

Arbroath – A Place for Everyone

ANG-CLP-2782

Baseline monitoring summary



06 January 2025

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1. Executive Summary

Arbroath – A Place for Everyone is a transformational project for the town, aimed at addressing the historic severance caused by the A92 dual carriageway. By reallocating road space, the project will create a 1.5km active travel corridor with a segregated cycleway and footpath, along with crossing and accessibility improvements. Baseline monitoring results highlight the potential for enhanced active travel, accessibility, and liveability throughout the town as a result of this scheme. The impact of the scheme will be evaluated against the Places for Everyone outcomes.

Levels of active travel



320,000 annual active travel users were recorded at Burnside Drive and **450,000** at Ladyloan for 2023, highlighting the **potential for active travel** along these routes.



The proportion of **cycling trips** is **lowest** at **Burnside Drive** and **Brothock Bridge**, representing up to **4%** of active travel journeys at these locations.



Levels of **wheelchair use was low**, comprising **1%** of active travel trips across all count locations, suggesting low perceptions of accessibility for these routes.



Residents engage in **low** levels of active travel for **purposeful trips**. Only **20%** of residents travel to work by active travel, while the majority (68%) drive.

Communities collaborative design



Nearly **two thirds** of residents had some level of **scheme awareness**, although half of 16- to 34-year-olds knew nothing at all about the scheme

Nearly **three quarters** of residents reported **little to no awareness** of **community consultation** opportunities for the scheme.



Concerns expressed by residents included concerns about **congestion** and **emergency vehicle access** following the planned reduction of the dual carriageway.

Quality of place



Route-users at the **Harbour** were **twice** as likely to give the maximum score for **recommending the route** to a friend than at Brothock Bridge.



Residents were **less positive** of active travel through Arbroath than route-users. A **quarter disagreed** that Burnside Drive or Ladyloan is **cyclist-friendly**, that there is sufficient **space for walking and cycling** and that it is easy to **cross the road**.



About **one in six** residents feel **unsafe** walking, wheeling, or cycling along Burnside Drive or Ladyloan **due to motor traffic**.



25% of **female residents** feel **unsafe** travelling through Burnside Drive or Ladyloan **at night**, compared to 14% of males. Only **38%** of residents feel safe from cyclists on the pavement along Burnside Drive or Ladyloan.

Dedicated space for active travel



72% of vehicles at **Ladyloan exceeded** the **30mph** speed limit, while northbound on **Burnside Drive** was more likely to have **congestion**.



Perceived **vehicle dominance** along Burnside Drive/Ladyloan posed a **barrier** to active travel among **disabled people**. Focus groups and interviews with disabled participants revealed concerns of **proximity to traffic** and **speed of vehicles** along the dual carriageway.

Accessibility and active travel



Route-users identifying as having a **disability** or **long-term health condition** are underrepresented at Brothock Bridge and the Harbour, representing just **10%** of route-users.



49% of residents with a **disability** or **health condition** actively travel along Burnside Drive/Ladyloan **daily** or **weekly**, compared to 68% of those without a disability. **One-fifth** of residents **disagree** that Burnside Drive/Ladyloan is **accessible** to those of all abilities.



Focus groups and interviews with **disabled people** highlighted **barriers** to active travel along Burnside Drive and Ladyloan. These included **safety concerns** due to **insufficient controlled crossings**, narrowing pavement near the Harbour and a lack of dropped kerbs.

2. Scheme overview

Places for Everyone

Places for Everyone is an infrastructure programme that aims to create safe, attractive, healthier places by increasing the number of trips made by walking, wheeling and cycling for everyday journeys. The programme is funded by Transport Scotland and is managed by Sustrans Scotland. The Places for Everyone programme superseded the Community Links programme in 2019.

At the time monitoring was planned, the Places for Everyone programme outcomes were to:

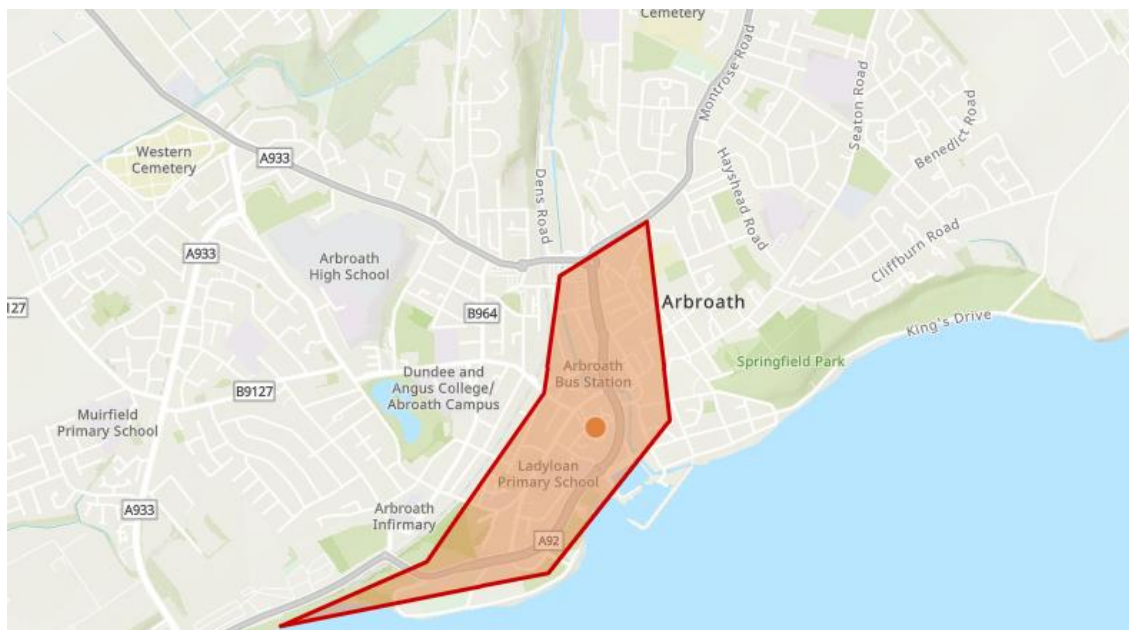
- 1 **Active travel** – Increase the number of people and trips for walking, cycling and wheeling for everyday journeys.
- 2 **Communities collaborative design** – Ensure communities are proactively engaged in project development and decision making.
- 3 **Enjoyable comfortable spaces** – Improve the quality of place, green infrastructure, provide dedicated, safe spaces for people to walk, cycle and wheel through.
- 4 **Reallocation of road space** – Reduced vehicle dominance and increased priority for active travellers.
- 5 **Facilitate independent walking, cycling and wheeling for everyone** – Improve accessibility for people with protected characteristics.

Arbroath – A Place for Everyone

The Arbroath A Place for Everyone project is being delivered by Angus Council. It seeks to address the historic severance caused by the A92 dual carriageway in Arbroath. The A92 in its current configuration prioritises vehicles and offers little to no provision for active travel, both along the corridor and across it. The project will reconnect the town centre to the West Port, the bus and rail stations, and the town back to its seafront.

Arbroath A Place for Everyone will reallocate the two southbound lanes of the A92 dual carriageway (Burnside Drive), to become a 1.5 km active travel corridor, improving walking, cycling, accessibility, and availability of green and public spaces. With the creation of a new segregated cycling and footpath link along this road, this project aims to enhance east-west active travel links and reduce the current vehicle dominance in the area.

Figure 1: Arbroath – A Place for Everyone project area



The development of the active travel corridor will include:

- The reallocation of the existing A92 dual carriageway to a single carriageway.
- Construction of a bi-directional segregated cycleway.
- Construction of widened footways.
- The creation of greenspace with Sustainable Urban Drainage Systems.

- Streetscape improvements with community-led art/play.
- Crossing improvements.
- Accessibility improvements.
- Linkages with NCN1, Angus Coastal Path and North Sea Cycle Route.
- Entrance gateways.
- Northbound and southbound bus layby reconfiguration.
- Construction of a pedestrian crossing at Gayfield.

Specific improvements to junctions to enable active travel along the route include:

- Conversion of Guthrie Port Roundabout to traffic signals allowing controlled crossings.
- Improvements to the junctions at Hume Street and Ladyloan to allow all movements, with right turn ghost islands.
- Reconfiguration of the Lordburn and Harbour roundabouts to traffic signals allowing controlled crossings.
- Upgrade of existing signals at Catherine Street, Millgate, and Brothock Bridge.

Figure 2: An outline of the planned infrastructure improvements.

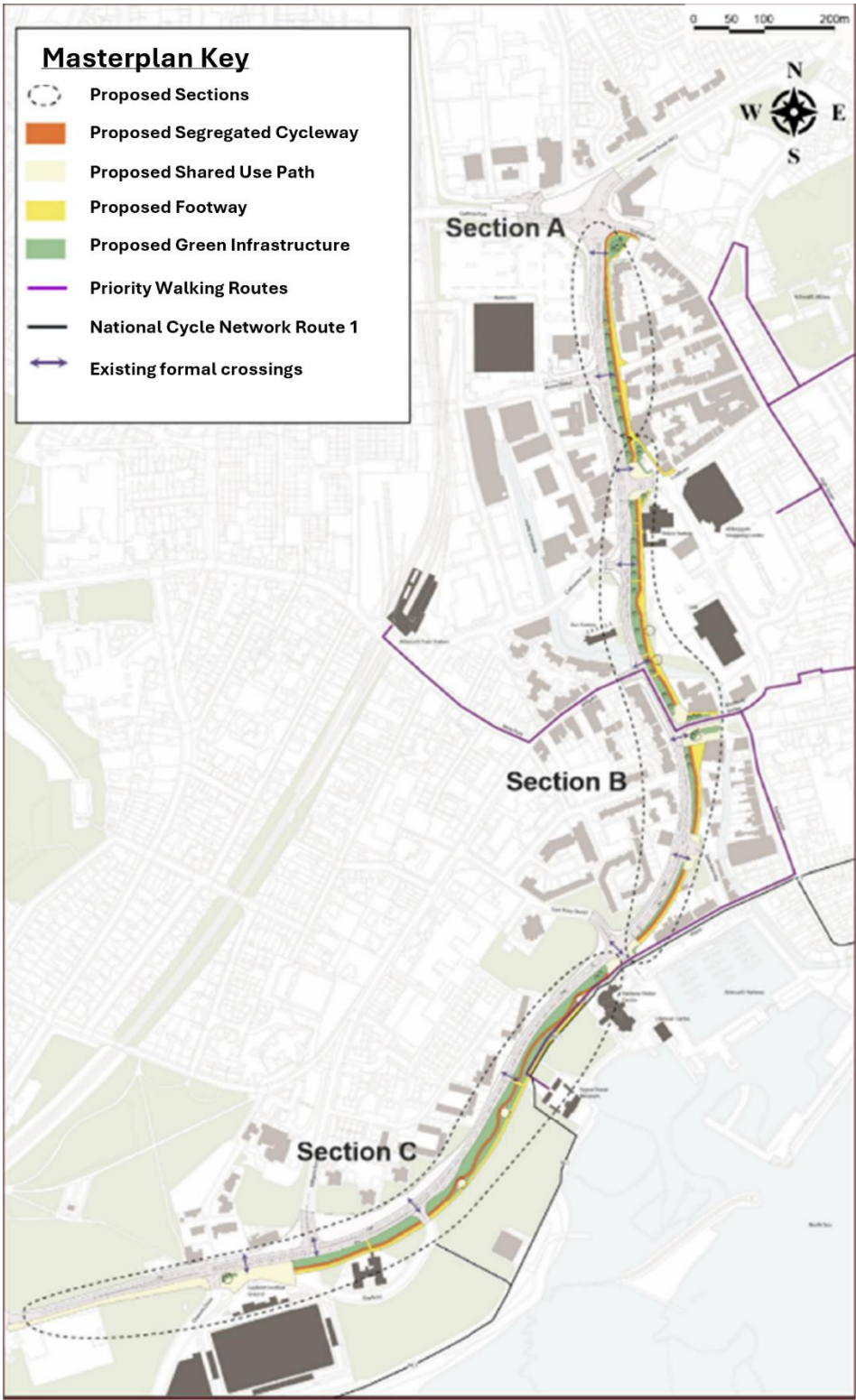


Figure 3: Project visualisation for Arbroath – A Place for Everyone, provided by Arcadis¹.



Figure 4: Planned improvements include a bidirectional cycleway with strategic crossings at Brothock Bridge, and tree and wildflower planting at Guthrie Port with public seating areas.



¹ A fly-through video of the scheme designs is available at - [Arbroath - A Place for Everyone \(youtube.com\)](https://www.youtube.com/watch?v=Arbroath-A-Place-for-Everyone)

Table 1: Key features of Arbroath – A Place for Everyone project

Key feature	
Places for Everyone scheme ID	ANG-CLP-2782
Category	4
Delivery partner(s)	Angus Council
New route (currently not passable on foot)	N
Upgrade of existing route	Y
Length (if linear / known)	1.5 km
Date of works starting (first spade / cone)	April 2024
Estimated date of works completion (last cone)	February 2026
Total grant awarded	£10,655,771
Total scheme cost (forecast)	£14,840,467

3. Monitoring

The Sustrans Research and Monitoring Unit (RMU) aims to provide evidence on sustainable and active travel that is transparent and authoritative, and which influences and shapes policy, practice, and behaviour in Scotland and across the UK. To this end, the RMU works with Sustrans colleagues and partner organisations to monitor and evaluate the impact of specific projects, whether infrastructural or behavioural change based.

The RMU are delivering a programme of monitoring before and after creation of the new infrastructure, to measure its impact on active travel. This report presents a summary of the findings at the baseline monitoring stage.

Monitoring tools summary

The monitoring plan has been drafted by Sustrans RMU in consultation with partners and aims to address key Places for Everyone objectives and outcomes via a series of pre and post intervention monitoring measures. Provisional timings and key elements of the monitoring programme are summarised in [Table 2](#). While much of the baseline monitoring work was carried out by Sustrans RMU, the partners at Angus Council have ownership of several monitoring tools outlined in the monitoring programme summary table ([Table 2](#), below). The locations of the RUIS, manual counts and video manual counts are shown in [Figure 5](#).

Table 2: Monitoring programme summary table

Monitoring Tool	Baseline	Expected follow-up
Automatic counters x 2 locations along the A92 <ul style="list-style-type: none"> Burnside Drive Ladyloan (A92) 	Ongoing – from December 2022 (Angus Council)	Summer 2026
Route User Intercept Survey and Manual Count x2 locations <ul style="list-style-type: none"> Harbour Brothock Bridge 	August 2022	August 2026
Video Manual Count x3 locations <ul style="list-style-type: none"> Burnside Drive Market Place Ladyloan 	August 2022	August 2026
Traffic Speed and Volume survey x2 locations <ul style="list-style-type: none"> Ladyloan Burnside Drive 	August/September 2022	September 2026
Residential postal survey	March/April 2023	Spring 2026
Video analysis (crossing) x1 location <ul style="list-style-type: none"> Morrisons (Burnside Drive) 	September 2022	September 2026
Accessible design focus group/interviews	April 2023	Spring 2026
Access to train station survey	September 2022	September 2026
Stationary Activity Count x1 location <ul style="list-style-type: none"> Brothock Bridge 	August 2022	August 2026
Community engagement & activity log	Ongoing (Angus Council)	N/A
Air quality reporting	Ongoing (Angus Council)	Ongoing

CONSTRUCTION

Figure 5: Location of baseline monitoring tools²



² Location-based monitoring tools comprise: route-user intercept surveys (RUIS), automatic counters, video manual counts (VMC), access to station survey, traffic speed and volume survey, video monitoring (crossing analysis), stationary activity count.

4. Findings

Summary of findings at pre-intervention stage

This section provides a summary of the results of baseline monitoring against the five Places for Everyone outcomes. Key baseline results are provided for all five outcomes. Where there is specific potential for the project to impact on the outcome, this has been highlighted.

Outcome 1: Levels of active travel

Number of active travel journeys

Data on active travel levels is provided by annual usage estimates from video and manual counts at four locations, and 365-day count data from automatic counters at two locations within the project area ([Figure 6](#)).

The **Burnside Drive** video manual count location accounts for **30% of all active travel trips** counted at baseline, with an **annual usage estimate of 800,000**. 55% of recorded journeys along this route were south to north. With the planned conversion of Burnside Drive from a dual carriageway to a single carriageway and creation of a dedicated active travel corridor, the level of active travel along this route is expected to increase substantially.

We collected both annual usage estimates and 365-day count data from along Burnside Drive and Ladyloan. The real-time counts and annual usage estimate for Burnside Drive differ by roughly 480,000 trips per year (see [Figure 6](#)). Because annual usage estimates account for the expected effects of seasonality and are generally considered broadly comparable with automatic count data, we would expect the results to be similar. The differences could be attributed to the different data collection dates, with 365-day automatic count data collected for 2023 and video and manual count data collected within 2022, and the slight variation in location (see [Figure 7](#)). For more information on the methods used, see [the Methodology section](#).

Figure 6: 365-day counts and annual usage estimates for active travel, at six locations in or around the project area



Note: Annual usage estimate (AUE) and 365-day count data (count) has been rounded to the nearest ten-thousand. For data collection locations, see Figure 7.

Active travel modes

Proportion of recorded journeys by active travel modes

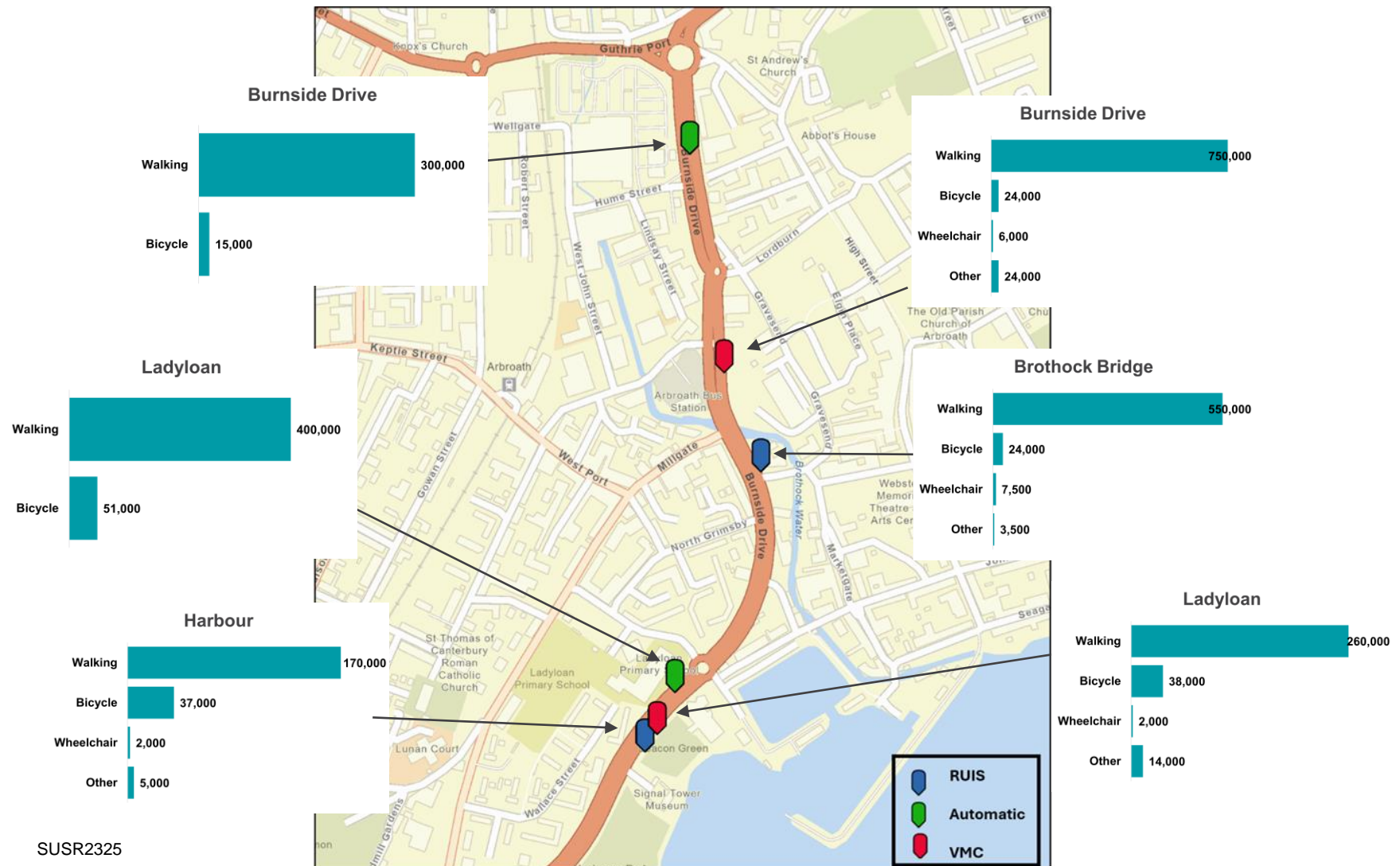
Walking is by far the most popular mode of active travel across all four video/manual count locations. [Figure 7](#) shows the annual usage estimate for active travel modes by location.

Walking accounts for up to 95% of all active travel journeys at Brothock Bridge, with its lowest proportion observed at the Harbour location, still accounting for 81% of active travel journeys.

