Appendix D

Constituent Reports and Drawings

Constituent Report CR-A

Behaviour Change Activation Plan

Ashgrove Connects

Behaviour Change Activation Plan

Aberdeen City Council

19 August 2022

Notice

This document and its contents have been prepared and are intended solely as information and use for Aberdeen City Council and Nestrans in relation to the Ashgrove Connects Project.

This document has 17 pages including the cover.

Document history

Document title: Behaviour Change Activation Plan

Document reference: 002

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	BC Activation Plan	CC	RH	ED		10/08/2022
2.0	BC Activation Plan	CC	ED	AM	AM	19/08/2022

Client signoff

Client	Aberdeen City Council
Project	Ashgrove Connects
Job number	5212138
Client signature/date	

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1. Introduction

1.1. Scope

This outline Behaviour Change Activation Plan has been developed in support of the Ashgrove Connects Project, providing recommendations that will help maximise the benefits of the scheme and contribute to the short and long-term aspirations for cycling and walking in Aberdeen.

The process followed by Atkins for developing this outline Activation Plan is highlighted in Table 1.1. Stage 1 is reported on in this document.

Table 1.1

Stage	Task	Content
Stage 1 (RIBA 0-2)	Outline Behaviour Change Activation Plan	• Commence stakeholder & community engagement to better understand the community needs and attitudes. • Identify potential suppliers • Prepare cost estimates • Identity behaviour change interventions suitable for Ashgrove Connects and those people serviced by the new infrastructure scheme • Prepare outline Activation Plan for RIBA 0-2
Stage 2 (RIBA 3-4)	Finalised Behaviour Change Activation Plan	• Undertake Stakeholder & community engagmenet to raise awareness and gain community buy in for the finalised Activation Plan • Establish the Activation network / steering group. Allocating tasks to its members and agreing on the programme KPI's & milestones, delivery processes and M&E • Develop finalised Activation Plan consisting of the chosen interventions, delivery timeline, budget request and chosen suppliers with agreements established.

A campaign of community and stakeholder engagement has supported the Activations Plan with the feedback helping to identify behaviour change interventions that feature throughout. These interventions should be seen as recommendations, with further work needed at RIBA Stages 3 and 4 (Stage 2 in Table 1.1) to identify the preferred interventions with potential delivery partners. A desktop mapping exercise was also undertaken to identify potential suppliers and programme partners, outlined in Appendix A, who will help shape, coordinate and deliver this Activation Plan.

1.2. Background

To support Aberdeen City Council's (ACC) investment in the Local Outcome Improvement Plan (LOIP), there is a need for targeted "activation" to ensure local communities, businesses and other street users are aware of the opportunities offered by the new infrastructure proposed through the Ashgrove Connects Project.

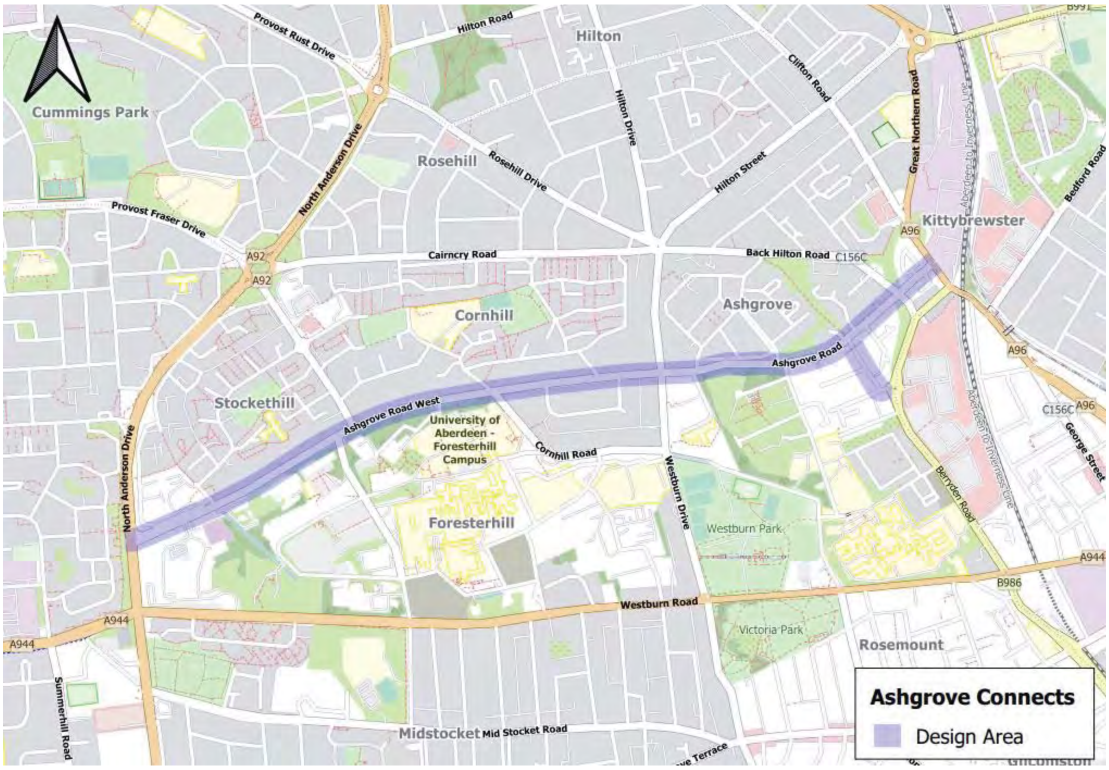
Activation refers to the package of interventions that will encourage people to travel more sustainably by providing them with the opportunity, knowledge and skills to do so. Activation Plans are therefore a supporting measure that enable usage of new infrastructure to be maximised.

