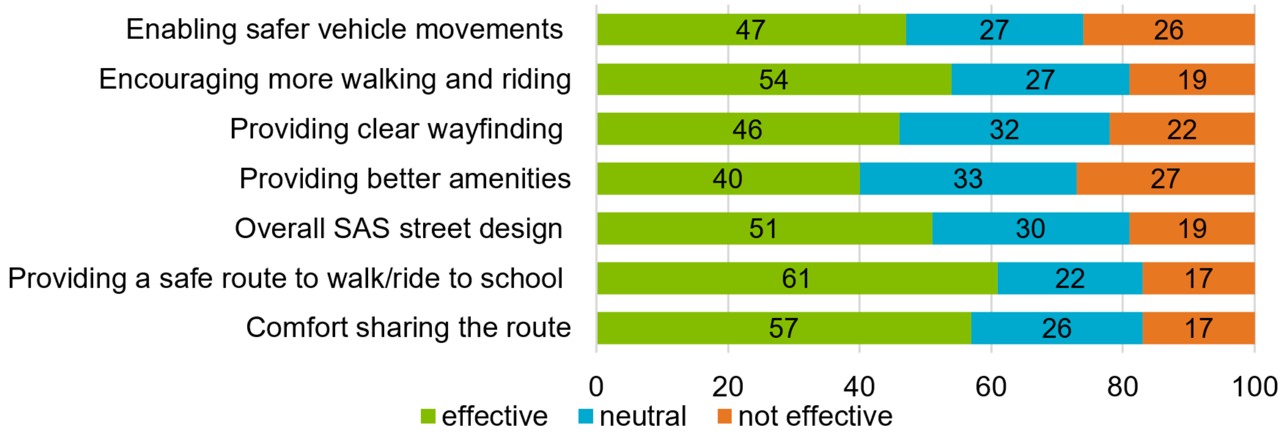
- Community responses towards the SAS were positive overall:
  - **59 per cent** of all respondents reported feeling positive towards the SAS (with 27 per cent neutral).
  - This was one of the largest positive sentiment values compared with other SAS routes. With the minimal design changes applied overall, it could indicate sentiment remains positive when the street design is not too different from other local streets.

Figure 9: Community sentiment towards the Belmont SAS (n=96)



- When asked to rate the SAS on effectiveness across several categories, responses were positive.
  - Sentiment indicated people were comfortable with the new street design changes, possibly because it was very similar to surrounding local streets and only moderate changes were made.
  - Verbatim responses indicate concerns of unsafe vehicle speeds and parking movements occurring during school pick up times, and the lack of amenity and wayfinding along the route.

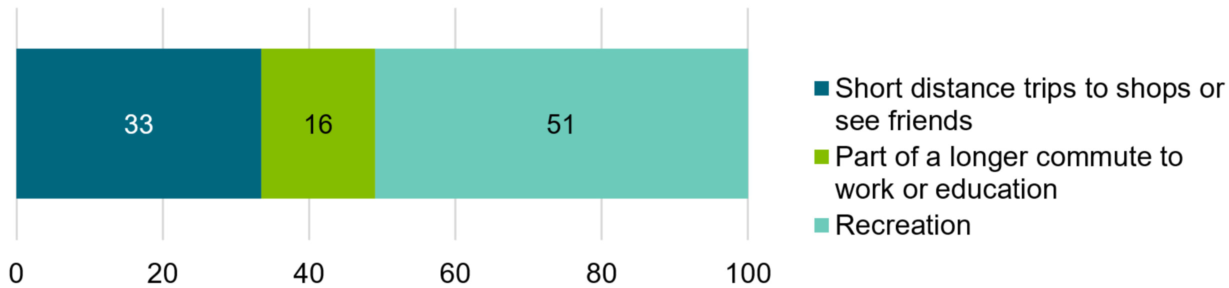
Figure 10: Community perceptions of the SAS (n=96)



Changes in behaviour and trip purpose

- Self-reported changes in behaviour from all respondents were not consistent with observations.
  - **34 per cent** = NET increase in active travel
  - **2 per cent** = NET increase in vehicle use.
- People who walked or rode a bike along the SAS did so for a mix of reasons, with close to half for recreation and half for transport purposes.