The **Harbour** location (which connects to the only off-road cycling infrastructure within the project area) has the **highest proportion of cycling trips, at 18%** of active travel journeys. Given its seafront location and linkage to various off-road routes (NCN 1, Angus Coastal Path and North Sea Cycle Route) a proportion of these are likely leisure journeys by cyclists. The proportion of **cycling trips is lowest along the Burnside Drive and Brothock Bridge** locations, representing up to **4%** of active travel journeys. We anticipate that implementing a bi-directional segregated cycleway along Burnside Drive will considerably increase the number of cyclists along this route.

Levels of wheelchair use were low across all four locations, representing **1%** of all active travel trips. This suggests that the routes along Burnside Drive and Ladyloan don't offer suitable or welcoming journeys for wheelchair users. For further discussion of the accessibility for disabled people and the proposed improvements, see the section [Accessibility for disabled people](#).

Figure 7: 365-day count and estimates by active travel mode at six locations within the project area

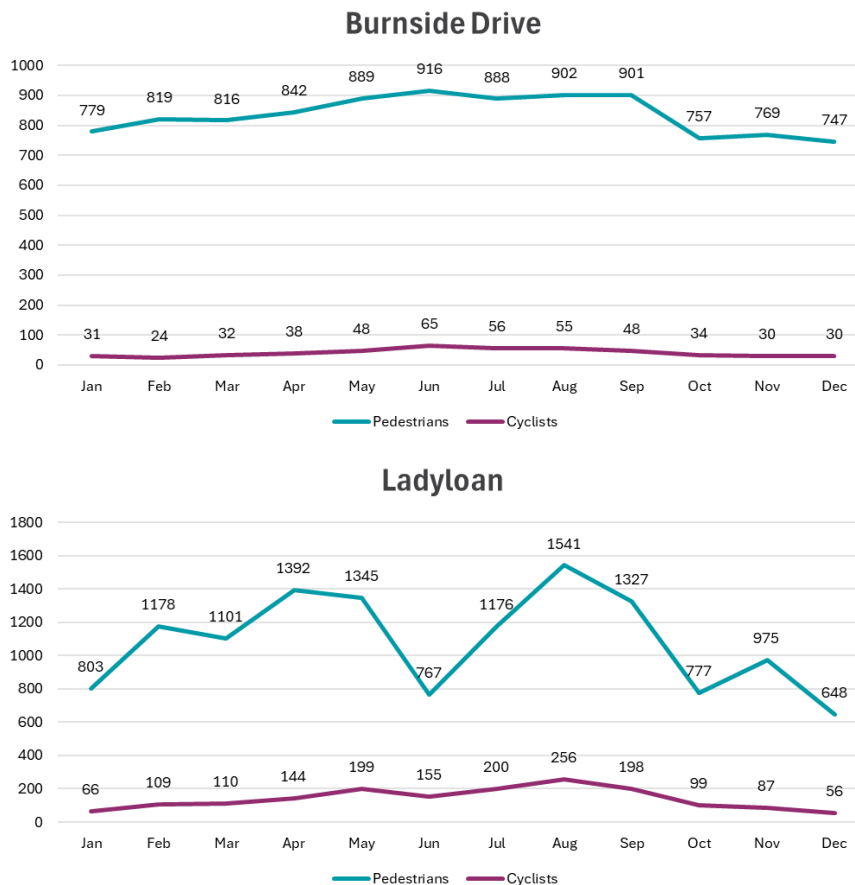


Active travel levels by month

The continuous data collection of automatic counters at Burnside Drive and Ladyloan allow for insights into active travel patterns by month. [Figure 8](#) provides the average daily counts for pedestrians and cyclists along these two locations by month, for 2023.

Active travel along Burnside Drive is fairly consistent, with a peak average of 916 pedestrians and 65 cyclists per day in June, and a low of 747 pedestrians and 30 cyclists per day in December. In contrast, **average daily counts fluctuate considerably by month at the Ladyloan location**, with a peak 1,541 pedestrians and 256 cyclists per day in August and a low of 648 pedestrians and 56 cyclists in December.

Figure 8: Average daily counts by month for 2023, at Burnside Drive and Ladyloan (automatic counters)

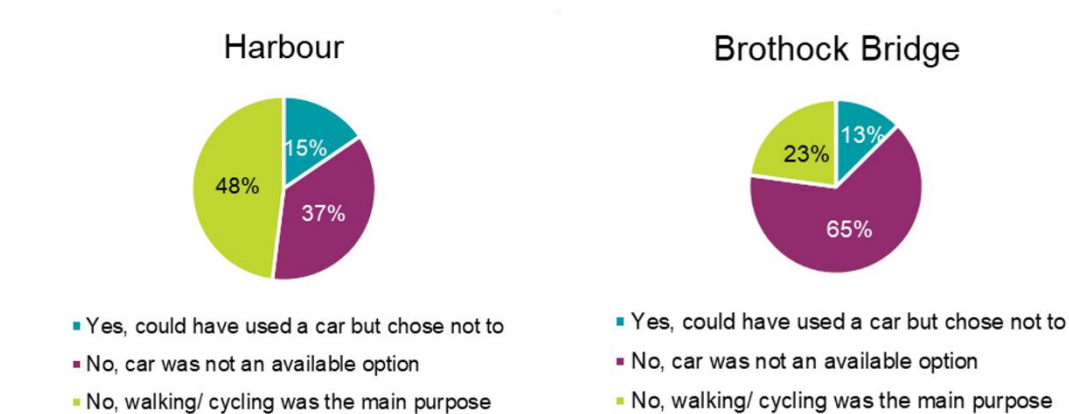


Proportion of route users choosing not to drive

Route users at the Brothock Bridge and Harbour locations were asked whether they could have used a car for their trip as opposed to walking or cycling, or whether recreation was the purpose of the trip ([Figure 9](#)). As expected, given its seafront location, **recreational journeys**

where active travel was the main purpose were **more common at the Harbour** than Brothock Bridge site, comprising **nearly half of all route-users**. Trips at **Brothock Bridge were less likely to have replaced a potential car journey**, where **13% of route-users** reported that they **could have taken the trip by car**. With the planned improvements to Burnside Drive and Ladyloan, a greater proportion of active travel journeys at this location are expected to replace car journeys.

Figure 9: “If you have NOT used a car, could you have used a car for this trip instead of cycling/walking?” (RUIS, Brothock Bridge =131, Harbour =121)



Journey purpose

Everyday journeys made by active travel

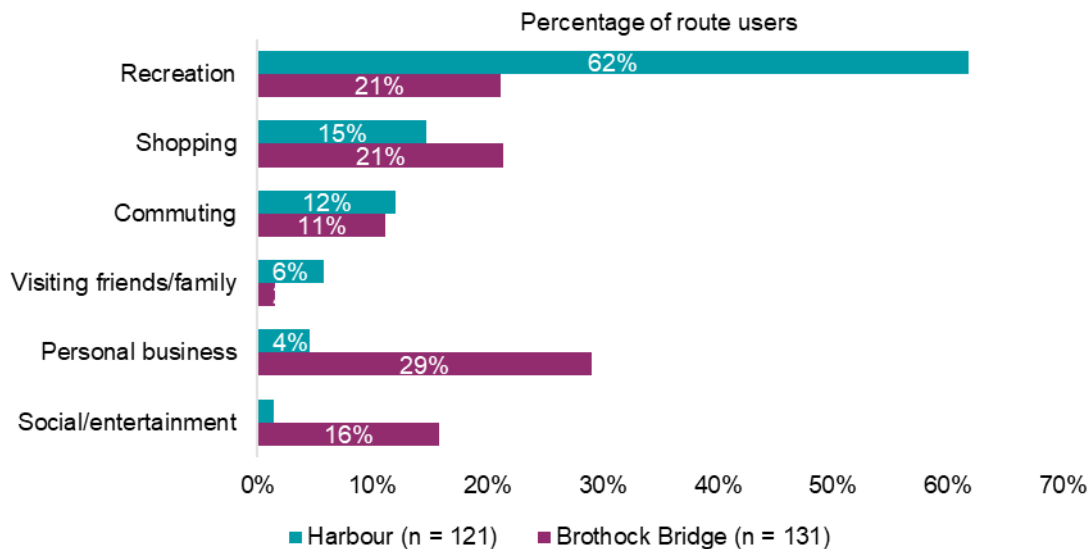
The scheme aims to increase the number of everyday journeys³ made using active travel within the project area. The 1.5km active travel corridor will enhance links between the town centre, West Port, and the train and bus stations. This is expected to boost the number of active travel journeys along Burnside Drive and Ladyloan, to connect to local workplaces, the shops, and public transport. Our data gives insights into the purposes of journeys made by current active travellers, as well as the travel modes used for different types of journeys among residents.

Among **route users**, **recreation was the most common trip purpose** for active travel journeys made through the **Harbour** location, representing nearly **two-thirds of all journeys** (Figure 10). In contrast journeys along Brothock Bridge served a wider range of purposes, primarily including personal business, shopping, and recreation.

³ Everyday journeys are defined as those short, regular trips that you make in day-to-day life, such as going to work, school, or shops.

Commuting is a more common reason for undertaking an active travel journey at the **Harbour among cyclists (33%) than pedestrians (7%)**. While the construction of the cycleway along the A92 may increase leisure cycling trips along Ladyloan towards tourist spots such as the Signal Tower Museum, it also has the potential to increase commuting cycling trips. A previous active travel study⁴ revealed that most active travel to work destinations in Arbroath are either to the town centre or the industrial area in the north-west. Therefore, the bi-directional cycleway along Burnside Drive may provide an opportunity for commuting trips from the coastal side of town towards the north-west once constructed.

Figure 10: “What is the purpose of your current journey?” (RUIS, Harbour and Brothock Bridge)



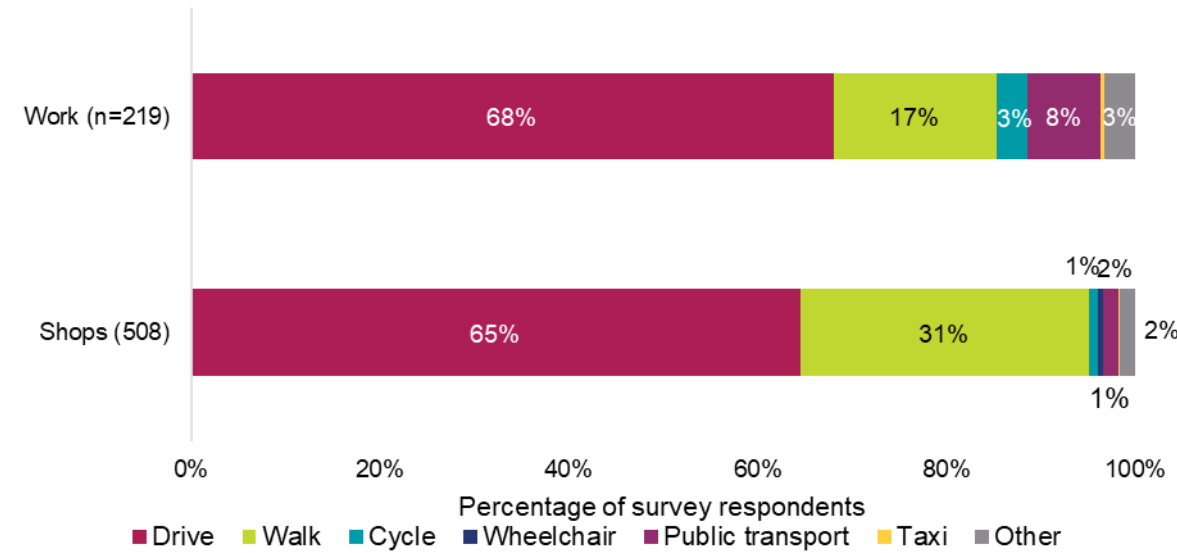
Note: Recreation includes touring and dog walking. Additional categories which had no responses have been left out of the charts for clarity, see the [Postal Survey section](#) of the Methodology for the full category list.

The postal survey revealed that **Arbroath residents engage in low levels of active travel for purposeful trips (Figure 11)**. Among those who **travel to work, 20% do so by active travel** (walking and cycling), while the majority drive (68%). For comparison, the 2022 Scottish Household Survey⁵ shows that 24% of people in Angus travel to work by active travel. Active travel is a more common mode choice **for shopping trips, with 33% of residents walking, wheeling, or cycling**, yet driving remains the dominant mode, with 65% of residents regularly driving to the shops.

⁴ Tactran Active Travel Audit, 2017. For more information see: [Active Travel Audits - Tactran](#).

⁵ Scottish Household Survey 2022: Key Findings - gov.scot (www.gov.scot).

Figure 11: “How do you usually travel to the shops/to work”, Postal survey



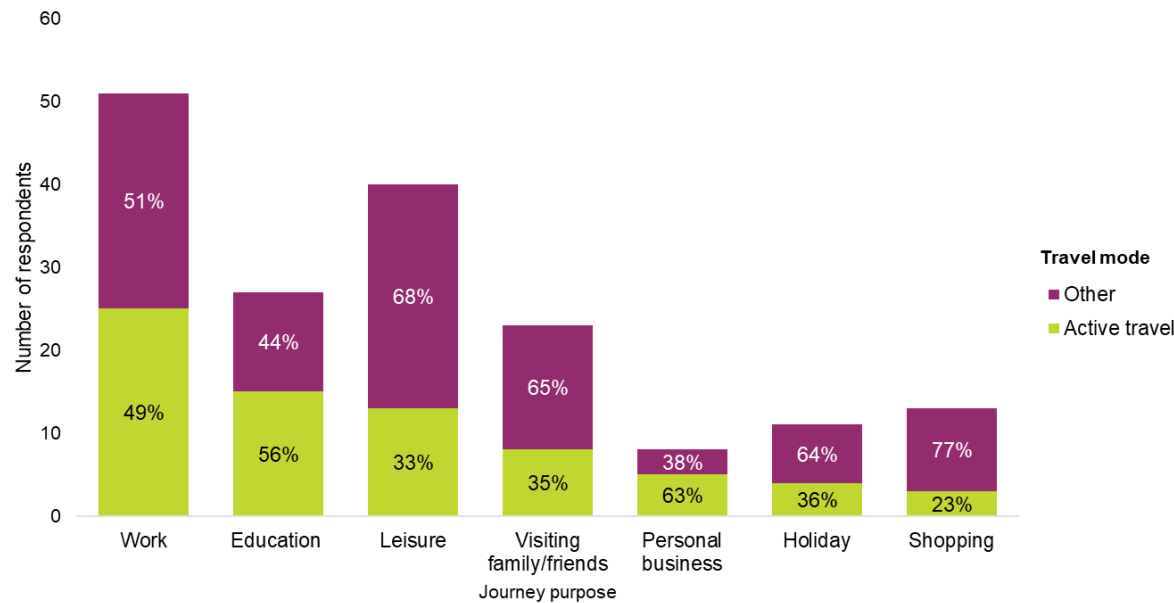
Note: 314 residents reported that they do not travel to work, and 10 reported that they do not travel to the shops. Totals may not sum to 100% due to rounding.

Travel mode for accessing Arbroath train station

A four-day survey conducted at Arbroath’s train station revealed that **walking or wheeling was the most common mode of access**, with **41%** using this method to reach the station. This was followed by 35% of respondents accessing the station by car, van, or motorcycle, while **only 1% used a bicycle**.

Figure 12 shows the proportion of trips to the train station by trip purpose and travel type, distinguishing between active travel and “other” non-active travel modes (car, taxi, and public transport). Nearly **30% of trips** to the station were **work-related**, with almost **half of these accessed by active travel**. Active travel was less common for ‘leisure’ journeys, with around one in three leisure trips accessed by active travel. The development of a 1.5km active travel corridor through the town will improve links across the A92 from the High Street to the station. This is expected to increase active travel to the station, especially for shopping and commuting purposes.

Figure 12: Main purpose of trip⁶ to get to/from the train station by travel type (Access to station survey, N=175)

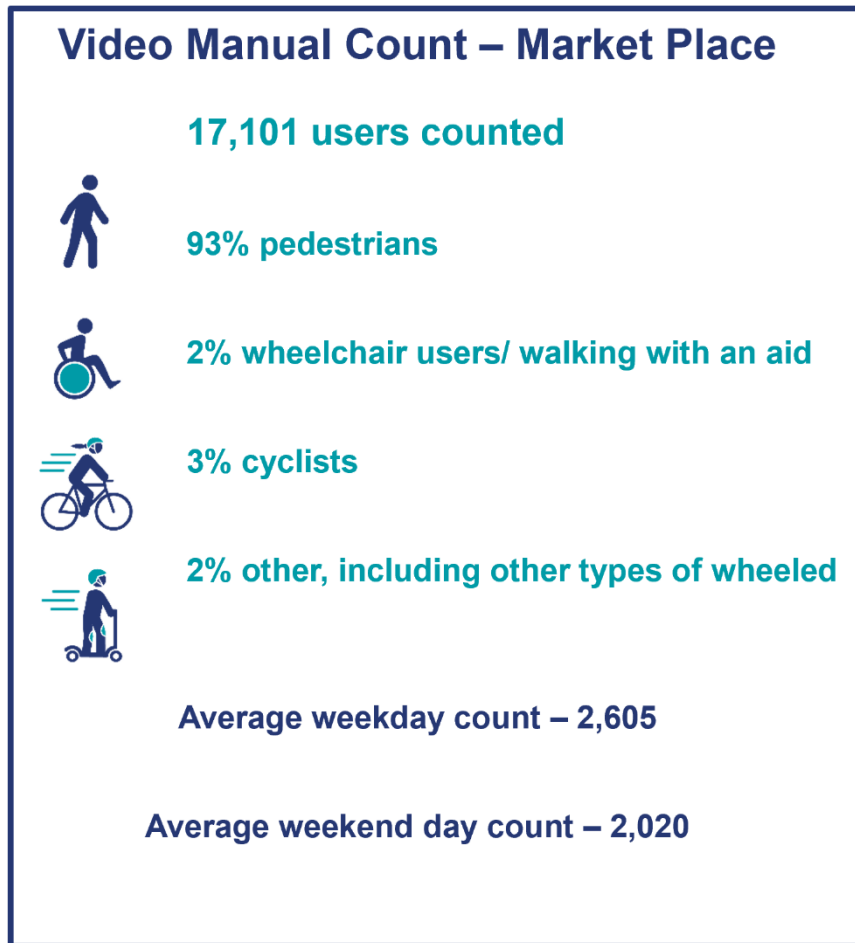


Travel mode “other” relates to car, taxi, or public transport.

Active travel to the high street

A video manual count was placed at Market Place, a key link to Arbroath’s High Street, to assess levels of active travel to the local shops. Across the seven-day count period, over 17,000 individuals accessed the area by active travel, generating an **annual usage estimate of 1.1 million**.

⁶ For trip purpose, “leisure” includes entertainment and recreation activities, “work” includes both commuting to work and in the course of work, “education” includes travel to school/college, including escorting others to school, “personal business” includes “other” responses, which were medical/cosmetic appointments.



Active travel to school

[Hands Up Scotland Survey \(HUSS\) data](#) shows that a **higher proportion of pupils walk to school in Arbroath compared to Angus as a whole**⁷. In 2023, 39% of pupils across Angus walked to their primary school vs. 49% of pupils in Arbroath ([Figure 13](#), [Figure 14](#)). This is more profound for secondary schools, with 78% of pupils in Arbroath walking to school, compared to 55% of pupils across the wider Angus area ([Figure 15](#), [Figure 16](#)). We anticipate that the proposed improvements may further increase rates of walking to school, particularly for Ladyloan Primary School. Planned improvements include removing the existing roundabout opposite this school and converting the nearby Guthrie Port roundabout to traffic signals with controlled crossings. These changes aim to further enhance the accessibility of the pedestrian environment in this area.

In 2023, 6% of primary school pupils in Arbroath cycled to school, slightly higher than the 4% across Angus. For secondary school pupils, the cycling rate was 2%, falling just below the overall rate for Angus (3%). The construction of the bi-directional cycle path along the A92 may increase cycling trips to school across both primary and secondary schools in Arbroath,

⁷ HUSS data is held for 56 primary schools and 8 secondary schools in Angus. Schools within Arbroath include 6 primary schools (Hayshead, Inverbrothock, Ladyloan, Muirfield, St Thomas' Primary School, and Timmergreens) and two secondary schools (Arbroath Academy and Arbroath High School).

given its close proximity to Ladyloan Primary, and falling within reasonable distance to the two high schools in Arbroath.