Implementing an Activation Plan for the Ashgrove Connects Project, will create a clear pathway for cycling and walking, enabling a wider range of people to access opportunities to travel actively for leisure, studying and work purposes. It will target and motivate key audiences to use the new cycling and walking infrastructure by developing a comprehensive set of activities. By adopting a place-based approach, the plan will also acknowledge how people recognise and utilise and the new infrastructure This may be, a place to study, live and exercise, a place to visit and shop.

The project focuses on Ashgrove Road and Ashgrove Road West, between Powis Terrace and Laurelwood Avenue in the east to North Anderson Drive in the west.

The geographic location of the project is illustrated in Figure 1.1.

Figure 1-1 - Project Location



2. Activation Development

This Activation Plan has been prepared in support of the Ashgrove Connects Project. The type of intervention and the key target audiences to benefit have been identified through early engagement and the following factors:

- Project location.
- Local stakeholder engagement (online surveys, webinars, walking audits, drop in events and community workshops with seldom heard groups).
- Area demographics.
- Health and deprivation statistics – Joint Strategic Needs Assessment (JSNA).
- Strengths and opportunities within the project location (personal, social, physical and neighbourhood assets).
- Aberdeen City Centre Locality Plan.

The plan sets out the supporting measures that are essential if the project is to maximise usage of the proposed infrastructure. The plan will be a live document thus allowing for refinement should there be a need or demand for alternative activity.

It has been agreed with ACC that a bespoke activation plan should be produced for this project. However, if similar projects are to be developed and/or delivered within Aberdeen City, such as the Berryden Corridor Improvement Project and the A92 Multi-Model Transport Study, consideration should be given to preparing a combined area-wide Activation Plan.

2.1. Covid-19 Statement

The measures included in the Activation Plan should be continually reviewed and amended as necessary to reflect the latest Government guidance. The safety of the public will remain paramount, and any engagement will be approached and delivered within these parameters.

2.2. Activation Task Group

It is a recommendation that the Ashgrove Connect Project is supported by an “Activation Task Group”. A combination of representatives such as residents, ACC Officers, local employees and other public facing stakeholders could form the task group and work collectively in achieving the proposed outcomes of this Activation Plan. Evaluation shows that those infrastructure schemes that develop an Activation Task Group benefit from strategic direction, co-ordinated support, scheme promotion, generating ideas and approval in decision-making processes.

The Activation Task Group may develop from the Stakeholder Working Group that has already been established for the project (see figure 2.1). The working group includes representatives from different street users including ACC Officers, institutions, residents, community organisations, cycling groups and wider stakeholders.

There is an opportunity to engage with Aberdeen Cycling & Walking Forum. Activation would be a key agenda item for the forum as its members recognise the opportunities of delivering behaviour change activities and how they link into the City’s overall vision for increasing the number of journeys made by sustainable modes.

Figure 2-1 - Stakeholder Working Group

3. Activation Engagement

Community engagement has taken place throughout, helping to bring local people together and provide a platform for them to share ideas, and in doing so identify active travel and placemaking opportunities. Engagement within educational settings, community resident groups and public facing organisations has ensured that this Activation Plan is co-designed, has key stakeholder buy-in and incorporates inclusive initiatives that meet the needs of the local communities.

ACC will continue to engage and consult the local communities served by the Ashgrove Connects Project as the project develops and this should continue throughout the Activation delivery period. Forming an alliance with Aberdeen's third sector interface organisation, Aberdeen Council of Voluntary Organisations (ACVO), should be a priority for the Activation programme, both for this project and future infrastructure schemes.

Project Activation should take an asset-based approach to ensure a resident-led environment is created throughout the delivery stage. This approach aligns with the wider cycling and walking objective of ACC which is to identify and/or upskill residents to become key community builders (Active Travel Activators).

3.1. Key Audiences

Activation delivery is planned across the project location highlighted in Figure 1.1. The target audiences will therefore be dependent on the type of activity and the chosen location.

Factors influencing the key target audiences include area demographics, local community assets, current attitudes towards cycling and walking and the health needs of those residents.

Table 3-1 provides an insight into some of the key target audiences and the supporting stakeholders within Aberdeen.