Figure 11: Walking, riding – trip purpose (n=92)



Verbatim responses on what people liked or didn't like about the SAS

Positives

"Reduced amount of through traffic (cars). Definitely have a lot of people cycling especially school start and finish times. I can easily cycle to Kooyong Rd shops."

"I like that it slowed most vehicle traffic down. I've lived on Surrey Road since before it was implemented, and cars used to use it as a rat run and travel well over 60 km/h. I like that several intersections were changed so that Surrey Road through traffic has priority."

"I like that you are trying to make a safer environment for the children in the area as well as attempting to make it safer for cyclists."

"I like the intent that bikes have right of way and to promote pedestrian traffic. I like scooting or riding or running to work and knowing the route is fairly safe."

Negatives

"Not enough maintenance and upkeep road paint is often faded, plants are dead or missing. Cars still travel at 50 km/h plus. Not enough done with design other councils (Bayswater, Vincent, Vic Park) have better designed safe streets with more landscaping, dedicated on street parking and more features to slow down cars."

"During school pick up times people speed down our street. I feel unsafe crossing the road to pick up my son from school. The chicanes don't slow the traffic, and some people seem to see them as a challenge to see how fast they can go which can be frightening. When I am scooting, sometimes the area to the left of the chicane is full of leaf litter and branches."

"Many drivers ignore the speed limit. Possibly because there are not enough '30' signs. There needs to be one at every intersection. Maybe it's time to try banning through traffic, e.g. signpost the street for residents only (except bicycles). Also, there are some motorbike owners who still love hooning in the street."

"Four-way intersection raised in the middle is confusing with regard to who has right of way. Speed bumps aren't great for bike riders. Wiggles in the road make it feel more unsafe as a car driver and can be confusing."

"Less on street parking, huge issues with parent parking at the school. Parents park on median strip, queue up for parking spaces and block the Surrey Rd/Wright St corner. They also drive up on verges to park. Need more enforcement of road rules."

SUMMARY OF FINDINGS

Achievements

- Reduction in vehicle volumes were observed overall along the SAS route, but this was variable with the northern segment of Surrey Road experiencing increases post construction.
- The SAS received a generally positive response overall from the community, which may be partly attributed to the minimal approach applied. This reflects lack of community understanding about the intent of a SAS and a missed opportunity for deeper community consultation and engagement before, during and after construction.

Opportunities for improvement

- There was an observed reduction in vehicle speeds on the treatment route, however, the 85th percentile speeds remained well above the preferred operating range.
  - This indicates there was a substantial proportion of vehicles not observing the lowered speeds nor sufficiently impacted by the changed street conditions.
- Bike riding activity decreased on the SAS and on control streets, but the degree of loss was higher on the SAS, indicating that although bike riding activity declined in the area, it was also less attractive for people to walk on the SAS route.
- A review of crash data showed the SAS route experienced five crash incidents after construction, from a base of zero in previous years.
  - Crash incidents post construction on the SAS may be linked with reductions in bike riding and vehicle volumes observed post construction but little reduction of 85th percentile vehicle speeds.

Insights and recommendations

Recommendations to improve outcomes on this SAS project, informed by insights summarised in the SASs Pilot Program Final Evaluation Report:

- Incorporating ACE principles throughout all phases of project planning, design, delivery and post construction review.
- Lowering 85th percentile speeds consistently across all segments of the route to within the preferred operating range, by considering additional road treatments as required.
- Applying vertical or horizontal deflection treatments 80-100 m apart and consistent carriageway narrowing for maximum benefit realisation and reduction of unsafe speeds.

Alignment with program insights

By trialling the use of different design features, and collecting data on user behaviour and community sentiment, the nine evaluated projects in the pilot program generated a rich array of insights that will guide future design and development of SASs.

The SAS Design Guidance developed through this trial provides insights for retrofitting brownfield sites but perhaps most importantly, guidance on how to establish an SAS on greenfield sites at inception.

With this guidance and support from DTMI, local governments can design and implement more SASs, creating effective 30 km/h shared street spaces for people to walk, wheel and ride comfortably and safely in their communities.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