Figure 13: The proportion of travel to school by mode of travel, for primary schools across Arbroath, Hands Up Scotland Survey, 2015 to 2023

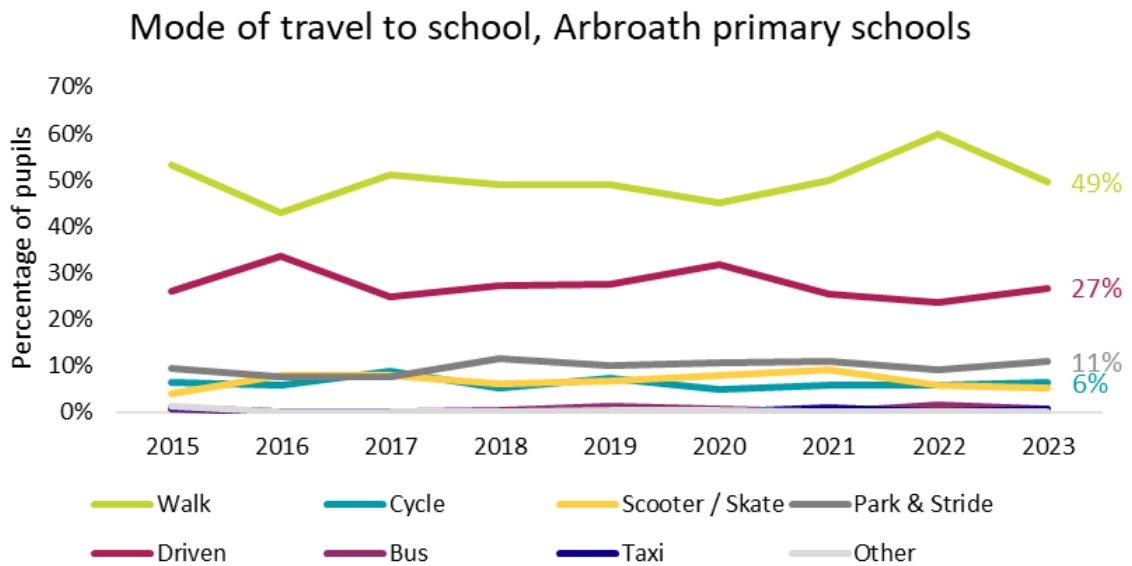


Figure 14: The proportion of travel to school by mode of travel, for primary schools across Angus, Hands Up Scotland Survey, 2015 to 2023

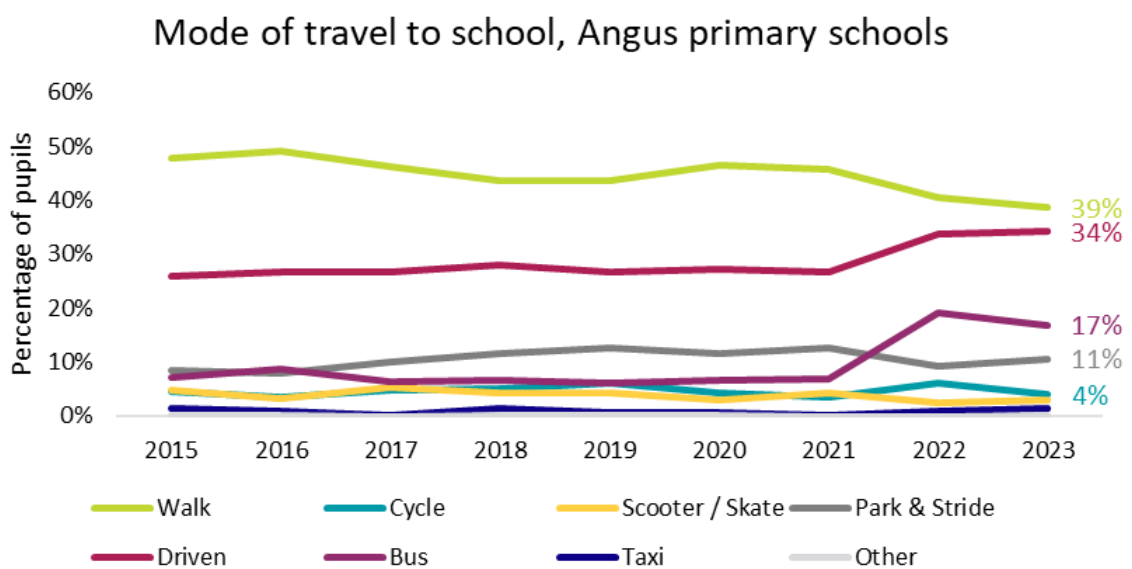


Figure 15: The proportion of travel to school by mode of travel, for secondary schools across Arbroath, Hands Up Scotland Survey, 2015 to 2023

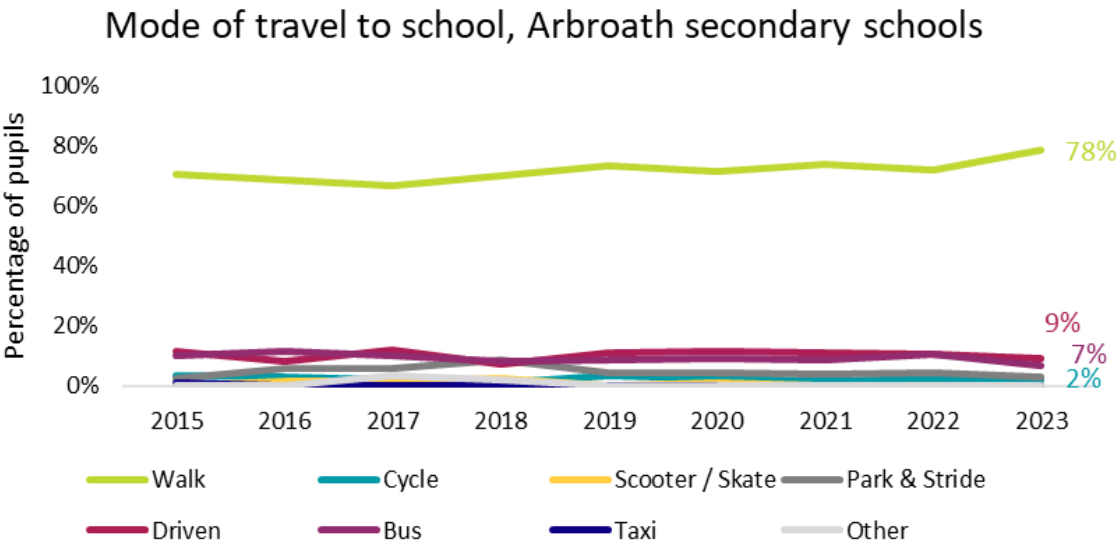
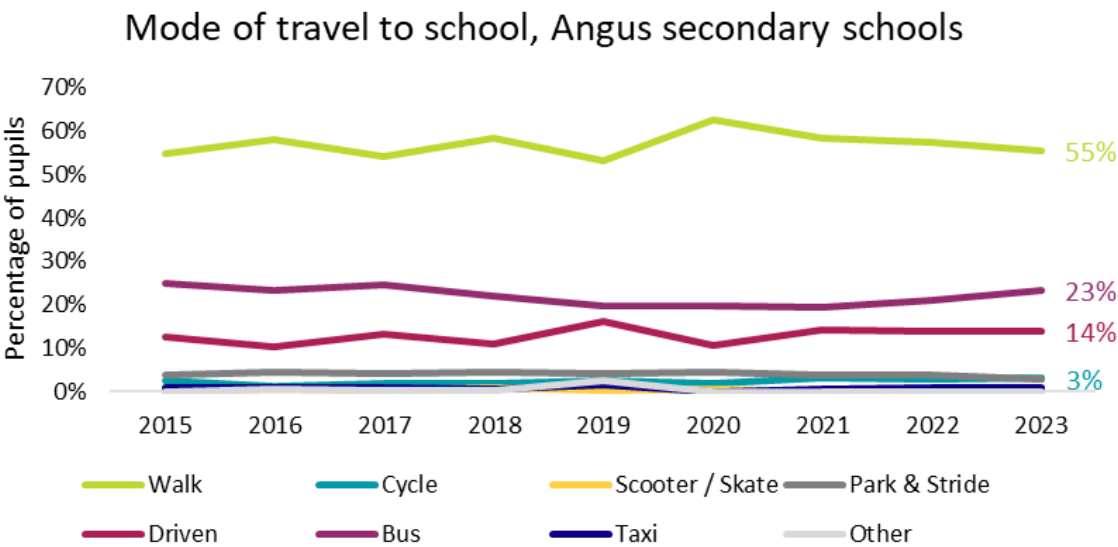


Figure 16: The proportion of travel to school by mode of travel, for secondary schools across Angus, Hands Up Scotland Survey, 2015 to 2023

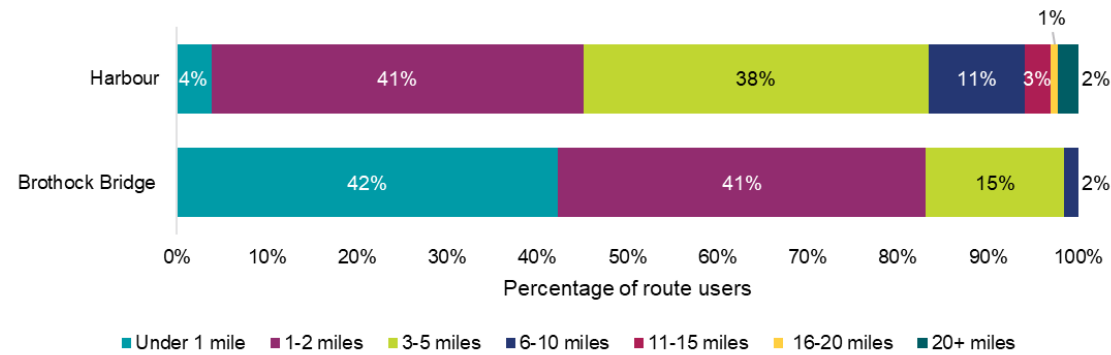


Journey length and frequency

The typical **journey length among route-users at Brothock Bridge was short⁸**, with **83%** of people reporting a total trip distance of **up to two miles** (Figure 17). In contrast, only 45% of trips at the **Harbour** site were up to two miles, with around **one in six journeys exceeding five miles**. This is largely in-line with expectations, given the greater use of the Harbour location for recreational journeys, and greater proportion of cyclists.

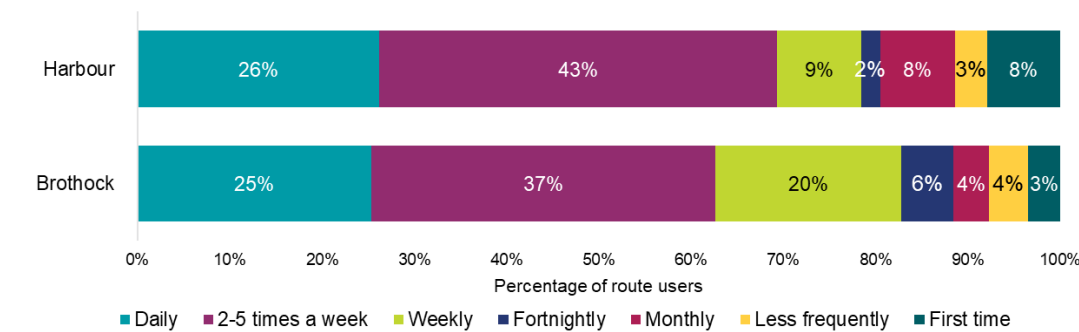
Route-users made their journeys along both the Brothock Bridge and Harbour locations regularly, with **82% of route-users at Brothock Bridge** and **78% at Harbour** conducting journeys on at **least a weekly basis** (Figure 18).

Figure 17: Estimated journey length among route-users (RUIS, Brothock Bridge (n=131), Harbour (n=121))



Note: Includes both outward and return distances.

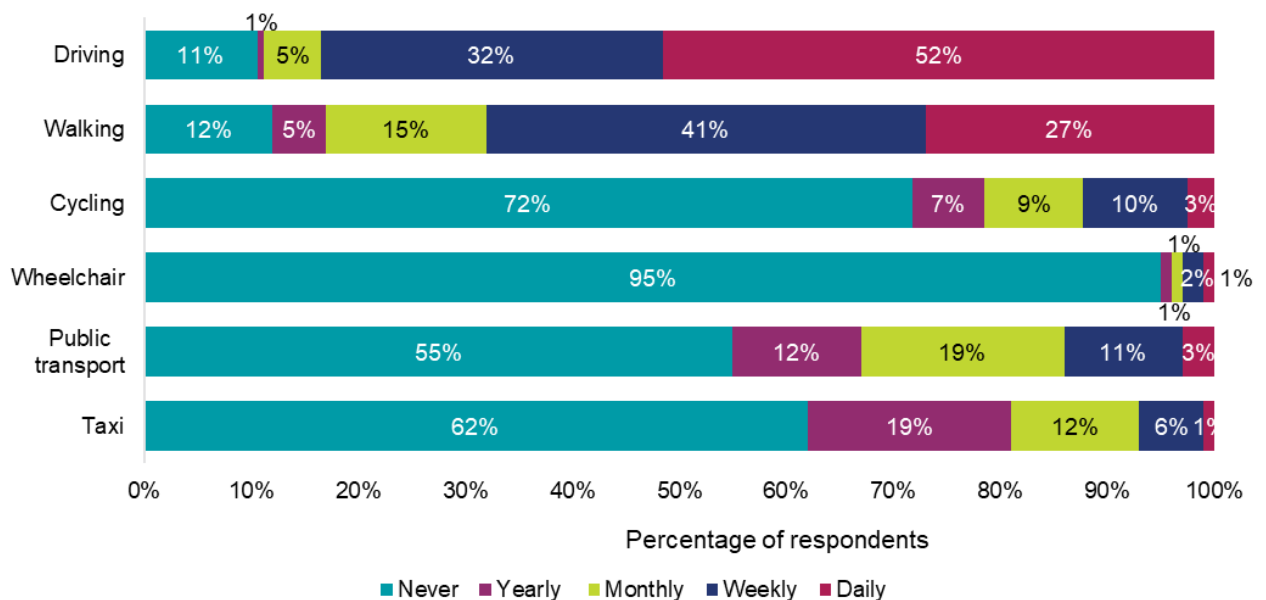
Figure 18: Journey frequency for route-users (RUIS, Brothock Bridge, Harbour)



⁸ Transport Scotland's Active Travel Framework defines a short journey as 2 miles or less for walking and 5 miles or less for cycling, see [Active Travel Framework](#).

Journey frequencies for active travel along Burnside Drive or Ladyloan were lower amongst respondents of the residents' survey. More than **half of the respondents drive along Burnside Drive or Ladyloan daily, while just over a quarter walk** (Figure 19). Nearly three-quarters of respondents reported never cycling along Burnside Drive or Ladyloan.

Figure 19: “How often do you travel along or across Burnside Drive/ Ladyloan (A92) by each of the following modes?”, Postal survey (n=549)



Outcome 2: Communities collaborative design

Levels of community engagement – partner activities

Community involvement is central to the planning and design of Places for Everyone projects. PfE partners typically employ a range of methods for involving local residents and stakeholders in the delivery of walking, wheeling and cycling initiatives.⁹

All such engagement activities for the Arbroath A Place for Everyone scheme took place during the project design stages (preceding construction). Under the ‘engagement and consultation activities’ indicator we have reviewed the nature and number of engagements. Insights from this data will be used in conjunction with the indicator on ‘scheme awareness

⁹ For example, see this discussion of the importance of community engagement: [Landmark collaboration highlights importance of engagement within built environment sector](https://www.sustrans.org.uk/landmark-collaboration-highlights) - [Sustrans.org.uk](https://www.sustrans.org.uk)

and engagement' to understand whether these engagement and consultation methods were effective and if/how this process has impacted whether communities agree with scheme proposals.

Engagement and consultation activities

PfE project partners are required to conduct public consultation and engagement activities, and to develop a communications plan, engagement plan and a community engagement report. [Table 3](#) outlines the community engagement and consultation activities delivered at the design stages, as documented in the community engagement report.

Project progress reports provided to Sustrans by Angus Council detail how feedback gathered from various consultation activities were used to guide project implementation. For example, the Equalities Impact Assessment workshop resulted in the following insights¹⁰ that were incorporated into project planning to mitigate adverse effects on vulnerable populations:

- The need to accommodate potential user conflict (for example perceptions of safety for children and older people who are more likely to be pedestrians).
- Consideration given to the importance of kerb demarcation / use of an upstand for visually impaired and long cane users in particular.
- The importance of appropriate lighting for vulnerable groups such as women.
- The importance of allowing dropped kerbs at the right locations.

¹⁰ The full-list of insights from the EqlA workshop is provided on page 12 of [Angus Council 10 March - Report No 102 - Arbroath A Place For Everyone - Update and Procurement Authority - Appendix 1](#)

Table 3: A summary of the community engagement and consultation activities conducted ahead of construction

Activity	Dates	No. individuals engaged	Supporting notes
Briefing with elected members	02/2021 - 06/2023	Not Available	Engagement with Angus Council Elected Members throughout the design development phase. Sharing of plans for the street trial and updates as the project progresses.
Community council meeting	02/2021 - 06/2021	Not Available	Engagement with community council members throughout the design development phase. Shaping of plans for the street trial and updates as the project progresses.
Meetings with emergency services	04/2021 - 04/2023	Not Available	Regular meetings with representatives of Police, Fire, Ambulance Services and the RNLI prior to Street Trial and during scheme progression.
Active Travel Festival booking form survey	05/2021	64	Questions regarding the project included on the Active Travel Festival booking form for completion by the public.
Consultation with local businesses	06/2021 - 07/2021	Not Available	Letters delivered to local businesses near the affected route. Opportunity for questions relating to the project and street trial, and feedback following street trial.
Drop-in sessions at Harbour Visitor Centre	06/2021	61	Drop-in sessions with 3D models of the project and display boards.
Drop-in sessions at Abbeygate Shopping Centre	06/2021 - 12/2021	550	Project officers together with Sustrans and designers at Arcadis available to answer questions. 3D models of the scheme displayed, and landscape proposals shared with a survey issued for landscape priorities.
Active Travel Festival	06/2021	Not Available	Engagement with members of the public and feedback opportunities.
Street Trial & survey	06/2021	298	Online Street Trial feedback survey.
Route-user intercept surveys	06/2021	49	2 survey days through the week, 1 weekend day.
EQIA workshops	10/2021 - 04/2023	Not Available	Feedback sought on proposals, opportunity for comments and suggestions to be incorporated into scheme.

Activity	Dates	No. individuals engaged	Supporting notes
			Represented at the meetings include Angus Disabilities Forum, Arbroath and District Community Council, Angus Alive, RNIB, Sustrans.
Multiple surveys at various locations across town	12/2021 – 02/2022	Not Available	Survey locations include:: <ul style="list-style-type: none"> • Fisheracre West Port & Ladyloan Primary School locations • Kirkton shops and Timmergreens locations • Morrisons, Tesco and Inverbrothock Primary School • Abbeyview Primary School • Brothock Bridge and Morrisons
Workshop with college students – Dundee & Angus College	12/2021	Not Available	Engagement session and workshop with students and lecturers. Plans and proposed layout discussed.
Local schools – workshops and activity days	02/2022 – 03/2022	Not Available	Workshops with local primary and secondary school pupils. Activity day at Warddykes Primary School with 3D models, display boards, feedback forms. Activity day at Ladyloan Primary School, with bike track, bike activities, and engagement with pupils and parents/carers
Dr Bike sessions at Angus Cycle Hub	03/2022	Not Available	Free Dr Bike, bike hire, electric bike trials run by the hub. 3D models, feedback forms and screen showing fly-through video of the designs.
Stakeholders briefing	09/2022 – 02/2023	Not Available	Stakeholders briefing with the advisory board.
Online consultation hub	Continuous	325	The Council's Social Pinpoint website embedded with a virtual consultation hub as the primary source of project information, hosting drawings, FAQs, surveys and interactive mapping.
Concept design survey	Not known	148	51 feedback forms received on the concept design, 97 online survey responses on concept design.
Design development survey	Not known	111	Online survey to residents.

Note: 'Not available' was applied to instances where information was not available from the partner-supplied documents.

Ideally, community engagement information provided by partners would include data on the number and demographics of participants involved in engagement activities. Additionally, community engagement reports should detail how the community’s opinions were considered and influenced the development of the scheme.

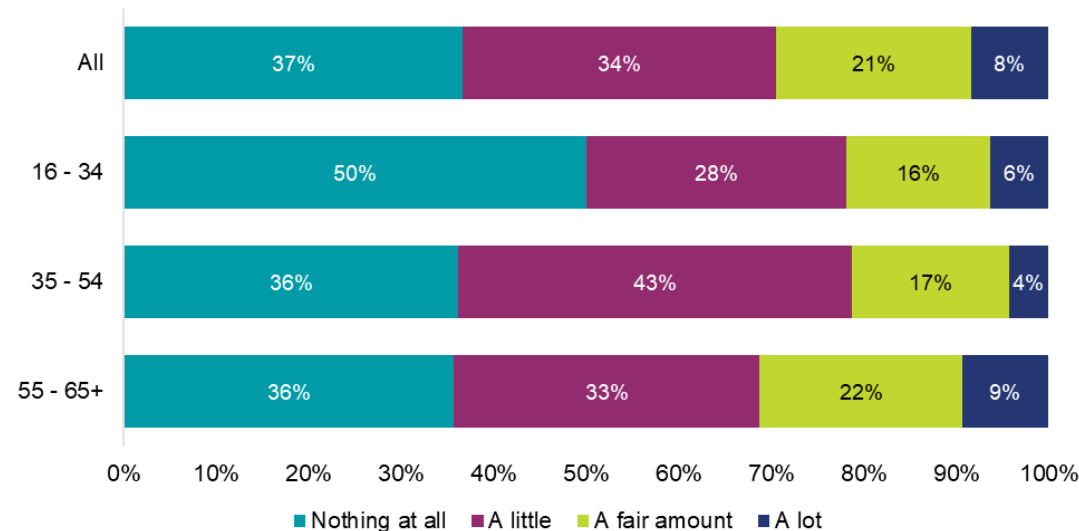
We recommend that other schemes collect these details of engagement and consultation activities along with information about their reach and effectiveness to help understand whether scheme’s impact relates to the quality of community engagement carried out.