Table 3-1 - Key Target Audiences and Supporting Stakeholders

Education	Communities	Businesses/Institutions	Stakeholders
Cornhill Primary School	Rosehill & Mile End Community Council	NHS Grampian	ACVO
Aberdeen University	Cornhill Community Association	Royal Mail	Nestrans
Kittybrewster Primary	Cairncry Community Association	SPAR	Sport Aberdeen
St Machar Academy	Crosby House Care Home	Beautan 2020	Aberdeen Multicultural Centre
Holy Family RC Primary		SSE Enterprise	Aberdeen Civic Society
St Peters RC Primary		Optima Health	Aberdeen Inspired
St Josephs RC Primary		Aberdeenshire Council	Grampian Cyclist Touring Club
Skene Square Primary			NHS Grampian Bicycle Users Groups
Mile End Primary			Aberdeen Cycle Forum
			Grampian Cycle Partnership
			GetAbout

Table 3-1 is not an exhaustive list and additional work will take place to identify further audiences that may benefit from activation support.

3.2. Key Opportunities

A detailed review of the stakeholder engagement feedback has identified the following opportunities:

- An increase in secure cycle parking facilities would improve confidence in people to own / purchase a bike, particularly those living in flats.

- Cycling and walking can be promoted as an initiative to help tackle social isolation amongst pensioners living alone.
- A popular request during project engagement is to make the streets greener and pleasant places to socialise and play. A key opportunity is to work with the community and partners to green up the streets, adding artwork, seating and spaces to socialise.
- There is an opportunity to deliver a campaign with local businesses to promote the off-street parking that is available but often unused.
- There is an opportunity to collaborate with public facing organisations and target those neighbourhoods which are less likely to walk or cycle due to income deprivation.
- Litter was highlighted as being an issue within the project area. There is an opportunity to upskill community champions to lead health / litter pick walks. Young people could help design signage to encourage people to put litter in bins.
- The project benefits from personal, community and neighbourhood assets (NHS Grampian, University of Aberdeen, Westburn Park, Aberdeen VCO, community champions).
- Opportunity to improve road safety and awareness for young people visiting schools and other educational settings.
- Opportunity to improve physical activity rates for those residents not achieving the recommended amount as per national guidance.
- Opportunity to support Royal Mail's 'Net Zero Deliveries' initiative within the Kittybrewster Depot delivery area.
- Engaging with ethnically diverse communities to introduce cycling and walking opportunities through an accessible and inclusive programme of initiatives.

3.3. Neighbourhood Asset – Westburn Park

Westburn Park is a public park located close to the Ashgrove Connects project area and a great neighbourhood asset.

The Park is owned by Aberdeen City Council and is one of the largest in the city. The Park caters for a range of recreation opportunities including an indoor and outdoor bowling pavilion, a tennis centre with indoor and outdoor courts, a basketball court, a skate park and a children's cycle track. Aberdeen Tennis Centre, run by Sport Aberdeen, is located within the park.

There is an opportunity, as part of this Activation Plan, to facilitate delivery of activities, as outlined in Chapter 4, within the Park.

Examples of the types of activity that could be planned within the Park include:

- Accredited cycling and walking training.
- Public cycle training.
- Children's cycle clubs.
- Guided walks.

Figure 3-1 – Westburn Park Cycle Track

Appendix A provides examples of the types of support available to deliver these activities.

4. Activation Activity Plan

ACC's motivation for increasing sustainable travel is embedded in a range of national, regional and local strategy documents such as the Aberdeen Active Travel Action Plan. To compliment the city's investment in new transport infrastructure, there is a need for targeted activation initiatives to enable behaviour change that will ensure local communities and potential users are aware of the opportunities offered by the schemes. It is therefore a priority of this Activation Plan to engage with local communities, schools, businesses, and a wide range of voluntary/third sector organisations within the Ashgrove Connects Project area and wider city. This approach will enable a wide reach for the activation programme and ensure interaction with residents from different backgrounds including those from disadvantaged areas.

The overall aim of this Activation Plan is to create a complete pathway for both cycling and walking. To achieve this, a comprehensive package of interventions that will appeal to the complete beginner, casual cyclist and the active travel enthusiast have been included in the activities listed in section 4.1. Appendix A provides examples of the types of support available to deliver these activities.

This plan will ensure everyone in the scheme location can participate, from learning to ride a bike to becoming an accredited cycling instructor. Ultimately, the desire is to increase the number of people choosing cycling and walking as their default mode of transport for short commuter trips. This supports the city's active travel objectives whilst also supporting Scotland's commitment to climate change and decarbonisation.

4.1. School Activation

Targeted activity for schools and further education centres served by the Ashgrove Connects Project is set out in Table 4-1, along with the budget request for undertaking these activities.

Table 4-1 - School Activation Activities

Note: Potential suppliers of the below activities are listed in Appendix A.

Activity	Description	Audience
Cycling Skills Programme	This would look to increase and enhance current cycling skills by bringing Adventure Aberdeen's Learn to Bike sessions to schools within the project area. Activity will include: • Early skills lessons to ensure children are at Bikeability standard. • Engagement with those schools who do not access the Bikeability offer. • Booster sessions for those schools that miss out on Bikeability funding. • Increase access to bikes enabling young people to participate, including maintenance of existing bikes to make them safe.	Ages 3 – 8
Key stage 3 cycle training	• A modern training campaign for those that may have missed Learn to Bike / Bikeability due to Covid 19. • On the bike training complemented by journey planning and advanced safety sessions.	Secondary school (Senior 1 & 2)
Signage / Mapping	• Arts related programme with young people - designing active travel signing / promoting active travel and the new infrastructure. • Participation in the Arts Award programme.	Primary & secondary schools
Accredited Training	• A programme of accredited cycling and walking training, covering cycle skills, maintenance and walk leader training. This could be delivered as extra curriculum learning.	Secondary schools & further education settings

Active Travel Support	• Provide bespoke support to schools within the scheme buffer zone, ensuring the school is encouraging active travel and offering facilities to national standard. • Supporting schools to apply for external funding for sustainable grants relating to facility improvements, cycle parking etc. • Supporting school to promote national events such as Walk to School Day, Clean Air Day and the Daily Mile. • Supporting schools to create and update school travel plans with templates	All education settings (depending on interest / uptake)
Modeshift Stars for Schools	• Promote the platform across the city schools.	All schools
School Ambassador Project	• Creating a network of junior ambassadors, helping to promote active travel and clean air programmes within the school setting.	Primary and secondary schools
Travel Training	• Bespoke and interactive training delivered to young people that will increase awareness of active travel whilst educating them on safety measures – increasing confidence to travel by active travel modes.	Primary and secondary schools
Bike donation Stations	• Recycle / bike donation project aiming to increase bike access for young people.	All education settings
Budget Estimate: £30,000 per annum (12 month delivery)		

4.2 Community Activation

Targeted activity for residents and identified communities served by the Ashgrove Connects Project is set out in Table 4-2, along with the budget request for undertaking these activities.

Table 4-2 - Community Activation Activities

Note: Potential suppliers of the below activities are listed in Appendix A

Activity	Description	Audience
Community Cycle Training Programme (Delivered and assisted by multiple agencies and suppliers)	• Delivery of comprehensive and accessible training sessions, held at community venues and tailored for the complete beginner to the experienced cyclist. • Train the trainer programme to upskill community residents – increasing local trainers and employment opportunities. • Inclusive sessions, linking in with disability groups to deliver fun and interactive cycling sessions. • 1:1 buddy schemes for inclusive cycling. A programme that looks to help individuals with a disability make that step to road, or commuter cycling.	Community residents
Bike Maintenance sessions	• Drop-in maintenance sessions, held at community venues to help increase the number of road safety bikes. • Free bike maintenance for those disadvantaged residents.	Community residents
Community awareness events	• Pop up and celebration events - fun and interactive to help promote and raise awareness of active travel locally and across Aberdeen.	Community residents
Family Learning	• Family cycle sessions held at green space locations - learning and leisure sessions.	Families, young carers
Scheme Ownership Programme	• A programme of resident-led initiatives that add value to the project.	All sections of the community

Activity	Description	Audience
	• Projects not directly linked to cycling and walking such as litter busters, graffiti artwork, construction sign design.	
Walking programme	• A bespoke programme consisting of guided walks, health specific walks and the creation of self-led walking maps.	Targeted work on the ageing well population and young residents
Community Group Support	• A targeted programme that supports a selected number of community groups delivering active travel activities. • Support to include small grant funding, staff training such as social media and safeguarding.	Targeted groups operating across the third sector
Increased cycle parking	• Increase secure cycle parking facilities across the project location, identifying key locations within the buffer zone.	Key locations within scheme buffer zone
Budget Estimate: £40,000 per annum (12 month delivery)		

4.2. Business/Institution Activation

Targeted business/institution support for organisations served by the Ashgrove Connects Project is set out in Table 4-3, along with the budget request for undertaking these activities.

Table 4-3 – Business/Institution Activation Activities

Note: Potential suppliers of the below activities are listed in Appendix A

Activity	Description	Audience
Staff engagement events	• Interactive events offering information and free incentives to encourage active travel.	Workplaces within scheme location
Active Travel support	• Tailored support to organisations on active travel topics such as travel planning, corporate travel discounts, cycle facility standards, cycle schemes and wider accessibility options. • Grant support from local and national government linked to sustainability.	Workplaces within scheme location, focus on those large employee organisations
Onsite employee training	• Training onsite to include cycle skills.	Workplaces within scheme location
Business Active Travel Network	• Create a corridor network of key stakeholders to bring together Active Travel officers, resources and skill sets. Opportunity to expand Active Travel opportunities outside of the workplace and into the surrounding communities.	University of Aberdeen, NHS, City Council
Budget Estimate: £10,000 per annum (12 month delivery)		

It is advised that the above listed initiatives are to be delivered by a range of suppliers currently operating within the project area and across the wider city. Early identification of potential suppliers are listed in Appendix A however further engagement and outreach will be required to identify additional suppliers and commence with service / delivery agreements.