Scheme awareness and engagement among residents

To assess the local population’s awareness of the Arbroath – A Place for Everyone scheme, a postal survey was issued to residents asking about their knowledge of the scheme prior to receiving the survey. [Figure 20](#) shows the distribution of responses regarding scheme awareness for all respondents, and by age group.

Over a **third of residents reported being completely unaware of the scheme**. Respondents aged 16 to 34 were less likely to have any awareness, with half knowing nothing at all about the scheme. In contrast, residents **aged 55 and older were most likely to know a fair amount or a lot about the scheme**, although awareness levels remained low, with over two-thirds having little to no awareness of the scheme.

Figure 20: “Before receiving this survey, how much would you say you knew about the "Arbroath, A Place for Everyone" project?”, Postal survey responses by age group

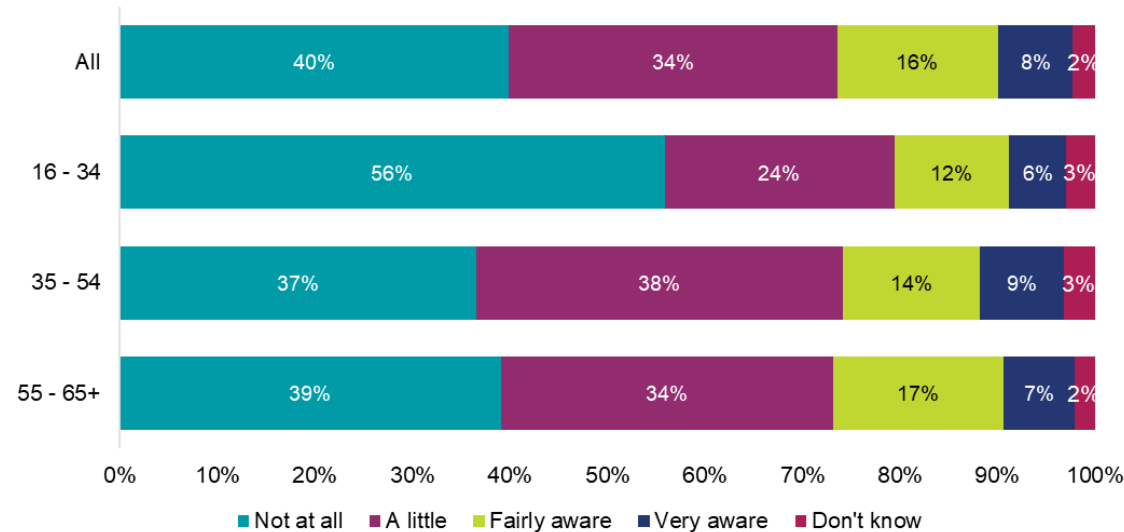


Note: 23 respondents selected either “prefer not to say” to the question asking the age group they belong to or left the question blank. For the total number of respondents per age group, see the [Postal Survey](#) section of the Methodology.

Awareness of community consultation

Alongside scheme awareness, residents were asked about their awareness of community consultation and engagement opportunities centred around the scheme. As shown in [Figure 21](#), **nearly three quarters of residents reported little to no awareness of such opportunities**. Over a half of 16 to 34-year-olds had no awareness of consultation and engagement opportunities.

Figure 21: “How aware have you been of the community consultation and engagement opportunities this project has provided over the last few years?”, Postal survey responses by age group



Note: 23 respondents selected either “prefer not to say” to the question asking the age group they belong to or left the question blank.

Additionally, the postal survey asked whether respondents had participated in a specified list of community consultation or engagement events related to the project. [Table 4](#) shows the number and proportion of respondents who engaged with each event. Just over **1 in 5 respondents had seen promotional material about the project**, while the least common activity was filling in a survey (other than the postal survey used in this report), with approximately 1 in 10 respondents participating.

Table 4: Resident engagement with scheme consultation and engagement activities, Postal survey

Engagement or consultation activity	No. and % of respondents
No engagement with these activities	328 (60%)
Seen promotional material about the project	123 (22%)
Went to the street trial	77 (14%)
Contributed comments or feedback (in person, online or by phone)	60 (11%)
Attended a public consultation or drop-in event (in-person or online e.g. the online hub)	49 (9%)
Spoken to local councillor or other authority about the project	39 (7%)
Filled in a survey (other than this one)	26 (5%)
Total survey respondents	549

Resident perceptions of the scheme

Effective community engagement can build support from residents impacted by a project, helping to foster a positive reception of the scheme within the community. While the postal survey did not specifically request feedback on the community engagement activities, the open-text question seeking opinions on Burnside Drive/Ladyloan provided insight into resident perceptions of the community engagement and the scheme in general.

A major component of the schemes' community engagement and consultation process was the street trial. With the use of temporary barriers and signs along the A92, Angus council implemented a full-scale street trial for four weeks in June 2021. With a car-free cycle lane on either side of the A92 at Ladyloan and Burnside Drive, this allowed travellers to experience the planned changes ahead of construction. Alongside this, the council held a virtual consultation hub and interactive map for pinpoint comments and suggestions from those who participated in the trial. As shown in [Table 4](#), 77 resident survey respondents took part in the Angus Council arranged Street Trial.

10% of the 321 responses to the open-text question seeking opinions on Burnside Drive/Ladyloan mentioned the street trial. Approximately one-third of such comments expressed **concerns about emergency vehicle access and traffic volumes**. Such concerns were also expressed by respondents who did not reference the street trial or engagement activities.

“...Reducing the dual carriageway to single carriageways will cause congestion and pose emergency vehicles a serious problem...”

A 2022 project update report¹¹ prepared by the design consultants for the scheme (Arcadis) stated that the proposed design was adapted to allow space for emergency vehicles to pass between vehicles on either side. The report highlighted consultation with emergency services following the Street Trial, noting the following observations during its operation:

- The Police reported a reduction in speeding on Burnside Drive and Ladyloan.
- Ambulance and Fire Services reported no issues affecting operations.
- The Royal National Lifeboat Institution responded to 4 call outs with no problems reported.

It is therefore anticipated that resident concerns regarding emergency vehicle access along Burnside Drive and Ladyloan would not be reflected in follow-up evaluation of the scheme, following residents experiencing the completed infrastructure firsthand.

Figure 22: Arbroath – A Place for Everyone Street Trial, June/July 2021



¹¹ [Angus Council 10 March - Report No 102 - Arbroath A Place For Everyone - Update and Procurement Authority - Appendix 1](#)

Scheme engagement among disabled people

Alongside this baseline summary report, Sustrans RMU produced a standalone **Accessible design focus group and interview report** for the Arbroath A Place for Everyone scheme. The report presents findings from a series of focus groups and interviews held with disabled people, to capture their experiences of active travel Arbroath. Alongside exploring disabled participants perspectives on Arbroath's active travel infrastructure, the research explored prior knowledge of the Arbroath A Place for Everyone scheme among participants, and level of engagement with its consultation activities. Although only a small proportion of participants had previously heard of the scheme through local news or Facebook, most expressed interest in staying informed about its progress. Further details on scheme engagement can be found in the Accessible design focus group and interview report section titled "Scheme Engagement".

Outcome 3: Quality of place

Quality of the built environment

Air quality

Poor air quality is the largest environmental risk to public health in the UK, with long term exposure to air pollution associated with cardiovascular and respiratory diseases leading to reduced life expectancy¹². A key indicator of air quality is the level of PM₁₀ (particulate matter 10 micrometres or smaller in diameter). These particles are emitted from varying sources including vehicle exhausts, with high levels associated with a range of health issues, including respiratory conditions.

Angus Council has produced air quality reports¹³ that include data for Arbroath. Of relevance to the project area is the gravimetric sampler which has been placed on Burnside Drive to monitor air quality. [Figure 23](#) shows the downwards trend in annual mean PM₁₀ concentrations along Burnside Drive¹⁴ in relation to the air quality limit set out in the UK Air Quality Standards Regulations¹⁵. Although the current PM₁₀ levels are below the air quality limit, the reduction in vehicle traffic due to the development of active travel infrastructure along Burnside Drive is expected to further decrease PM₁₀ levels after the scheme's construction.

¹² Research shows that exposure to air pollution shortens the average person's lifespan by 1.8 years. See [Impact on Life Expectancy | State of Global Air](#).

¹³ For the full list of available Air quality reports provided by Angus Council see [Angus Council | Scottish Air Quality](#)

¹⁴ Obtained from the [2024 Air Quality Annual Progress Report for Angus Council](#).

¹⁵ The UK Air Quality Standards Regulations determines the objective level. This is the target to keep the average concentration of PM₁₀ particles in the air at or below over the course of a year. For more information see [UK Air Quality Limits - Defra, UK](#)

Figure 23: The trend in annual mean PM₁₀ concentrations at Burnside Drive.



Note: Accessed from [2024 Air Quality Annual Progress Report for Angus Council](#) page 20.
The objective is the target to keep the average concentration of PM10 particles in the air at or below over the course of a year.

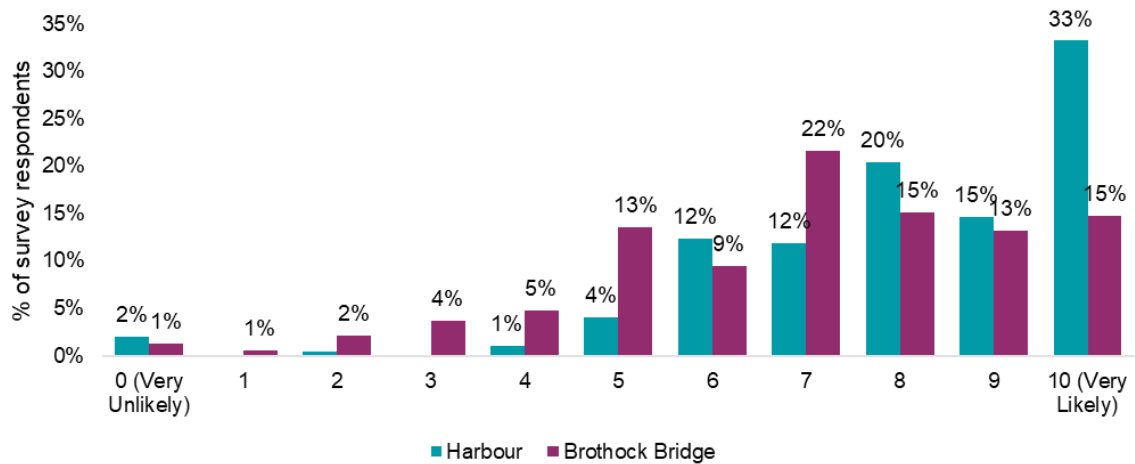
Quality of the built environment: Brothock Bridge and the Harbour

Route recommendation

The route-user intercept surveys (RUIS) conducted at Brothock Bridge and Harbour asked respondents the likelihood that they would recommend the route to a friend, on a scale of 0 (very unlikely) to 10 (very likely). More than twice as many route-users at the **Harbour** location gave the **highest score for the likelihood of recommending the route to a friend**¹⁶ (Figure 24).

¹⁶ See [Supplementary Information](#) within the Appendices for a chart showing the distribution of scores at the Harbour and Brothock Bridge RUIS sites.

Figure 24: “How likely is it that you would recommend this route to a friend?” (Harbour n = 121, Brothock Bridge n = 131)

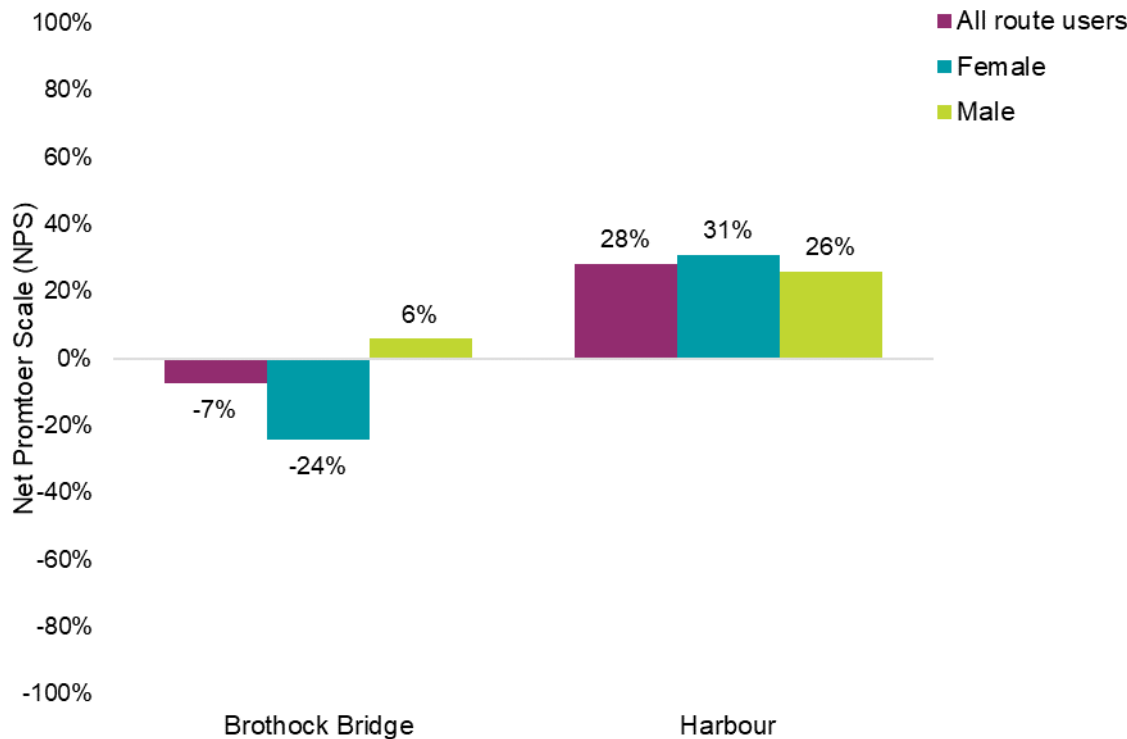


The likelihood ratings are used to calculate the Net Promoter Score (NPS)¹⁷, which is a key indicator of route enjoyment. With an overall **NPS of 28**, the **Harbour route was perceived more favourably by respondents than Brothock Bridge**, which received an **NPS of -7**.

Notable differences in NPS scores were also identified according to gender. **Female respondents were considerably less likely to recommend the route along Brothock Bridge** to a friend than their male counterparts, with an **NPS of -24** versus 6. As shown in [Figure 25](#), such gender differences were less pronounced for respondents at the Harbour route, with female respondents marginally more likely to promote the route (an NPS of 31 compared to 26 for males).

¹⁷ The overall Net Promoter Score is the percentage of route promoters (those who give a score of 9 or 10) minus the percentage of detractors (those who give a score of 0 to 6), giving a score ranging from -100 to +100.

Figure 25: Net Promoter Scale (NPS) scores for all route-users and by gender (RUIS, Brothock Bridge and Harbour)

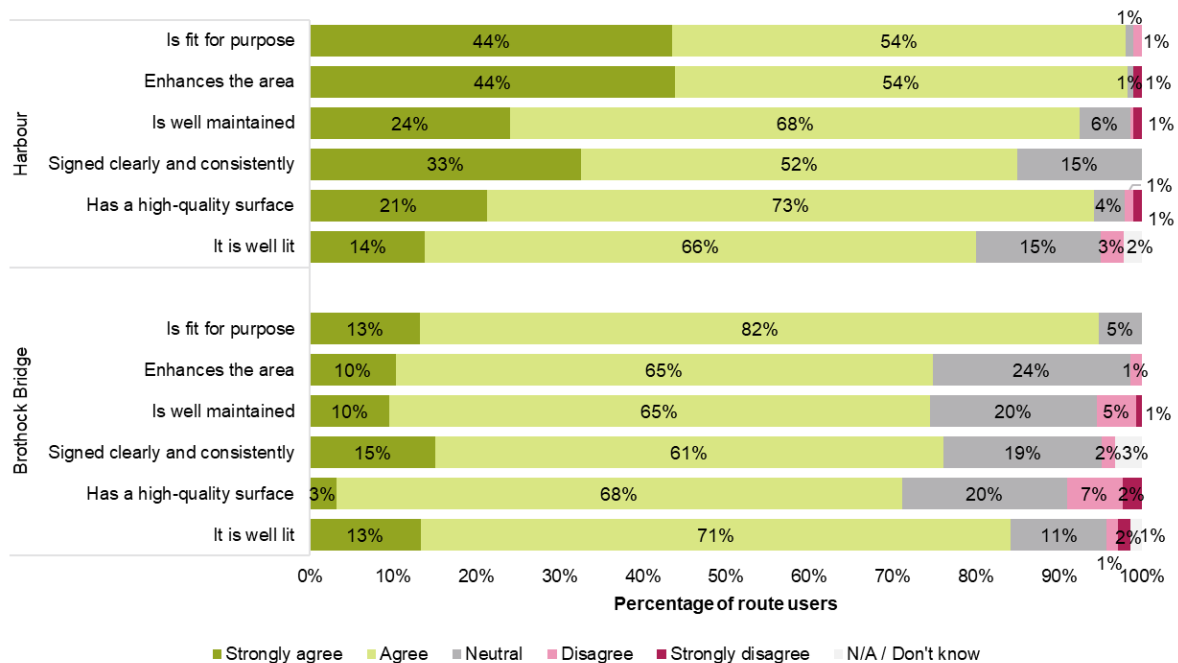


Perceived quality of routes: Harbour and Brothock Bridge

The indicator ‘perceived quality of route’ can be assessed by the extent that route users agree with a range of statements relating to the overall quality of the route environment. [Figure 26](#) shows the distribution of agreement with route quality statements for both the Harbour and Brothock Bridge locations, revealing that route-users largely hold positive perceptions of the routes across both locations.

As with the Net Promoter Scale, respondents along the Harbour route were generally more positive about route quality than respondents in Brothock Bridge ([Figure 26](#)). While **98% of respondents at the Harbour location agreed that the route enhances the area**, this contrasts with the **75% of respondents at the Brothock Bridge location** who agreed. While this may be attributed to the pleasant nature of a sea-front location, respondents at Brothock Bridge were also less likely to agree that the route had a high-quality surface (71% vs 94%) and is well-maintained (75% vs 92%).

Figure 26: “How much do you agree or disagree with the following statements about the route?”, RUIS (Brothock Bridge n=131, Harbour n=121)



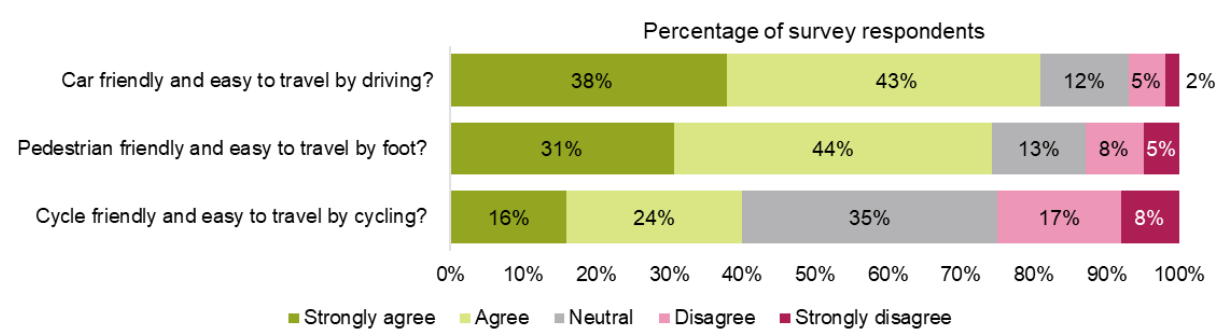
Quality of the built environment: Burnside Drive/Ladyloan

The most substantial element of the scheme is the planned conversion of the A92 dual-carriageway along Burnside Drive and Ladyloan to a 1.5km single-carriage way and active travel corridor. Because of this, baseline monitoring placed particular emphasis on understanding pre-construction experiences of active travel along this route.

Resident perception of suitability of Burnside Drive/Ladyloan for active travel

In a postal survey issued to Arbroath residents, locals were asked to what extent they agreed that Burnside Drive/Ladyloan is suitable for journeys made by driving, walking, or cycling. As shown in [Figure 27](#), residents found travel by car to be the easiest mode for travelling on Burnside Drive/Ladyloan, **with 81% of residents agreeing or strongly agreeing that the journey is car friendly**. In contrast, a **quarter of respondents disagreed or strongly disagreed that the route is cyclist-friendly**, while 35% were neutral.