This outline Activation Plan has positively identified a number of behaviour change interventions that are / have been successfully delivered within close proximately to the scheme location. Atkins proposes that these initiatives are seen as a priority and are considered for inclusion within the finalised Behaviour Change Activation Plan. There is an opportunity to deliver proven behaviour change initiatives and in doing so, expand the reach and opportunities to those individuals serviced by the Ashgrove Connects Project.

4.3. Monitoring and Evaluation

The Activation Plan is a live document and as such will be reviewed and refined on a regular basis. A formal review of the Activation Plan should take place annually and the outcome to be shared amongst partners to help determine if priorities are being met and / or whether these need to be reset.

Table 4-4 provides an overview of how the school, community and business activation activities can be measured, as part of the formal annual review.

Table 4-4 - Monitoring and Evaluation

Activation Activity	Measure
Cycle Training, Health Walks and Access to Bikes	Number of people in attendance at sessions. Survey pre- and post-engagement. Case studies.
Schools/Colleges	Case studies. Lesson plans. Travel maps. Number of people in attendance at sessions. Survey pre- and post-engagement.
Communications	Social media clicks, shares and commentaries.
Staff Resource	Lessons learnt report at the end of the project.

4.4. Budget

The budget estimate prepared for the outline Activation Plan is set out in Table 4-5. A minimum price has been included to reflect the variation in activities and the cost of procuring external suppliers. The total of £175,000 is recommended to be viewed as the minimum required to deliver a three year programme of behaviour change activity in support of the Ashgrove Connects Project. The estimated budget is for a three year delivery period and it encompasses the activity and supplier costs, additional staffing and coordination fees, equipment and the facility and venue hire required to deliver the proposed behaviour change interventions.

Table 4-5 - Activation Budget Request

Year	Activity	Consultant / Third party suppler cost (£)	Assumptions	Total
Year 1	Development and approval of the Ashgrove Connects Behaviour Change Activation Plan	£20,000	The work to develop the finalised Activation Plan will be carried out by a chosen consultant via the approved commissioning process	£20,000
	Delivery of School Activation	£10,000	Third party suppliers to delivery chosen interventions	£10,000
	Overall coordination of the Activation Programme (including M&E)	£5,000	ACC to appoint a qualified programme coordinator to oversee the Activation Programme	£5,000
Total Year 1				**£35,000**
Year 2	Delivery of School Activation	£30,000	As above	£30,000
	Delivery of Community Activation	£30,000		£30,000
	Delivery of Business Activation	£5,000		£5,000
	Overall coordination of the Activation Programme (including M&E)	£15,000		£15,000
Total Year 2				**£80,000**
Year 3	Delivery of School Activation	£20,000	There is an assumption that year three costings will reduce as activities become self-sustained after the year 2 delivery period.	£20,000
	Delivery of Community Activation	£20,000		£20,000
	Delivery of Business Activation	£5,000		£5,000
	Overall coordination of the Activation Programme (including M&E)	£15,000		£15,000
Total Year 3				**£60,000**
Combined Activation Total				**£175,000**

Please Note:

- ACC have the option to deliver aspects of the activation plan via their respected departments (Parks & Green Spaces, Health Teams etc)
- It is assumed that ACC will appoint an Activation Coordinator to oversee the delivery and coordination of the programme. This can be managed within the City Council or by an external consultant / third party supplier
- Where possible, interventions will be sustained beyond the duration of this programme. This will enable behaviour change activity to remain within the scheme location long after scheme completion

4.5 Objectives

The outline Activation Plan considers both the engagement feedback and the wider city ambitions for active travel.

Table 4.6 lists the ACC transport objectives that this Activation Plan aligns with.

Table 4-6 - ACC Transport Objectives

THEME	OBJECTIVE
Walking	To increase the number of people walking, both as a means of travel and for recreation, in recognition of the significant health and environmental benefits it can bring to our citizens
Cycling	To foster a cycling culture in Aberdeen by improving conditions for cycling in Aberdeen so that cycling becomes an everyday, safe mode of transport for all.
Road carriageway and footway maintenance	To improve the condition of the road, footway and cycle networks.
Travel Information and Awareness	To engage with members of the public, employers and schools on travel behaviour-change campaigns, events and promotions and to provide the information that citizens and visitors need to let them undertake 'smarter' journeys in the City
School Travel and Young People	To ensure that all young people have the opportunity to travel to school by active and/or sustainable modes of transport and are equipped with the necessary knowledge, skills and infrastructure to allow them to undertake local journeys safely and independently
Climate Change Mitigation and Adaptation	To contribute to Aberdeen's carbon emissions targets and develop climate resilient infrastructure

4.6 Activation Next Steps

The Activation Plan will only be successful and sustainable if ownership of interventions is delegated and shared between local stakeholders.

The next stage of the Activation Plan (Stage 2, RIBA 3-4) is to formalise an agreed delivery plan with the Activation Task Group (or Stakeholder Working Group), consisting of the behaviour change interventions, identification of the preferred suppliers, final programme budget and the agreed delivery timeframe. Specific activities included in the finalised Activation Plan will be best delivered by those local organisations already operating within the scheme location therefore a further mapping and engagement exercise should be undertaken to identify those suitable suppliers. The finalised Activation Plan should remain flexible throughout, allowing interventions to be added if beneficial to those individuals who may use the Ashgrove Connects Project.

Community engagement should continue throughout with a recommendation that workshops and community meetings are held with residents and local stakeholders to discuss the proposed interventions and the benefits to the area. Keeping engagement opportunities open will provide a platform for this Activation Plan to reach those grassroot communities, interact with young people and connect with those disadvantaged communities.

Aberdeen City Council officers intend to seek Committee approval to apply for RIBA Stages 3-4 funding from Sustrans Places for Everyone. It is recommended that this application includes the budget detailed in Table 4-5 to both develop the detailed plan and start delivering on it during the design phase alongside future engagement.

Appendices

Appendix A. Delivery Support

Local and National Organisations

This includes examples of local and nation organisations which run projects/programmes related to walking, cycling and health that could support the delivery of the Activation Plan.

- **Aberdeen Health and Social Care Partnership** work with communities to enable people to achieve fulfilling, healthier lives and wellbeing. The Partnership has a focus on diet and physical activity, including a remit for Active Travel, and can support with projects that link with the Local Outcome Improvement Plan.
- **Aberdeen Multicultural Centre** receive funding to promote active travel campaigns among diverse, ethnic minority communities through their Travelling Workshops, Bike Hire, Travel Diary and the Annual Multicultural Bike Rally event.
- **beCyCle** is a community project which is run solely by volunteers. One of their initiations include lending bikes. The Student Association of Aberdeen University sponsors a certified training for interested volunteers each year.
- **Cycling UK** run the Big Bike Revival which is a campaign to inspire and enable people to get on their bike. The programme offers funding and support through a regional Development Officer to put on Free Big Bike Revival Events across the country, including led rides, maintenance classes, bike check-ups and social events. The programme also works with local community groups to develop Community Cycle Clubs and provide them with access to free training, tailored support and free insurance. The programme support groups to start up cycling activities to meet their local needs and interests such as led rides or bike maintenance & repair classes.
- **Cycling Scotland** deliver a range of programmes to support anyone to enjoy cycling and the benefits this has to offer, including a full range of practical based cycle training and instructor training courses for all ages and abilities, a suite of Cycle Friendly programmes to make workplaces, schools, campuses and communities more cycle friendly.
- **GetAbout** own a fleet of bicycles which consists of bikes of various types, sizes and uses. As well as conventional bikes, the fleet includes folding bikes, an electric bike, a tandem, tricycles, recumbent bikes, bicycles adapted for disabled users, balance bikes for toddlers and novelty bikes such as penny farthings, unicycles and a clown bike. Their Getabout bicycle roadshow is used for events throughout the year in schools, universities, parks, galas and open days and is a fun attraction that gets people enthused about cycling, while also imparting the message that there is a bike available for all individuals, no matter what their capabilities, and that cycling is an activity that can be enjoyed by all.
- **NHS Grampian Bicycle Users Groups** help support NHS Grampian staff who cycle to work or for leisure.
- **Sustrans Scotland's I Bike Programme** provides support to promote walking, cycling and scooting by working closely with schools to deliver classroom activities.
- **Sport Aberdeen** deliver two relevant programmes:
    - Walk Aberdeen is designed to assist people to become more active through walking, this included weekly Health Walks.
    - Adventure Aberdeen deliver Learn to Bike sessions (similar to Cycling Scotland's Bikeability Programme) in schools in Aberdeen and offer a large range of outdoor adventure activities including cycling courses and Dr Bike sessions.

Funding Programmes

This includes examples funding programmes related to walking, cycling and health that could support the delivery of the Activation Plan.

- **ASDA Foundation – Empowering Local Communities Grant** provides grants for local groups aimed at supporting a broad range of activities which contribute towards transforming communities and improving lives.