Figure 27: “Do you agree that Burnside Drive/Ladyloan is currently”, Postal survey



Survey respondents were invited to share any additional thoughts or opinions on travelling through Burnside Drive/Ladyloan. Analysis of these free-text responses revealed that while **13%** of the comments **expressed a sentiment that the route is fine** as it is, **38%** of respondents who provided comment **expressed a negative perception of travelling through this area**. Comments concerned **quality of pavements**, the **busy nature** of the dual carriageway with **fast moving traffic**, and **safety concerns** for pedestrians and cyclists.

“...having two lanes along Ladyloan/Burnside Drive encourages drivers to exceed the speed limit and speed up to beat the traffic light sequencing.

Postal survey respondent

“This route is too busy with traffic for me to feel as confident to cycle as I do on other roads through Arbroath. I always avoid cycling here.”

Postal survey respondent

“This roadway is suitable for all traffic and walkers either by foot or wheelchair.”

Postal survey respondent

Perceptions of active travel route quality

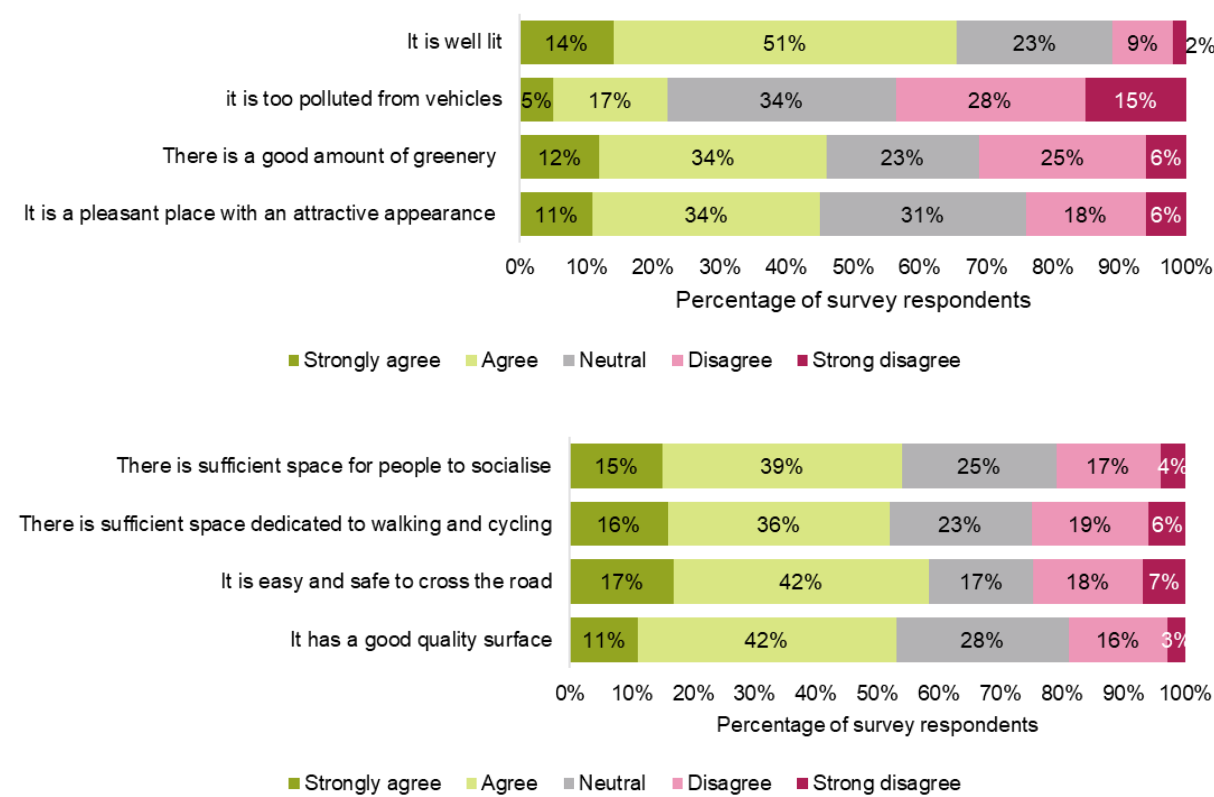
The quality of active travel infrastructure features along Burnside Drive/Ladyloan can also be assessed through resident agreement with the route quality statements (Figure 28). Reflecting the perception summarised earlier that the route is more ‘car friendly’ than ‘pedestrian friendly’ or ‘cyclist friendly’, a **quarter of respondents disagree that there is sufficient space for walking and cycling**, and that it is **easy to cross the road**¹⁸. Nearly a

¹⁸ For further insight into resident perceptions of crossing the road along Burnside Drive/Ladyloan see the section Perceptions of pedestrian priority.

third of respondents disagreed that there is a good level of greenery along this route, with around a quarter disagreeing that the space is pleasant and attractive.

Agreement with route quality statements for Burnside Drive/Ladyloan were generally lower among residents compared to the route user intercept surveys conducted at the Brothock Bridge and Harbour locations. Notably, while **65% of resident respondents agreed or strongly agreed that the route along Burnside Drive/Ladyloan is well-lit**, this is considerably lower compared to the 80% and 84% agreement observed among route users at [Harbour and Brothock Bridge](#).

Figure 28: “How would you currently rate the route along Burnside Drive/Ladyloan in terms of the following” (route quality statements), Postal survey (n=549)



The lower agreement ratings for Burnside Drive and Ladyloan can partly be attributed to route-users viewing their journeys more favourably than residents who may not use the route, possibly due to such negative perceptions. However, residents' comments provide additional insight into these lower ratings. Comments regarding route quality included specific issues such as **lack of lighting**, **uneven surfaces**, and **pavement width**. Several respondents expressed broader discontent with the dual carriageway of Burnside Drive **splitting the town into two**, and its overall impact on the town.

“It could be made much nicer, I walk to the bus station to go to work in the dark and the car park outside the Abbeygate has absolutely no lighting and uneven path/roads, it is very unsafe.”

Postal survey respondent

“As a wheelchair user, the current uneven surface of the pavement is quite inadequate. In my opinion, the paving slabs should be replaced with a smoother surface.”

Postal survey respondent

“I think the road and the area are extremely unattractive, it cuts the town in two.”

Postal survey respondent

“The dual carriageway should never have been built where it is. It has just cut the town in half then called it a “ring road”. It cost a fortune and ruined the entrance to Arbroath and taken away the full character of the town.

Postal survey respondent

Use and enjoyment of the built environment

Use of public space: Brothock Bridge

One focus of the scheme is to enhance enjoyment and usage of public space in Arbroath, specifically the public square on Brothock Bridge. To assess current use of this area, the Stationary Activity Count tool – developed by Sustrans RMU to measure changes in public life – was employed. This tool was used to give quantifiable insights into how people in Arbroath use and engage with the square. Across a four-day period in August 2022 which included 2 weekend days and 2 weekdays, video footage of Brothock Bridge was recorded over four-hours per day (16 hours total recording period) to analyse stationary activities, or “dwelling” within the square. People were regarded as dwelling if they stopped to stay still for any moment of time. Individuals who were not dwelling within, but merely passing through, the area were excluded from the analysis. Examples of activities recorded were waiting or

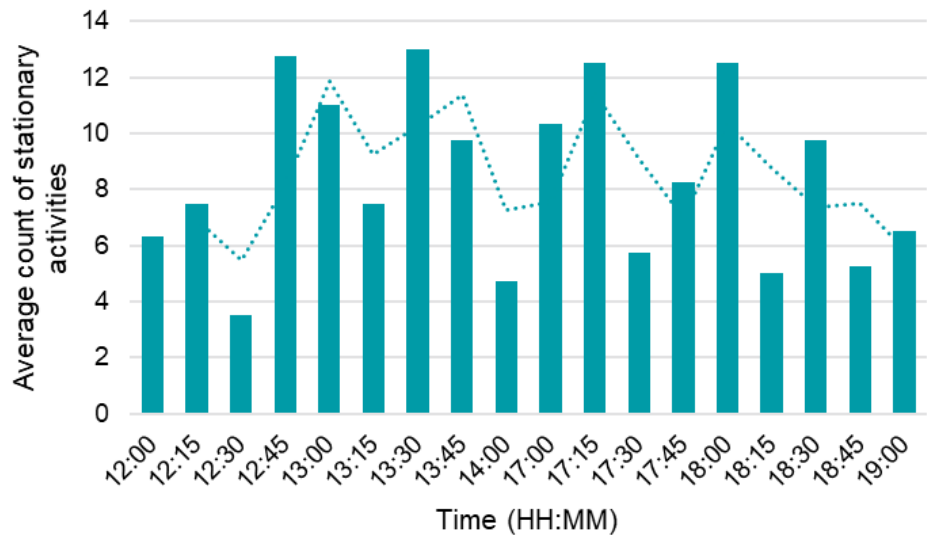
resting, eating or drinking, or talking to someone. The [Methodology](#) section provides further details on this monitoring tool.

Figure 29: Brothock Bridge, a public square for residents in Arbroath.



Across the entire recording period, **591 people were recorded conducting some form of stationary activity at Brothock Bridge**. While fluctuating throughout the day, the peak times for people using the square for a 'stationary activity' were at lunchtime and evening rush hour ([Figure 30](#)). On average, 13 people were dwelling within this space at these times, as counted over a 15-minute interval. While more activity was typically recorded over the weekend periods, it is noted that a local music festival held over the weekend period likely skewed these results.

Figure 30: The four-day average number of stationary activities occurring across the survey period, at 15-minute intervals



Further analysis explored the range (type), number, and duration of stationary activities observed across the survey period. As shown in [Table 5](#), the activities “**talking to someone**” and “**waiting or resting**” accounted for over **71% of all stationary activities** observed within this area. These activities were relatively brief, with **an average duration of under one-to-two minutes**. This suggests that Brothock Bridge at present offers limited scope for encouraging more leisurely activities of longer duration, such as eating/drinking, playing, or relaxing.

Table 5: Count and average duration (seconds) of stationary activity type conducted at Brothock Bridge, by zone

Activity type	Count of activity (number of people performing activity)	Percentage of activity type (%)	Average duration of activity (seconds per person)
Eating/ drinking	8	1.4%	301
Recreation/ leisure	56	9.5%	234
Talking to someone	196	33.2%	116
Waiting or resting	225	38.1%	59

Other	106	17.9%	57
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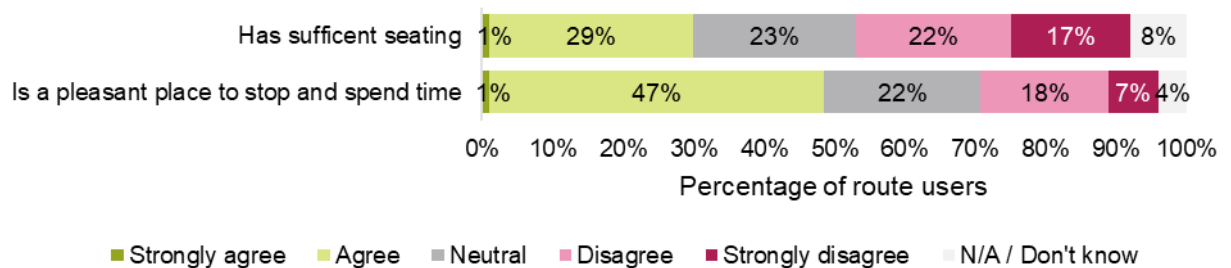
Note: "Other" includes dog walking, talking on the phone, loading/unloading a vehicle. "Recreation" includes leisure activities such as playing, reading, and doing exercise.

Figure 31 provides the average time individuals spent conducting stationary activities within specific zones of Brothock Bridge. **The longest duration – an average of 270 seconds – was recorded at the wall surrounding the grassy area.** This suggests a need for additional furniture to create a more comfortable space for dwelling in this area. This is further supported by responses to the RUIS statements for Brothock Bridge (Figure 32), where only **48% of route-users agreed that Brothock Bridge is a pleasant place to spend time**, and nearly **40% felt that the area did not have sufficient seating**. The scheme's proposed improvements of enhancing the area through the addition of planting and seating is likely to encourage a greater range and duration of stationary activity in this area.

Figure 31: Average time (seconds) spent conducting stationary activity by zone, Brothock Bridge



Figure 32: “How much do you agree or disagree with the following statements about the public square on Brothock Bridge (in front of church building and bank), RUIS (n=131)



Perceived quality of the built environment among disabled people

The standalone **Accessible design focus group and interview report** presents findings from a series of focus groups and interviews held with disabled people to explore perceptions among disabled people of the built environment in Arbroath. This includes access to facilities and services, presence of greenery and planting, and specific discussions about a public square in Arbroath, Brothock Bridge.

Participants highlighted a lack of seating, shelter, toilets, and water foundations, noting that proximity to such facilities can considerably enhance the attractiveness and accessibility of Arbroath's public spaces for disabled people. Brothock Bridge was regarded as a local sunspot with greenspace, emphasising its potential as a space for dwelling with the addition of attractive planting. However, participants, consistently noted that additional seating in this area is needed to make it more accessible for disabled individuals. Further details about the built environment are discussed in the report chapter titled “Quality of public realm”.

Perceptions of safety

To better understand people's sense of safety while travelling actively through Arbroath, route-users and residents were asked about their general perceptions of both personal safety and road safety when moving through the town.

Perceptions of safety along Burnside Drive/Ladyloan

About **one in six residents reported feeling unsafe walking, wheeling, or cycling along this route due to motor traffic** (Figure 33). Even more respondents felt unsafe during nighttime travel, with approximately one in five respondents feeling unsafe traveling after dark. Notably, gender differences emerged in these perceptions, with **25% of female respondents feeling unsafe at night** compared to 14% of male respondents (Figure 34).

Figure 33: When walking/cycling/wheeling along the route of Burnside Drive / Ladyloan how safe do you feel with regards to the following (Postal survey)

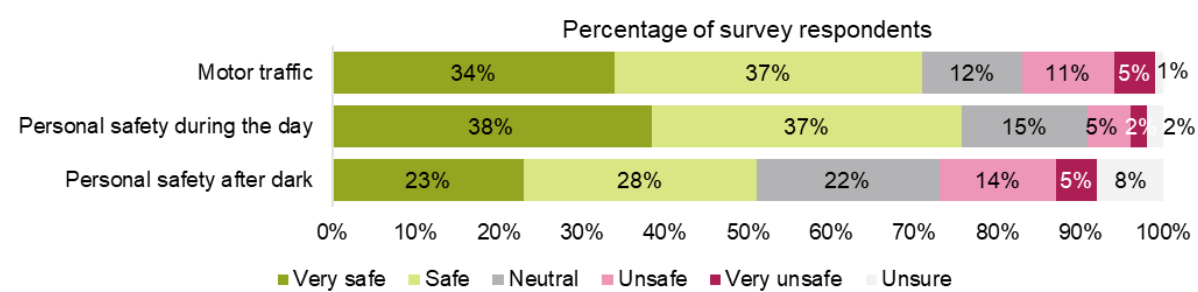
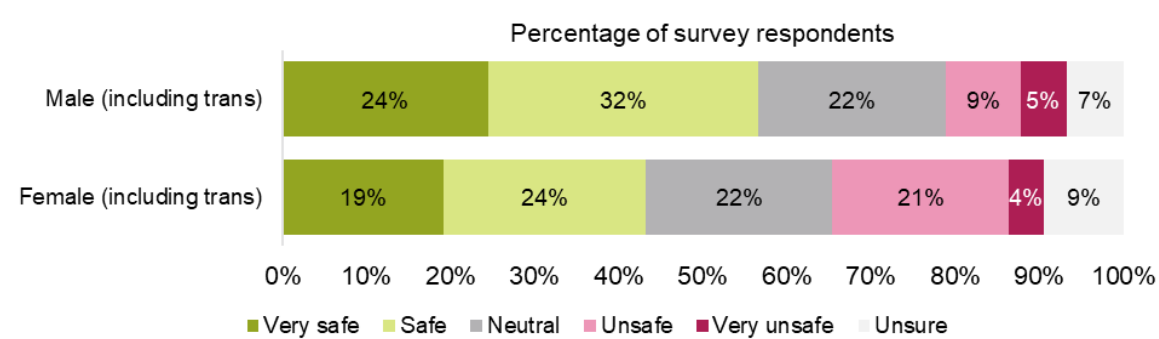


Figure 34: Gender breakdown of perceptions of personal safety after dark (Postal survey)



Note: 19 respondents answered I 'prefer not to say' and 'non-binary' or 'I identify in another way' responses.

The free-text responses to the postal survey on general thoughts and feelings about Burnside Drive/Ladyloan offers additional context to safety concerns. Numerous respondents expressed unease due to the **busyness and speed of vehicle traffic along this route**, with some respondents attributing this directly to the nature of the dual carriageway. With the scheme's reallocation of Burnside Drive's two-lanes to a single carriageway and designated active travel route, we would expect to see substantial improvements in resident safety perceptions of this area.

“Burnside Drive /Ladyloan in its current configuration encourages fast driving and often reckless driving and would be much better served by single carriageway in each direction.”

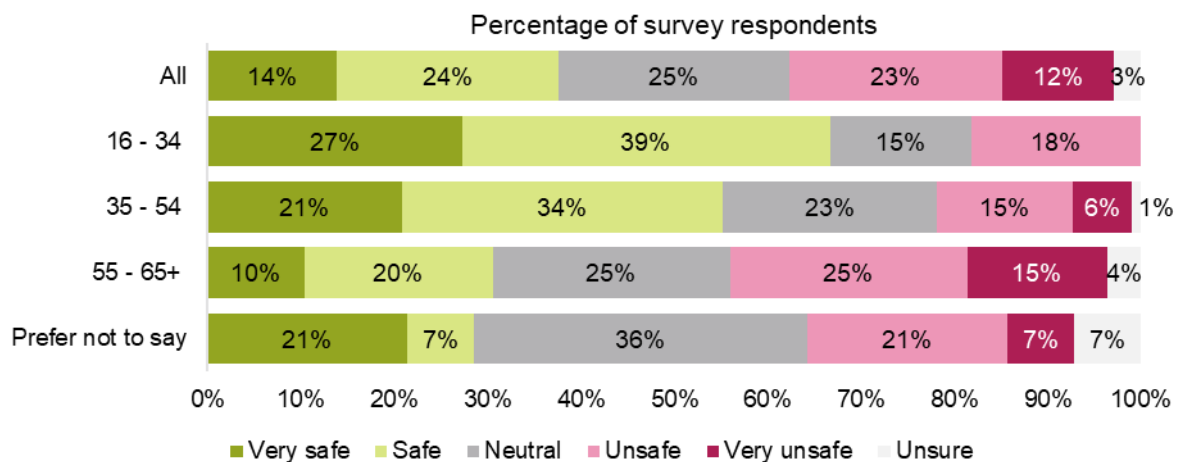
Postal survey respondent

“This route is too busy with traffic for me to feel as confident to cycle as I do on other roads through Arbroath. I always avoid cycling here.”

Postal survey respondent

Only **38%** of postal survey respondents reported feeling **safe from cyclists on the pavement** while walking along Burnside Drive/Ladyloan. Respondents aged 55 and older feel particularly unsafe due to the presence of cyclists, with 40% expressing that they feel unsafe or very unsafe (Figure 35). This highlights the need for segregated active travel facilities along this route. The planned construction of a designated cycle and pedestrian path along Burnside Drive as part of the scheme is expected to notably improve these safety perceptions.