- **Cycling Scotland - Community Development Fund** supports projects which improve cycling facilities including procurement of bicycles, installation or enhancement of cycle parking, creation of maintenance hubs and promote cycling for a community, increasing access to bikes and opportunities to cycle.
- **Cycling Scotland – Social Housing Partnership Fund** works with social housing provides to encourage and support active travel within areas of deprivations, helping to overcome issues around access, transport isolation and health inequalities. Social housing providers can apply for grants of up to £25,000 for a range of infrastructure proposals including cycle parking shelters, street furniture such as seating, litter bins, bollards and planters as well as improvements to access points and lighting.
- **Energy Saving Trust – eBike Grant Fund** supports projects that provide opportunities to trial e-bikes in communities and large-scale fleets of pool bikes or public bikeshare/hire schemes.
- **Nestrans** provide two grant funds to support organisations and groups across the North East to implement sustainable travel initiatives:
    - Sustainable Travel Grant Scheme supports the development of Travel Plans and travel awareness. Organisations can apply for up to £10,000 in matched funding to support sustainable transport initiatives.
    - Community Sustainable Travel Grant supports any constituted Community Group, registered charity or social enterprise based in Aberdeen or Aberdeenshire. Funding of up to £10,000 is available and groups are expected to demonstrate commitment by a contribution (or contribution in kind such as volunteer hours or resources) to the project.
- **Scottish Government - Climate Challenge Fund (CCF)** provides grants and support for community-led organisations to tackle climate change by running projects that reduce local carbon emissions. The CCF supports projects involving energy efficiency improvements to community-owned buildings, home energy efficiency advice, lower carbon travel options, community growing initiatives and schemes to tackle waste.
- **Sustrans - Places for Everyone** will fund relevant activities, as part of infrastructure delivery, that will support and encourage people to use the infrastructure and therefore create a bigger impact (referred to as behaviour change). Places for Everyone provides 100% funding for concept and design work.
- **Paths for All - Smarter Places Open Fund** aims to encourage people to change their behaviours to walk or cycle as part of their everyday short journeys. The Fund also encourages people to use other sustainable travel choices for longer journeys. It is available to support public, third and community sector organisations that want to change people's everyday travel behaviour and help create a happier, healthier Scotland. Bids from £5k to £50k.

These examples are not exhaustive and should be developed further with the Activation Task Group.