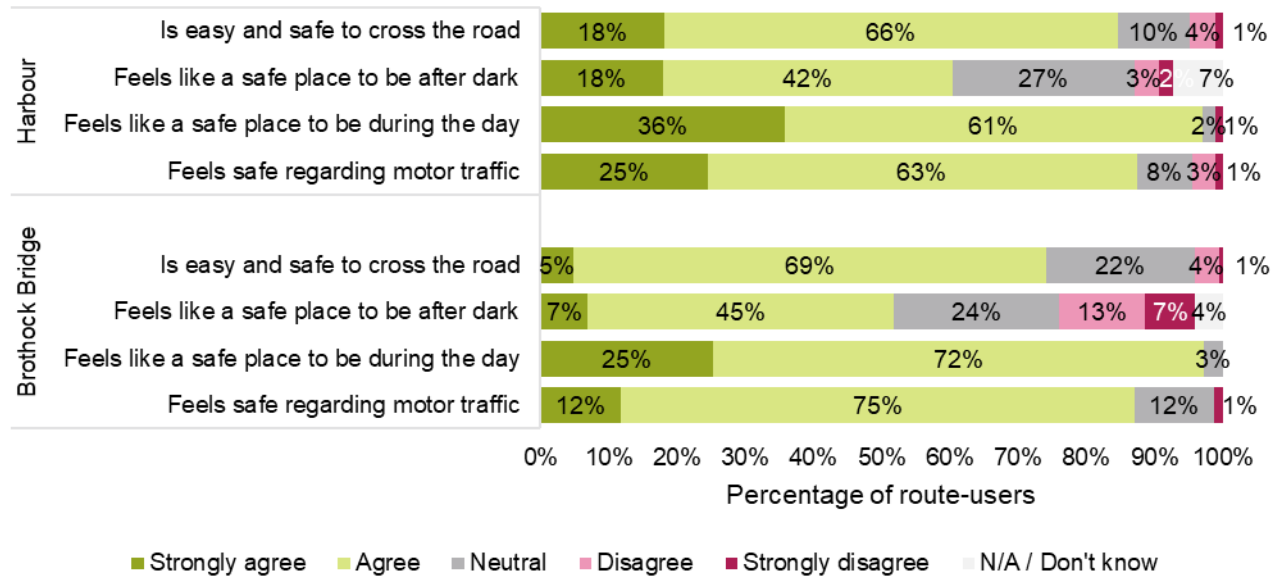
Figure 35: “When walking along the route of Burnside Drive/Ladyloan how safe do you feel from cyclists on the pavement?” by age group, Postal survey



Route-user perceptions of safety at the Harbour and Brothock Bridge

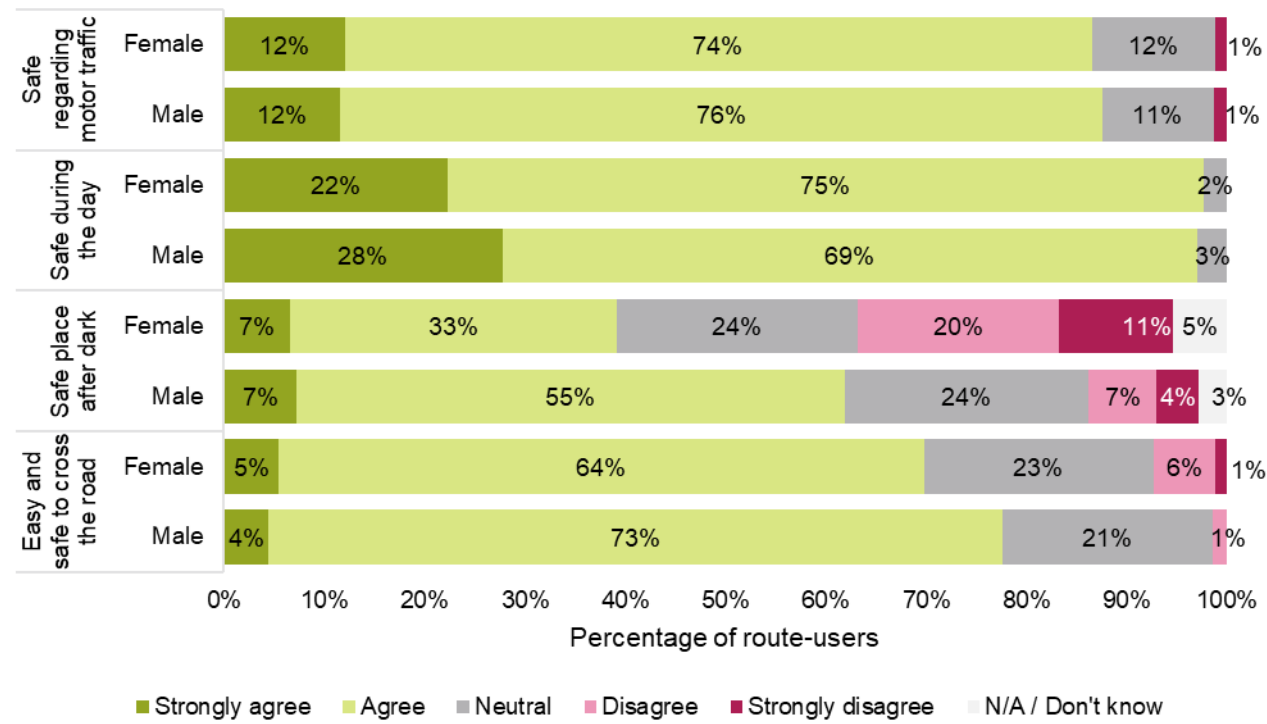
Figure 36 presents the distribution of agreement with safety statements among route-users at the Harbour and Brothock Bridge. As with residents' perceptions along Burnside Drive, **route-users felt most unsafe in these areas after dark**. However, in contrast to the Burnside Drive postal survey responses, **route-users reported feeling safer regarding vehicle traffic**, with **88%** and **87%** of Harbour and Brothock Bridge users respectively agreeing that they feel safe, compared to 71% of residents regarding Burnside Drive/Ladyloan. While this suggests notable differences in perceived safety across these locations, it may also reflect differences between route-users and non-route-users who participated in the surveys, as individuals who use the route are more likely to perceive it safer than those who do not.

Figure 36: “How much do you agree or disagree with the following statements about the route?”, RUIS (Harbour, Brothock Bridge)



Gender differences in safety perceptions are highlighted at Brothock Bridge. These results offer insight into why [route enjoyment](#) differs by gender at this location. [Figure 37](#) shows the distribution of agreement with route safety statements by gender for Brothock Bridge. Most notably, **62% of male respondents agreed that the route along Brothock Bridge was safe after dark, compared to 40% of female respondents**, with nearly a third of female route-users disagreeing or strongly disagreeing.

Figure 37: Agreement with safety related route quality statements by gender (RUIS, Brothock Bridge)



Perceptions of safety among disabled people

The **Accessible design focus group and interview report** explored findings from a series of focus groups and interviews held with disabled people to explore perceptions of safety among disabled people when actively travelling in Arbroath. Due to its significance for active travel, the topic of safety was interwoven throughout much of the discussion with participants and therefore spans numerous sections of the report.

Discussions with participants revealed notable safety concerns due to the lack of segregation and speed of vehicle traffic along Burnside Drive and Ladyloan. Many participants felt there are insufficient controlled crossings on Burnside Drive, with several expressing worries about safely crossing the four lanes of traffic within the crossing window. The speed of traffic on the dual carriageway exacerbates these concerns. In some cases, the perceived danger was significant enough that participants chose to avoid this route altogether. More detailed findings on safety perceptions can be found in the chapters “Accessibility and barriers to active travel” and “Vehicle dominance”.

Outcome 4: Dedicated space for active travel

Vehicle dominance

Volume and speed of vehicle traffic along the A92

Bidirectional traffic speed and volume data was obtained along the A92 over a seven-day period in 2022, at Burnside Drive and Ladyloan (Figure 38). Such data can reveal how dominated the area is by motor traffic. Figure 39 shows weekday and weekend averages of the speed and volume of traffic on an hourly basis for both locations.

Traffic levels were slightly higher at **Ladyloan** compared to Burnside Drive, with **peak vehicle traffic of over 1,000 vehicles** at weekday evening rush hour¹⁹, and an average speed still above the 30mph speed limit, at 32 mph. In contrast the **peak weekday traffic for Burnside Drive** was **985 vehicles, with an average speed of 23mph**.

While both directions of the A92 at Ladyloan experienced similar average traffic speed and volume, southbound of the Burnside Drive location experienced substantially more vehicle traffic than its northbound direction. Accounting for 71% of the total vehicles passing this location, the weekday average at rush hour for the southbound direction was **699 vehicles at 4pm, compared to 286 vehicles northbound**.

Traffic speed data for these sites indicate **higher rates of vehicles exceeding the 30mph speed limit at Ladyloan compared to Burnside Drive**. 59,500 vehicles (**72% of traffic**) at the Ladyloan survey site exceeded the 30mph speed limit across the 7- day survey period. 4% of this traffic was recorded as passing the survey site at least 10mph above the speed limit. This contrasts with the Burnside Drive location, where 6,900 or 9% of vehicles exceeded the 30mph speed limit.

The analysis of speed categories shown in Figure 40, along with traffic volume data, indicates that lower speeds at Burnside Drive can be attributed to higher levels of traffic congestion travelling northbound. Notably, 20% of vehicles passing this site drove between 5mph to 15mph, compared to less than 1% of vehicles at Ladyloan.

The construction of a bi-directional active travel route along Burnside Drive as part of the Arbroath A Place for Everyone scheme is expected to reduce vehicle dominance in this area, with lower volumes of traffic anticipated. Additionally, the reduction of the A92 to a single carriageway is anticipated to reduce overall traffic speeds and rates of vehicles exceeding the speed limit at both Burnside Drive and Ladyloan.

¹⁹ The combined weekday average number of vehicles across both directions of Ladyloan, between 4pm and 5pm.

Figure 38: Traffic Speed Volume survey locations at Burnside Drive and Ladyloan.

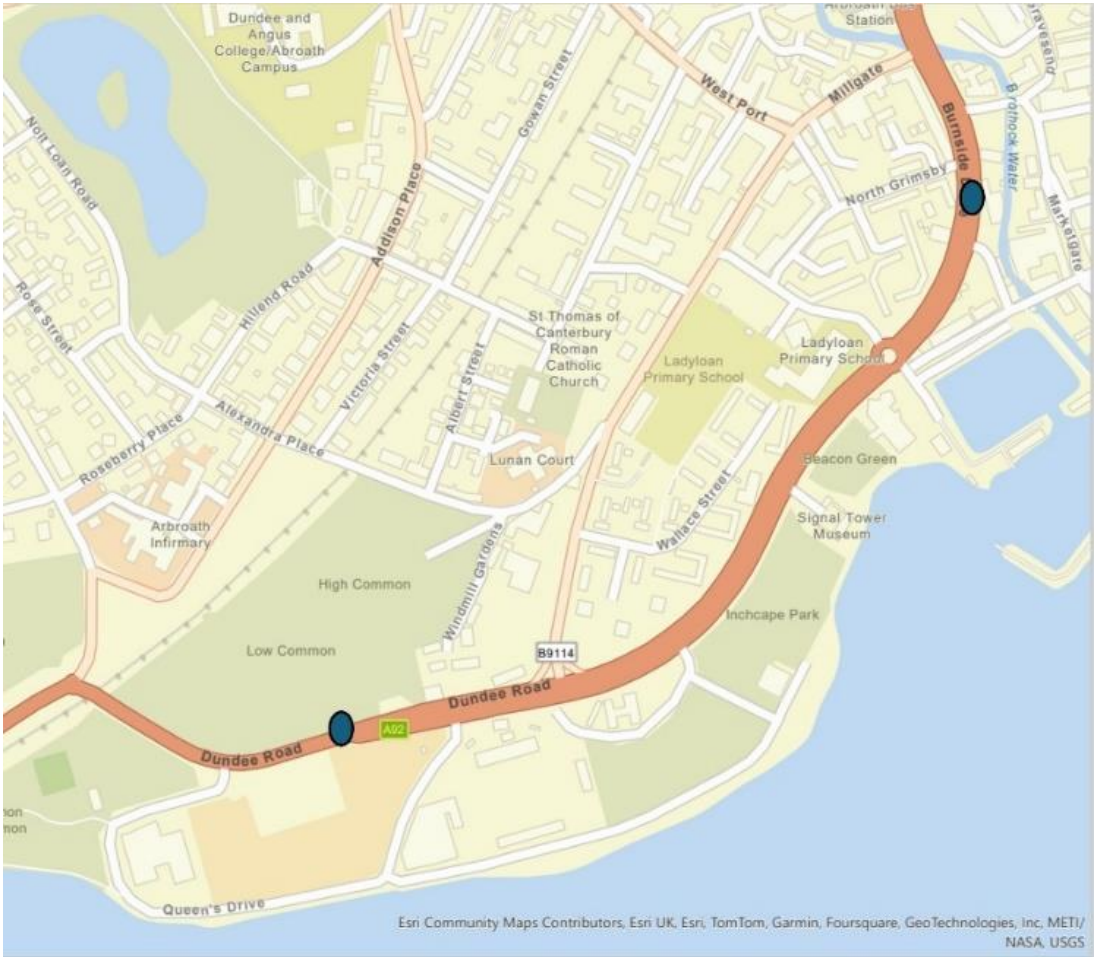
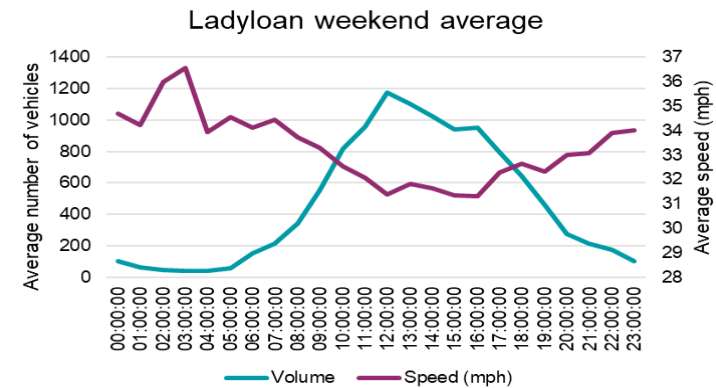
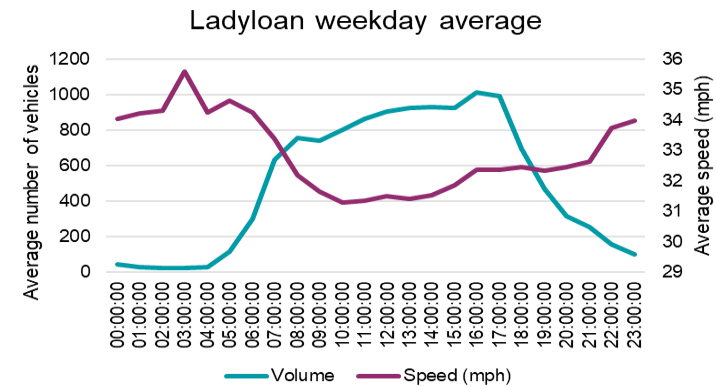
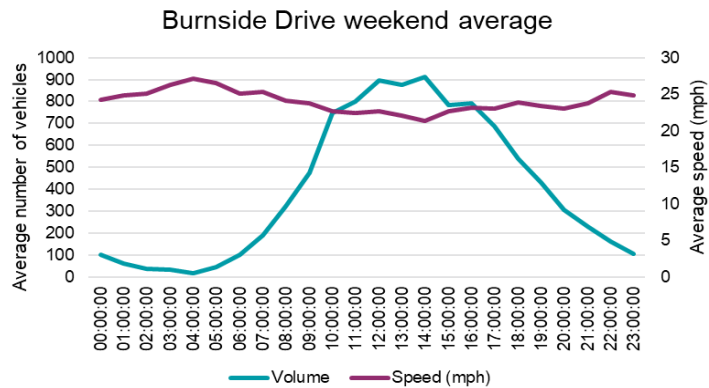
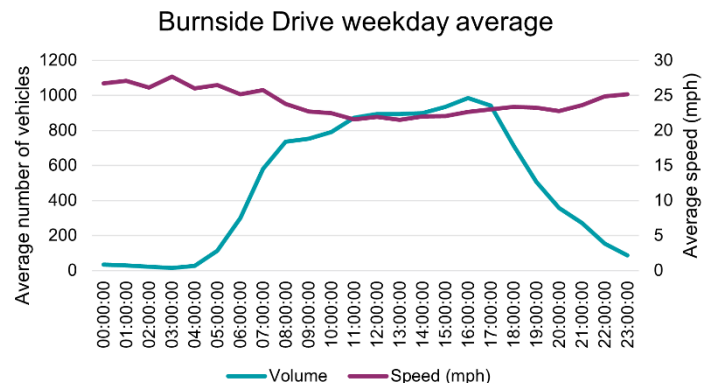
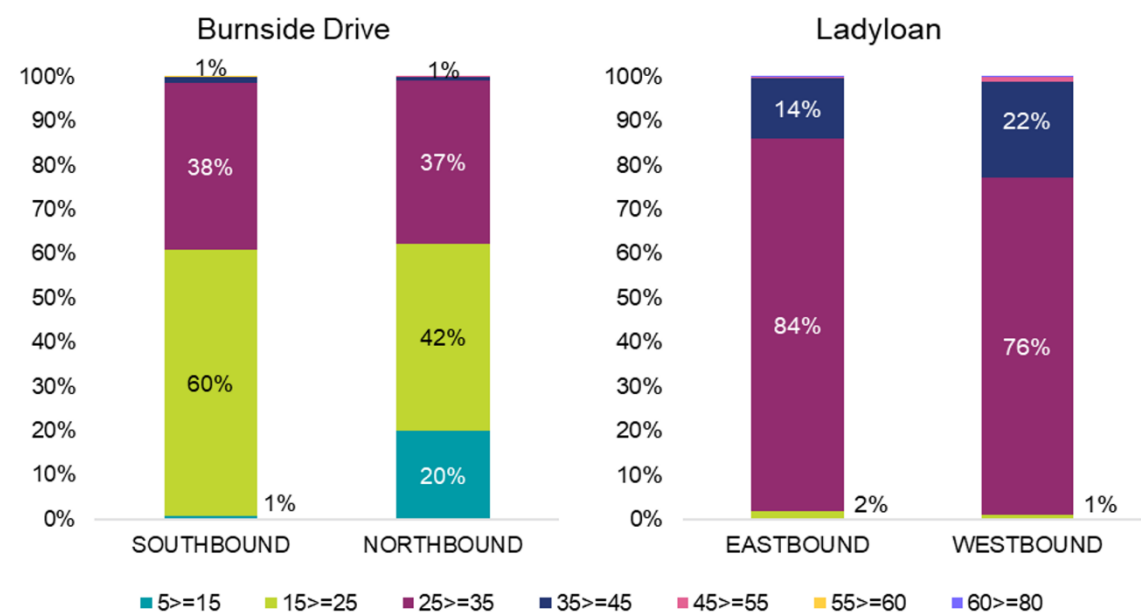


Figure 39: Average speed and traffic volume on Burnside Drive and Ladyloan by time of day, over a 5-day weekday period and 2-day weekend period



Note: A seven-day combined average was produced for both directions of traffic at each location. Eastbound and Westbound for Ladyloan, and Northbound and Southbound for Burnside Drive.

Figure 40: The percentage of vehicles passing the Burnside Drive and Ladyloan survey sites by speed categories, for each direction of the A92, across the 7-day survey period



Priority for active travellers

Crossing behaviour among active travellers at Burnside Drive

Video footage was collected at a crossing outside the Morrisons superstore at Burnside Drive (see [Figure 41](#)), to analyse pedestrian crossing behaviour. High levels of pedestrian priority, use of informal crossing locations, low wait times and a slow speed used to cross the road may indicate that pedestrians consider the section safer and amenable for walking or wheeling.

Data was collected over a seven-day period in 2022. [Table 6](#) summarises the average number of crossings made at the location daily. The analysis suggests that the west location is slightly more amenable for crossing, marginally accounting for lower wait times and longer crossing times per day. In addition, 50% of crossings by pedestrians at the west site used informal crossing routes, compared to 43% at the east site.

Figure 41: Site locations for the video crossing analysis

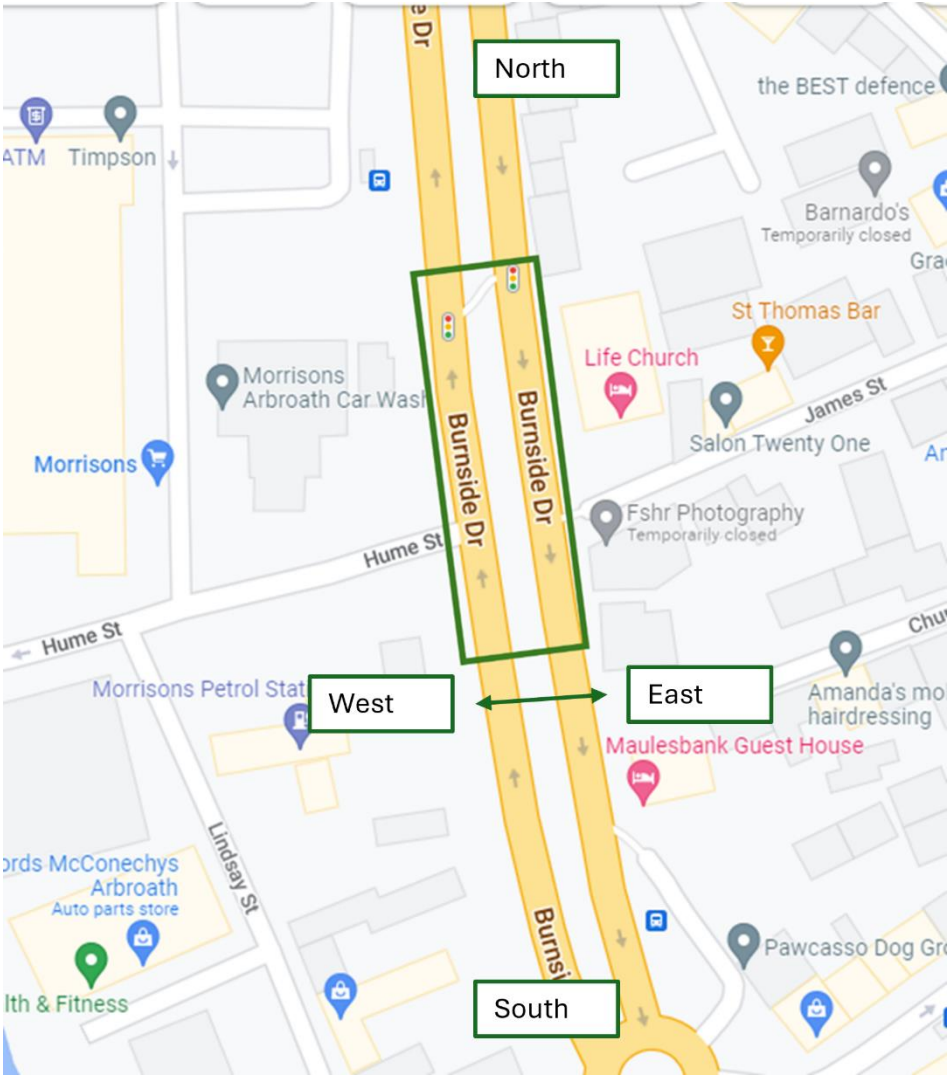


Table 6: Video analysis of crossings by active travellers at Burnside Drive (Morrisons), summary of number of crossings, average wait and crossing time

	Total (East and West bound)	Eastbound	Westbound
Average number of crossings per day	199	93	106
Mean crossing time (seconds)	21	20	23
Mean wait time (seconds)	4	5	3

Table 7 summarises the proportion of active travellers crossing the site by mode of travel. While most of those crossing at both locations were pedestrians (91%), cyclists riding with a bike accounted for 4% of crossings. A small number of wheelchair users were observed crossing the site, accounting for 3 out of the 1,391 individuals over the 7-day period. While a lower proportion of wheelchair users is to be expected, the disproportionately low number of people crossing in a wheelchair highlight a potential lack of accessibility for crossing at this location. Planned improvements under the Arbroath A Place for Everyone scheme include converting the nearby Guthrie Port roundabout to a form of traffic signals with controlled crossings for pedestrians and cyclists. This seeks to enhance the accessibility of crossings for wheelchair users in this specific location.

Table 7: Proportion of active travellers crossing the Morrisons site at Burnside Drive by mode of travel, at both directions

Active travel mode	Overall %	Eastbound %	Westbound %
Pedestrians	91%	92%	90%
Cyclist riding bicycle	4%	3%	5%
Others (Pushchair)	3%	3%	2%
Others (Mobility Scooter)	1%	1%	1%
Pedestrian with aid	1%	1%	1%
Pedestrian pushing bicycle	0%	0%	1%
Wheelchair	0%	0%	0%

Others (E-Scooter)	0%	0%	0%
Pedestrians with aid	0%	0%	0%

Note: A total of 1391 individuals were observed crossing the site at both directions, across the 7-day survey period.

Perceptions of priority among residents

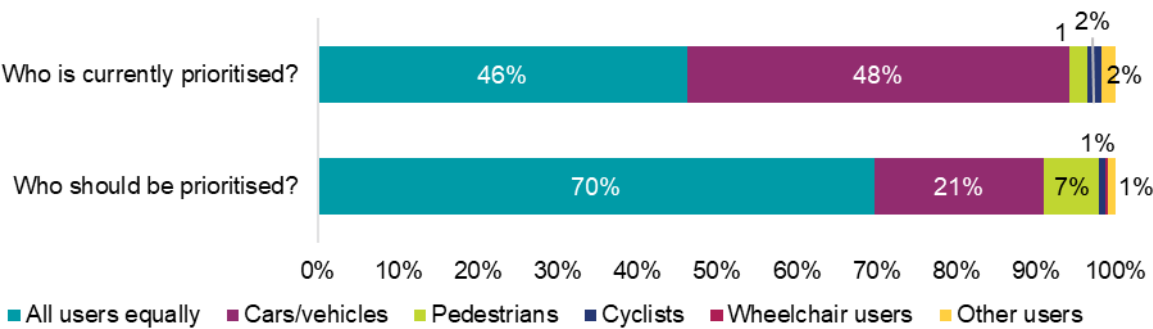
To understand local perceptions of priority along the A92, the postal survey asked residents who they feel is *currently* prioritised, and who they feel *should be* prioritised along Burnside Drive/Ladyloan. As shown in Figure 42, nearly **half the respondents perceived that vehicles were prioritised** along Burnside Drive/Ladyloan, while the other half largely perceived that all users were prioritised. 7 in 10 respondents however, felt that all users should equally receive priority along this route.

Analysis of the open-text responses revealed concerns with a lack of controlled crossing points along this route. Further information on resident perception of active travel features along this route is in the section [Perceptions of active travel route quality](#).

“Very difficult to cycle, especially from Carnie Road/ roundabout exit. Pedestrian crossing all down the road via desire lines rather than designated crossings, more of a nuisance to walk to get to destinations”

Postal survey respondent

Figure 42: “Who do you feel is currently / should be prioritised along Burnside Drive/Ladyloan? (Postal survey)



Perceptions of vehicle dominance and priority among disabled people

The **Accessible design focus group and interview report** explored findings from a series of focus groups and interviews held with disabled people to explore perceptions of vehicle dominance among disabled people in Arbroath. This largely encompassed perceptions of

proximity to traffic and the speed of vehicles along Burnside Drive/Ladyloan and the surrounding areas, and experiences with crossing the road.

Throughout the discussions, participants expressed concerns about the high speed and proximity of vehicles along Burnside Drive, attributing these to the nature of the dual carriageway. While the guard rails along the route provide some reassurance by providing separation from traffic, participants felt that increasing the distance from traffic would further enhance safety, especially for wheelchair users. More detailed findings on vehicle dominance can be found in the report chapter “Vehicle dominance”, and in the “Crossings” section of the chapter titled “Accessibility and barriers to active travel”.

Outcome 5: Accessibility and active travel

Accessibility for disabled people

Active travellers with a disability/long-term health condition

Based on manual counts, it's estimated that there are **7,600 wheelchair users annually at Brothock Bridge**, and **2,000 at the Harbour** location, each representing **1% of the total annual route users** at their respective locations. At Brothock Bridge, 2% of all route users, estimated at 11,1000 annual trips, walk with an aid. This is a slightly higher proportion compared to those walking with an aid at the Harbour location, which comprises 1% of route users.

At both the **Brothock Bridge** and **Harbour** locations, **10% of route users surveyed self-identified as having a long-term health condition or disability**²⁰. In contrast, census data indicates that 22% of people living in the postal area have a long-term health problem or disability²¹. This suggests that individuals with long-term health issues and disabilities are underrepresented on these routes.

The postal survey asked residents if they have a long-term health problem or disability (see [Methodology section](#)), enabling the disaggregation of reported active travel along Burnside Drive/Ladyloan by disability. [Figure 43](#) shows the frequency of active travel along Burnside Drive/Ladyloan among respondents, for those with or without a long term-health condition or disability.

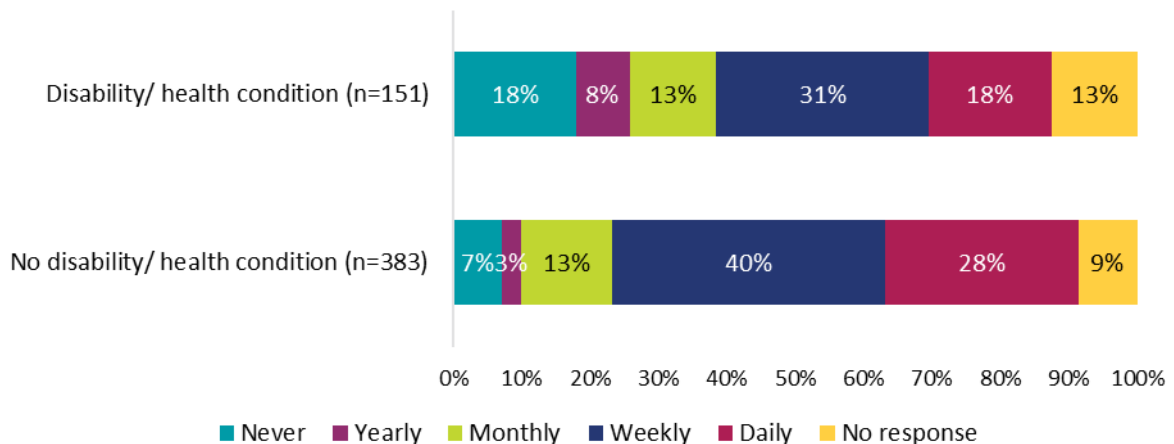
²⁰ Respondents were identified as having a disability/ long-term health condition if reported to having a health condition/ disability expected to last 12 months or more, which reduces their ability to carry out day to day activities.

²¹ Comparability between the RUIS questionnaire and the Scottish Census definition of a disability or long-term health problem allows for comparison against 2011 Scottish census data for this postal area.

49% of respondents with a disability/long-term health condition travelled actively along Burnside Drive/Ladyloan on a daily or weekly basis, compared to **68% of those without a disability**. Over a quarter of respondents with a disability/long-term health condition reported walking, wheeling, or cycling along this route either only annually or never at all.

The proposed improvements along Burnside Drive and Ladyloan, including the implementation of controlled crossing points and widened footways are expected to significantly enhance accessibility, and therefore increase the number of active travel journeys by disabled people along this route.

Figure 43: Frequency of active travel for either walking, wheeling, or cycling reported among respondents, by disability status (Postal survey)



Note: Excludes respondents who responded “prefer not to say” to the long-term condition/disability question.

Perceptions of accessibility

Agreement with route-quality statements indicate that route-users find both Brothock Bridge and the Harbour location to be easily accessible (Figure 44). In contrast, responses to the postal survey suggests residents perceive Burnside Drive or Ladyloan as less accessible for active travel for people of all abilities. **One-fifth of residents disagree that Burnside Drive/Ladyloan is accessible to those of all abilities**, as shown in Figure 45. More specifically, while residents find the route slightly more accessible for wheelchair users than for cyclists, both modes are considered much less accessible compared to how accessible the route is for pedestrians. Figure 46 indicates that **nearly twice as many residents consider Burnside Drive or Ladyloan accessible for walking, compared to wheeling**.

Figure 44: "The route is easily accessible", RUIS (Brothock Bridge, Harbour)

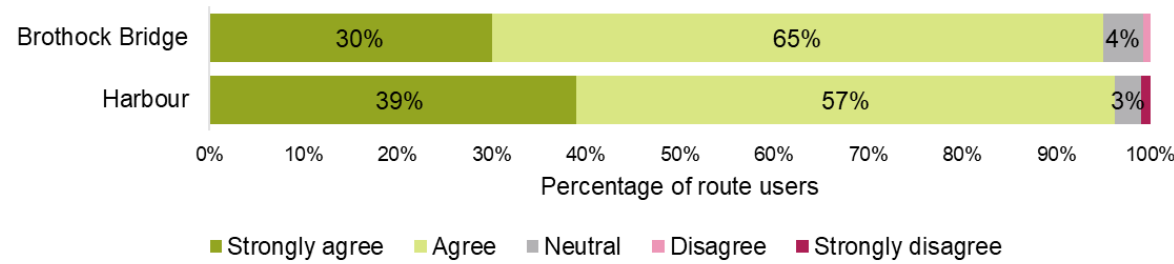


Figure 45: "Burnside Drive/ Ladyloan is accessible to people of all abilities", Postal survey

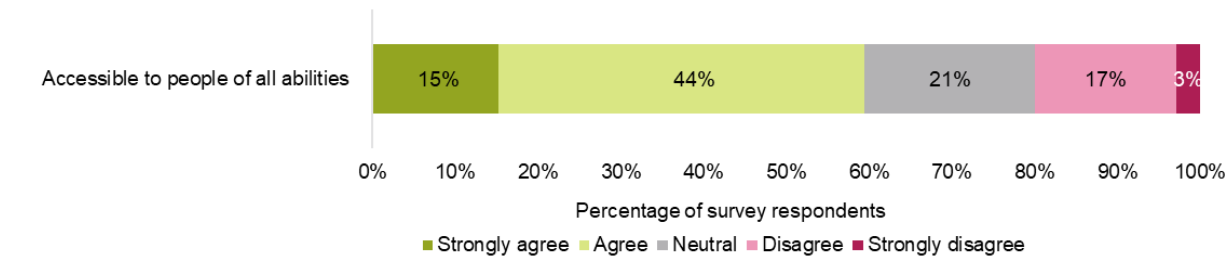
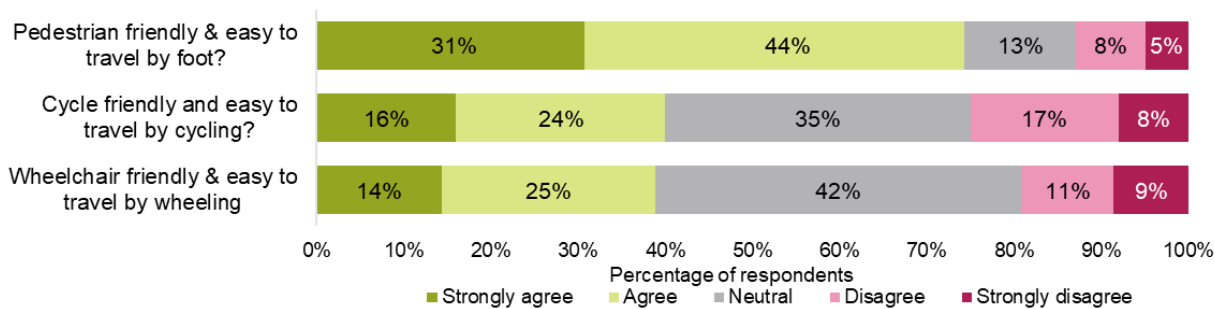


Figure 46: "Do you disagree or agree that Burnside Drive/ Ladyloan is:", Postal survey



The proportion of people with reduced mobility who spend time dwelling within the space can indicate the perceived accessibility of a location. The video analysis of stationary activity conducted at Brothock Bridge included a count of those dwelling within the area who used a mobility aid, such as wheelchair, walking stick or adapted cycle.

Across the four-day survey period, just over **2% of those conducting stationary activity within the area – such as resting or recreational activities – were identified as using a walking aid.** The placement of additional seating at Brothock Bridge as part of the scheme

intends to enhance the accessibility of this area, and by result increase the number of individuals with reduced mobility spending time in and utilising this space.

Perceptions of access among disabled people and perceived barriers

In addition to this baseline summary report, the **Accessible design focus group and interview report** provides insights into the active travel experiences of disabled people in Arbroath.

The section titled “Accessibility and Barriers to Active Travel” presents findings from interviews and focus groups with disabled people, to explore how well Arbroath’s infrastructure, particularly along Burnside Drive and Ladyloan, supports mobility and active travel for people with access needs. Participants raised concerns about a lack of available space for navigating Burnside Drive and Ladyloan, especially towards the Harbour where the pavement narrows, posing a challenge for wheelchair users. Key accessibility features were also discussed, with a general consensus that while the tactile pavement and visual contrast along Burnside Drive and Ladyloan are adequate, additional dropped kerbs would further enhance accessibility.

Additionally, the report explored disabled peoples’ experiences of crossing the road in Arbroath, focusing on both the controlled and uncontrolled crossing points along Burnside Drive/Ladyloan and nearby areas. Discussions on crossing the road often centred on perceived safety, as summarised in the section [Perceptions of safety among disabled people](#). Beyond safety concerns, participants highlighted how the lack of controlled crossings impacts those with limited mobility, increasing journey time and exertion needed to reach a safe crossing point.

Accessibility for everyone

Age of active travellers

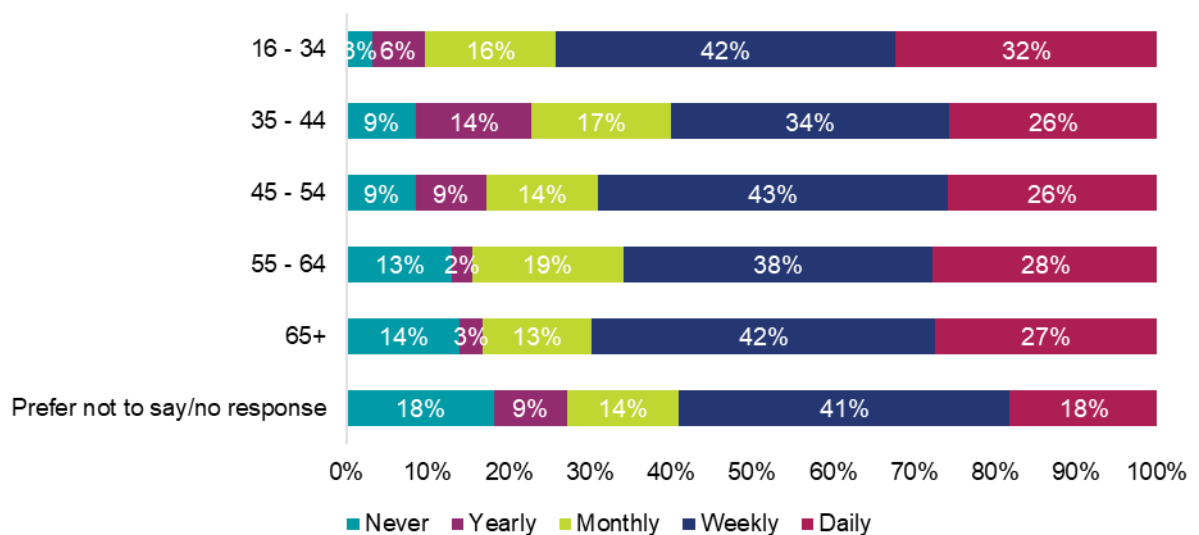
Manual counts at Brothock Bridge and the Harbour locations can be used to provide annual usage estimates based on broad age categories (under 18, 18-64, 65+). When compared with the census results for the postcode area ([Table 8](#)), it appears that under 18-year-olds are underrepresented for both routes. **Children make up 7% and 9% of the route-users at the Brothock Bridge and Harbour locations**, while census data indicates that 21% of residents in this postcode area are children. In contrast, over-65-year-olds are well-represented at Brothock Bridge, comprising nearly a quarter of all route-users.

Table 8: Proportion of annual usage estimate by age group at the Harbour and Brothock Bridge, compared to census data

Age group	Brothock Bridge	Harbour	Census data
under 18	7%	9%	21%
18-64	70%	76%	63%
Over 65	23%	14%	15%

Note: Census Scotland data for postcode D11 1 was used.

Postal survey data on the frequency of walking along Burnside Drive or Ladyloan was disaggregated by age group. As shown in [Figure 47](#), the walking frequencies were relatively consistent across all age groups. Notably, the highest frequency was observed among 16-to-34-year olds, with three-quarters of this group reporting that they walk along this route on a weekly or daily basis.

Figure 47: Frequency of walking along Burnside Drive/ Ladyloan, by age group (Postal survey, n=484)

Gender of active travellers

A gender breakdown of route-users suggest that female route-users are underrepresented at both the Brothock Bridge and Harbour locations. The proportion of trips by gender is compared against the census data for this area in [Figure 48](#). While female residents make up 51% of the population within the local area, they comprise 44% and 45% of route users at

Brothock Bridge and the Harbour, suggesting both routes are less attractive for female active travellers.

Figure 48: Annual usage by gender (adults only) at the Harbour and Brothock Bridge RUIS locations, compared to census data



Socio-economic inclusivity

Proportion of active travellers by SIMD

We used postcode data from the resident survey to assess the distribution of residents who frequently walk along Burnside Drive/Ladyloan by Scottish Index of Multiple Deprivation quintile (SIMD)²². With quintile 1 denoting areas with the highest relative deprivation, we found that 64% of survey respondents provided postcodes belonging to the 1st and 2nd quintiles²³. 56% of residential areas in Arbroath fall into quintiles 1 and 2.

Residents whose home postcodes fall into the two lowest quintiles are slightly more likely than those in the less deprived quintiles to walk on a daily or weekly basis along Burnside Drive/Ladyloan (Table 9). **69% of residents whose postcodes fall into the most deprived quintile reported walking along Burnside Drive on a daily or weekly basis** compared to walking less frequently.

SIMD quintile was also analysed for route user intercept survey respondents at the Harbour and Brothock Bridge locations who supplied a postcode for their journey origin. Table 10 shows the proportion of route-users by SIMD quintile based on journey origin postcode, with

²² Scottish Index of Multiple Deprivation. For more information and a link to SIMD rankings by postcode see [Scottish Index of Multiple Deprivation 2020 - gov.scot \(www.gov.scot\)](https://www.gov.scot/publications/simd2020/index.aspx).

²³ Of respondents who provided a valid postcode.

the highest proportion of route-users falling into the first (most deprived) quintile at both locations. Additionally, [Table 10](#) provides the proportion of Arbroath neighbourhoods that fall into each SIMD quintile²⁴, showing that over half of Arbroath residents falling into the two lowest quintiles. More specifically, the neighbourhoods closest to the project area fall into the first two quintiles²⁵.

Table 9: Proportion of respondents by SIMD quintile who walk frequently (on a daily or weekly basis) along Burnside Drive (Postal survey, n=403).

SIMD quintile	Proportion of neighbourhoods in Arbroath	Total survey respondents	Proportion of respondents who walk frequently along Burnside Drive/ Ladyloan
1 (most deprived)	24%	108	69%
2	32%	149	66%
3	18%	69	57%
4	26%	77	61%
5 (least deprived)	0%	0	0%

Note: SIMD data not available for 146 respondents, where a valid postcode was not provided by respondents. Neighbourhoods defined using SIMD data zones, see [footnote 24](#).

Table 10: Distribution of route-users trip origin postcodes by SIMD quintile, at the Harbour and Brothock Bridge locations, (RUIS, Brothock Bridge n=70 Harbour n=64).

SIMD quintile	Proportion of neighbourhoods in Arbroath	Proportion of route-users	
		Brothock Bridge	Harbour
1 (most deprived)	24%	31%	33%
2	32%	24%	25%
3	18%	27%	14%
4	26%	14%	28%
5 (least deprived)	0%	3%	0%

Note: Neighbourhoods defined using SIMD data zones, see [footnote 24](#).

²⁴ Neighbourhoods defined using the 34 data zones (small area statistics) comprising Arbroath, for SIMD statistics see [Scottish Index of Multiple Deprivation 2020 - gov.scot](#).

²⁵ For a map of Arbroath by SIMD data, see [SIMD interactive map of Scotland](#).

5. Future monitoring

Following completion of the project and after a suitable bedding-in period, Sustrans RMU intends to revisit the scheme to conduct follow-up monitoring in collaboration with Angus Council. The monitoring will focus on measuring the impact of the scheme by using similar tools to those used in baseline monitoring. Follow-up monitoring will take place at a comparable time as the baseline monitoring. This section considers expectations and suggestions for follow-up monitoring to assess the scheme.

Outcome 1: Increase active travel

Repeated collection of count data obtained from automatic counters, route-user intercept surveys, and video manual counters at the same locations as baseline will enable us to assess whether or not active travel journeys have increased along Burnside Drive and Ladyloan. A repeat video manual count at Market Place will evaluate footfall to the local high street, while a follow-up survey at the train station will assess levels of active travel to the local train station. Analysis of Hands Up Scotland Survey data of Arbroath's primary and secondary schools will explore changes in active travel modes to school following the scheme's completion.

As with baseline monitoring, route-user surveys will be used to explore trip purposes, journey length and frequency, and identify changes in the proportion of route users whose journeys are car trips. A follow-up postal survey will provide data on journey frequency and purpose, travel modes to shops and workplaces, and assess modal shift among the local population.

Outcome 2: Communities collaborative design

While this has been largely evaluated during baseline monitoring, the follow-up postal survey will assess community perceptions of the scheme, and whether residents feel the design meets their needs. Additionally, the accessible design focus group and interview tool will be adopted at follow-up, to evaluate perceptions among disabled community members, and explore whether they feel the scheme's design meets their accessibility needs.

Outcome 3: Improve the quality of place

A repetition of the route-user surveys at the Harbour and Brothock Bridge locations and the postal survey will provide insight into any changed perceptions of route quality, safety and comfort along the routes and impacted area. The accessible design focus group and interviews tool will specifically evaluate any such changes in perceptions among disabled

people in Arbroath. The stationary activity count tool will be repeated at Brothock Bridge to assess for changes in stationary activity and duration of dwelling within the square.

Outcome 4: Reallocation of road space

Traffic speed and volume surveys will be repeated at the same locations at Burnside Drive and Ladyloan during follow-up monitoring to explore changes in traffic speed and volume following the project's completion. Video analysis of crossings near the Morrisons superstore at Guthrie Pot Roundabout will be repeated to assess changes in vehicle yielding rates and crossing behaviour, including wait and crossing times. The postal survey will assess resident's perceptions of priority for active travel along the A92. Additionally, the accessible design focus group and interview tool will explore perceptions of vehicle dominance among disabled members of the community.

Outcome 5: Facilitate independent walking, cycling, and wheeling for everyone

As with baseline, follow-up monitoring will use manual count data to identify changes in the proportion of users along Burnside Drive and Ladyloan by age, gender, wheelchair users, and those walking with an aid. Route-user surveys will explore changes in perceptions of accessibility along the route and the proportion of route-users who identify as having a disability. Journey origin postcodes will also be used to evaluate changes in the distribution of route-users by SIMD.

The postal survey will explore changes in perceived accessibility of Burnside Drive and Ladyloan among residents, including those who identify as disabled, and the frequency of travel among disabled people. The accessible design focus group and interview tool will explore changes in perceptions of access and barriers to active travel among disabled members of the community.

6. Methodology

A note on rounding

Please note that percentages and numbers reported on graphs and in-text have been rounded to whole numbers in most cases. Some totals may not correspond to the sum of the individual figures. For annual trip estimates, where the estimated value is in the thousands, the figure has been rounded to the nearest 500, where a figure is in the ten-thousands, it has been rounded to the nearest thousand, where a figure is in the hundred-thousands, it has been rounded to the nearest ten thousand. Numbers have been presented according to this same rounding convention in figures, tables and in-text.

Route User Intercept Survey & Manual Count

Route user intercept surveys (RUIS) are conducted over four days, covering at least one weekday and weekend day. The survey comprises a manual count of all route users alongside interviews of a convenience sample of users over 16 years of age over a 12-hour period, from 07:00 to 19:00. The manual count identifies mode (pedestrians, cyclists, walking with an aid or pushchair and wheelchair users²⁶), as well as age and gender of route users. The directions of travel are also counted. Manual count data is used to generate an estimate of annual route usage, taking into account day type and seasonality.

Age categories for manual count categorisation include “child”, “18-64”, “65+”. Categories for gender comprise “male”, “female”, or “child”. The interviews include questions on journey origin and purpose, travel behaviour and perceptions of the area and infrastructure, and demographic information.

²⁶ The full list of modes includes bicycle (non-electric), electric bicycle, other cycle, walking with an aid, walking, jogging, wheelchair, other wheeled, pushchair, other.

Table 11: Data collection period for RUIS conducted at the Harbour and Brothock Bridge locations, with day type.

Day type	Brothock Bridge	Harbour
Holiday weekday	04/08/2022	02/08/2022
Holiday weekend	06/08/2022	07/08/2022
Term weekday	25/08/2022	23/08/2022
Term weekend	27/08/2022	28/08/2022

Video Manual Count

Video manual counts (VMC) count the number of pedestrians, cyclists, and wheelchair users²⁷ at a specific location over seven consecutive days, from 06:00 to 22:00. It is currently not possible to identify age or gender in a video manual count. As with RUIS, count data was used to generate an estimate of annual route usage, taking into account day type and seasonality.

Two VMCs were conducted on the route directly impacted by the project, the A92, at Burnside Drive and Ladyloan. An additional VMC was conducted at the Market Place, a key link between the route and the High Street, to monitor footfall in this direction. Video manual counts were collected between 14/08/2022 to 20/08/2022 across the three locations. This included one holiday weekday, one holiday weekend, four term weekdays, and one term weekend.

Automatic counters

Permanent automatic counters were installed along the A92 in December 2022. Intelligent sensors count the number of cyclists, pedestrians and vehicles (cars, vans, and lorries) passing both directions on the road and pavement across the A92 dual carriageway corridor, on a 24-hour basis. A notable advantage of automatic counters is they enable long-term

²⁷ The full list of modes includes cyclist on road, cyclist on pavement, walking, walking with an aid, jogging, wheelchair, other wheeling, and other.

usage trends, with a year-round picture of route usage, and are therefore more reliable than annual usage estimates obtained from manual counts, which are more susceptible to weather and local events.

Five sensors were placed along the A92, including two at Burnside Drive, to count movement at both directions of the dual-carriageway and adjoining pavements. Three sensors were placed at the Ladyloan location of the A92, to count movement along both directions at the road and adjoining pavement, and the adjacent coastal path. 365-day count data was obtained at these locations for 2023, to compliment the Video Manual Count data at slightly different locations along the route. For a map of the automatic counter, VMC, and RUIS locations see [Figure 7](#).

Traffic Speed and Volume survey (TSV)

Traffic speed and volume data was used to gather information about current levels of motorised traffic at two locations along both directions of the A92 dual carriageway. TSV surveys recorded data on the speed, number, and class of traffic vehicles passing a specific point on the route across a 24-hour period for 7 days using pneumatic tube technology. TSV data was collected at the Burnside Drive location from 29/08/2022 to 04/09/2022, and the Ladyloan location from 06/09/22 to 12/09/2022.

Video analysis (crossing)

Video footage was collected at a crossing at Burnside Drive, near the Morrisons superstore, to monitor and analyse pedestrian behaviour when crossing the road, in relation to infrastructure and traffic. The video footage spanned a 90m stretch of the A92 (Burnside Drive), to encompass both the formal crossing point and informal crossing points. A total 28 hours of video footage was analysed across a 7-day stretch (14/09/22 to 20/09/22), for 4 hours per day (08:00-10:00 and 17:00-19:00).

To provide an indicator of the perceived safety of the crossing and pedestrian priority across different travel modes, the following variables were collected and analysed:

- Mode of travel (pedestrian, pedestrian with aid, pedestrian pushing bicycle, cyclist, wheelchair, other).
- Pedestrian waiting time at crossing.
- Time taken to cross the road.

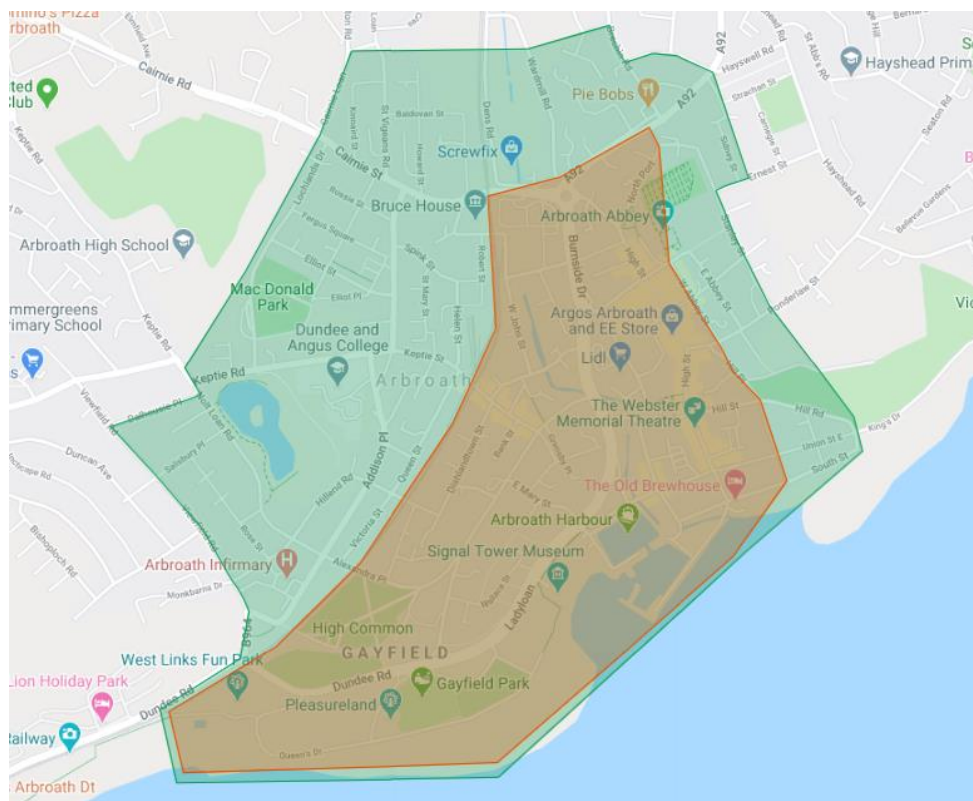
- Origin and destination of crossing, to assess use of informal vs. formal crossing points.

Postal survey

A postal survey was issued to residents within Arbroath, to gain insight into active travel behaviour and perceptions within the community in addition to route-users within Arbroath. The survey aimed to understand a) people's travel behaviour at baseline, b) people's perceptions of active travel infrastructure at Burnside Drive/Ladyloan and c) community awareness of the scheme and level of awareness and engagement with the scheme's consultation activities. Demographic information was also requested from respondents, including age, gender, employment status, and disability status.

In March 2023, the postal survey was issued to 4,780 addresses with a cover letter and freepost envelope. Respondents had the option to enter into a £50 prize draw. [Figure 49](#) shows the survey distribution area. The postal survey was delivered to every address within the core (red) zone, which is in close proximity to the project area, Burnside Drive and Ladyloan, and to one in four addresses in the surrounding green zone.

Figure 49: Postal survey distribution area



The survey received 549 responses in total. [Table 12](#) and [Table 13](#) provide the distribution of survey respondents by age and gender. Disability status was determined for respondents, by the question “are your day-to-day activities limited because of a health problem or disability which has lasted or is expected to last at least 12 months”, with 29% of respondents categorised as disabled by responding “limited a little” or “limited a lot” ([Table 14](#)). It is worth noting that 73% of survey respondents were aged 55 years and older, limiting the representativeness of the sample.

Table 12: Distribution of postal survey respondents by age

Age group	Number of respondents	% of respondents
16 - 24	4	1%
25 - 34	30	6%
35 - 44	37	7%
45 - 54	59	11%
55 - 64	140	26%
65+	252	47%
Prefer not to say	14	3%

Table 13: Distribution of postal survey respondents by gender

Gender	Number of respondents	% of respondents
Female (including trans female)	257	49%
Male (including trans male)	250	47%
Non-binary and identify in another way	5	1%
Prefer not to say	15	3%

Table 14: Distribution of postal survey respondents by disability status

Disability status	No. respondents	% respondents
Without a disability	359	68%
With a disability	151	29%
Prefer not to say	15	3%

Stationary Activity Count

Video footage of a public square in Arbroath, Brothock Bridge, was recorded across a four-day period to assess current usage of the area by those dwelling (i.e., conducting stationary activity) within the space. Video footage was taken between 25/08/22 to 28/08/22 with 16 hours of total recording, covering two weekend days and weekdays. People were considered dwelling within the space if they stopped to stay still for any moment of time. Those individuals merely passing through the area or waiting to cross the road were excluded from the analysis.

To gain insight into the frequency, breadth and duration of stationary activity conducted within this space, the following variables were analysed from the recording:

- Occupant count
- Duration of stationary activity (start and finish time)
- Posture (e.g., standing, sitting, lying, leaning)
- The specific zone used within the area (e.g., floor, wall, railing, lamppost, grass, wall around grass)
- Type of activity conducted (e.g., waiting/resting, recreation/leisure, talking to someone, eating/drinking, working)
- Use of a mobility aid by those conducting stationary activity, mobility aid type.
- Presence of vehicles using the space

Access To Station survey

A 4-day survey was undertaken on the platform of Arbroath train station, with short interviews conducted to establish people's mode of access, trip purpose, and destinations to and from the station. Survey data was collected between 20/09/2022 to 24/09/2022, including three term-time weekdays and one term-time weekend day, covering platforms 1 and 2 throughout the day. Demographic information was also collected from those who participated in the survey, including age, gender, and disability status.

Hands Up Scotland Survey (HUSS)

The Hands Up Scotland Survey (HUSS) is an annual survey in which school children report the mode of transport they most frequently use to travel to school²⁸. Each September, schools across Scotland complete the survey asking pupils "How do you normally travel to school?". Local authority officers distribute the survey to schools and return responses to Sustrans' Research and Monitoring Unit for overall collation, analysis, and reporting, providing an annual snapshot of school travel. HUSS data holds Official Statistics status by the UK Statistics Authority.

HUSS data was obtained for primary and secondary schools within Arbroath and the wider Angus area, from 2015 to 2023, to assess trends and current levels of active travel to school. HUSS data was obtained for 56 primary school and 8 secondary schools in Angus. HUSS data was obtained for the following schools within Arbroath:

- Hayshead Primary School
- Inverbrothock Primary School
- Ladyloan Primary School
- Muirfield Primary School
- St Thomas' Primary School
- Timmergreens Primary School
- Arbroath High School
- Arbroath Academy

²⁸ For more information on Hands Up Scotland Survey 2023 see [Hands Up Scotland Survey - Sustrans.org.uk](https://www.sustrans.org.uk/hands-up-scotland-survey).

Accessible design focus group and interview

Accessible design interviews/focus groups were trialled as a novel methodology developed by Sustrans' RMU. Interviews and focus groups were conducted with individuals with a variety of disabilities or conditions, to evaluate the accessibility of Arbroath's infrastructure and experiences with active travel in Arbroath, from the perspective of a disabled person. The following approaches were adopted:

- An in-person walk/wheel and talk. The participants and facilitator walked/wheeled a pre-determined route within Arbroath covering areas to be impacted by the project, followed by a semi-structured interview.
- A self-led walk/wheel and talk. The participants were instructed on the route to take ahead of participating in an online discussion with the facilitator.
- Focus group sessions. Focus groups were held with members of disability-focussed community groups, at their usual place of meeting. As this did not contain a walk along element, knowledge of the route and area was a prerequisite for participation.

For further detail on the methodology, including the recruitment process, number of participants and analysis approach, see the **Arbroath Accessible Design Focus Group and Interview report**.

Appendices

Full monitoring framework

Table 15: Logic framework table showing outcome monitoring and responsibilities

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
1. Active Travel Increase number of people and trips for walking, cycling and wheeling for everyday journeys	Increased levels of active travel	More active travel trips made along Burnside Drive/Ladyloan, taking into account displacement	Automatic counters (x2, Burnside Drive and Ladyloan) VMC (x2 Burnside Drive and Ladyloan) RUIS (x2 Brothock Bridge, the Harbour)	Pre & Post

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
	Driving replaced by active travel	More individuals making active travel trips along the Burnside Drive/Ladyloan	RUIS (question on trip frequency) Postal survey (question on trip frequency)	Pre & Post
		Modal shift (higher % of journeys made by active travel)	Postal survey (questions on travel behaviour) Scottish Household Survey	Pre & Post
		Modal shift at train station	Access to Station Survey	Pre & Post
		Modal shift occurs at school	Hands-Up Scotland Survey	Pre & Post
		Increased % of route users choosing not to drive	RUIS (question "could you have used a car for this journey"?)	Pre & Post
	Increase in purposeful trips	Increase in number of non-leisure trips made by active travel along A92 corridor	RUIS question on trip purpose) Postal survey (travel mode to work/the shops)	Pre & Post
		Increased active travel to High Street.	VMC (x1 Market Place)	Pre & Post
	Improved attitudes towards active travel	Increased enjoyment & likelihood to walk/cycle among route-users.	RUIS (question on route recommendation)	Pre & Post

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
2. Communities collaborative design Ensure communities are proactively engaged in project development and decision making	Extensive, representative and diverse community engagement	Timeline of engagement activities (including schools, groups, general public etc) Large number of participants in engagement activities. Demographics of participants is diverse and representative of local population, including historically seldom heard voices.	Partner provided information from Angus Council, including community and engagement log/ report. Accessible Design Focus Group & Interview Report	Pre
		A good % of the community are aware of and have engaged with the scheme. Age, gender, and ethnicity of those aware of and engaged with the scheme is diverse and representative of the local population.	Postal survey (scheme awareness and engagement questions).	Pre

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
	Deliver community-orientated infrastructure	The community perceive that the final scheme design meets their needs	Postal survey RUIS	Post
	Meaningful community consultation	The community got to voice their opinions. The community's opinions were listened to and incorporated to shape the scheme.	Postal survey (community engagement questions, free-text responses)	Pre & Post
		The community participate in decision making.		
3. Enjoyable comfortable spaces – Improve the quality of place, green infrastructure, provide dedicated, safe spaces for people to walk, cycle and wheel through	Improve the quality and comfort of the built environment	Improved air quality	Air quality reports provided by Angus Council	Pre & post
		Improve perceptions of quality and comfort	RUIS (questions on quality of public space, including Brothock Bridge) Postal survey Accessible design focus group & interviews	Pre & Post
	Improve the enjoyment and usage of the space or route	Increased range of activities taking place. Increased time and number of people dwelling, furniture use	Gehl Public Life tool: Stationary activity count at Brothock Bridge	Pre & Post

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
		Increased reported usage and enjoyment	RUIS (route quality and enjoyment) Postal survey (perceptions of Burnside Drive/Ladyloan)	Pre & Post
		Improve safety and perceptions of safety	KPI from Stats 19	Post
			RUIS Postal survey Accessible design focus group and interview	Pre & Post
4. Reallocation of road space	Reallocation of road space	Greater ratio of active travel space to road space	Construction drawings	Post
	Reduced vehicle dominance	Reduced average and maximum traffic speeds. Reduced traffic volume.	TSV x 2 Burnside Drive, Ladyloan)	Pre & Post
		Reduced perceptions of vehicle dominance among disabled people	Accessible design focus group & interviews	Pre & Post
		Increased rate of vehicle yielding; reduced delay times/speeds of people crossing the road; greater	Video analysis of a crossing (Burnside Drive)	Pre & Post

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
	Increased priority for active travelers; reduced severance	number and spread of informal crossings.		
		Improved perceptions of priority	Postal survey RUIS	Pre & Post
5. Facilitate independent walking, cycling and wheeling for everyone – Improve accessibility for people with protected characteristics	Accessible for everyone	Increased levels of usage by young, elderly, female, disabled people and pushchair users.	RUIS, MC Postal survey (demographic data)	Pre & Post
		Greater agreement with accessibility statements after construction than at baseline	RUIS Postal survey	Pre & Post
		Reduced identification of barriers after construction compared to baseline	RUIS	Pre & Post
		Reduced identification of barriers among disabled people	Accessible Design Focus Group	Pre & Post
	Accessible for disabled people	Increased number of route users self-identifying as having a disability	RUIS	Pre & Post

Objective	Outcome	Indicator	Monitoring tool	Pre/Post construction
		Improved perception of access for disabilities	Accessible Design Focus Group	Pre & Post
	Socio-economic inclusivity	Greater distribution of route user postcode's, particularly areas of high SIMD	RUIS Postal survey (postcode data)	Pre & Post