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Constituent Report CR-B

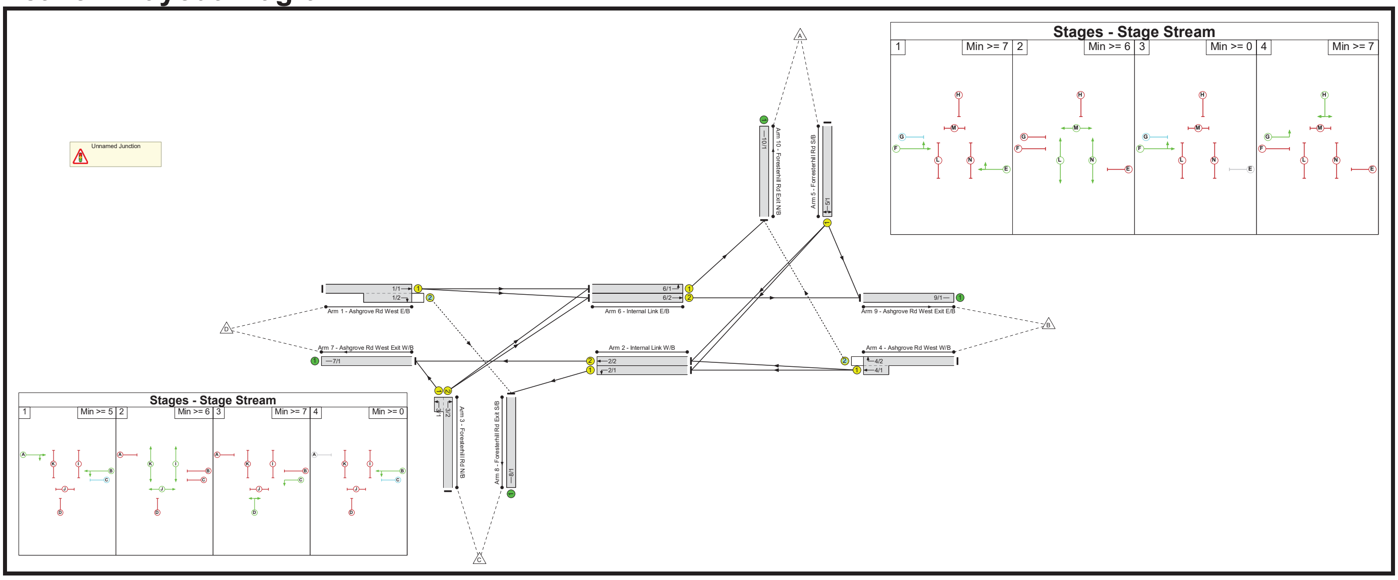
Traffic Data & Models

Full Input Data And Results

User and Project Details

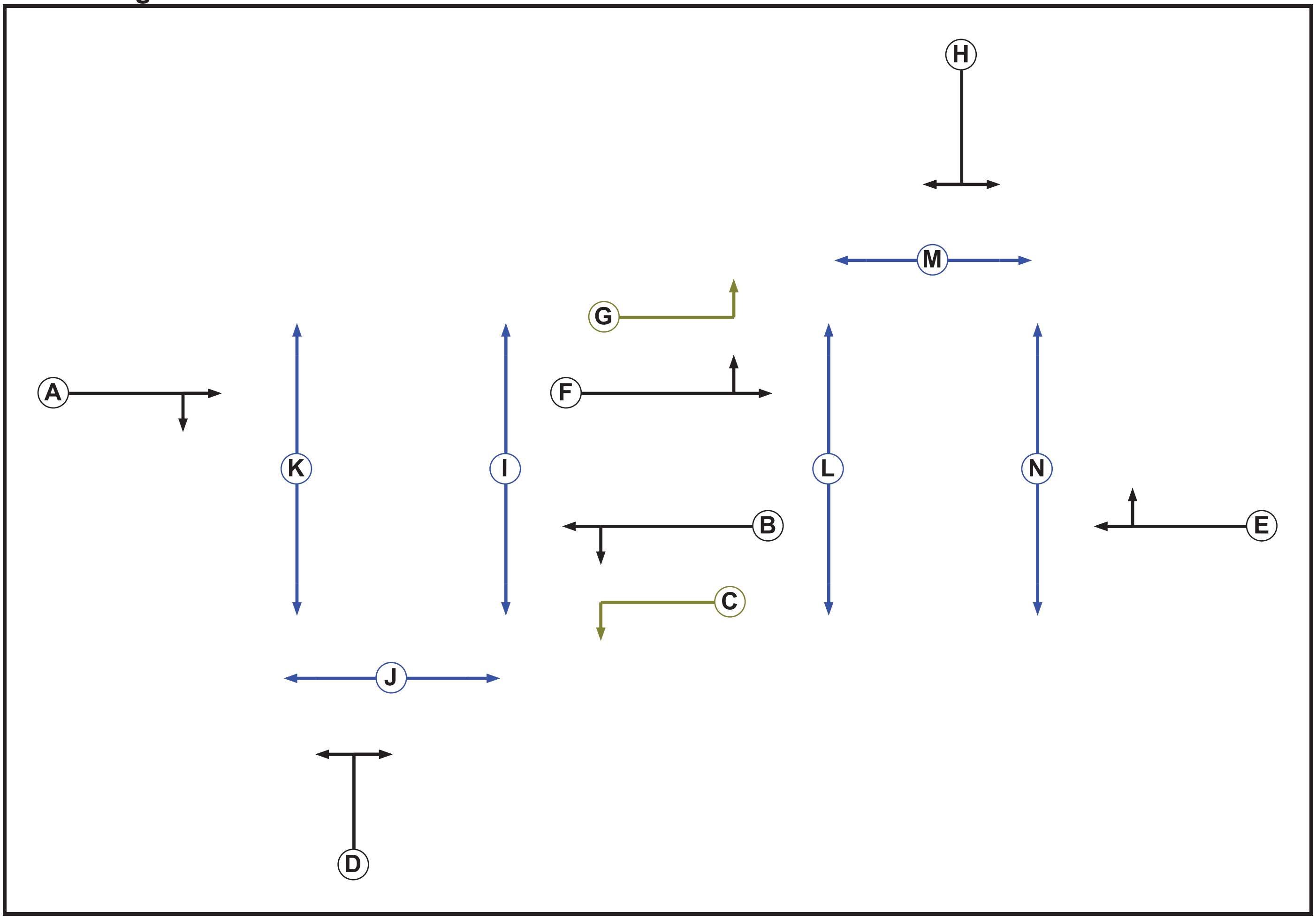
Project:	**Ashgrove Connects**
Title:	**Foresterhill Road - Existing Layout**
Location:	
Client:	Aberdeen City Council
Site Ref(s):	2
Design Layout Ref:	Existing
Date Completed:	12/08/2022
Checked By:	KF
Checked By Date:	16/08/2022
Additional detail:	
File name:	2022-05-27 Foresterhill Rd Existing.lsg3x
Author:	C Jolly
Company:	Atkins
Address:	10 Canning Street, Edinburgth, EH3 8EG

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Filter	1	B	4	0
D	Traffic	1		7	7
E	Traffic	2		7	7
F	Traffic	2		7	7
G	Filter	2	F	4	0
H	Traffic	2		7	7
I	Pedestrian	1		6	6
J	Pedestrian	1		6	6
K	Pedestrian	1		6	6
L	Pedestrian	2		6	6
M	Pedestrian	2		6	6
N	Pedestrian	2		6	6

Full Input Data And Results

Phase Intergreens Matrix

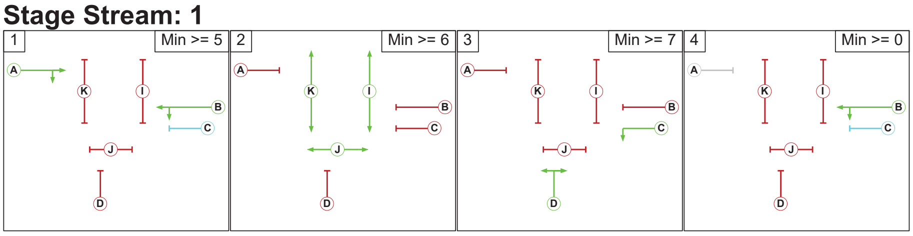
		Starting Phase													
		A	B	C	D	E	F	G	H	I	J	K	L	M	N
Terminating Phase	A		-	-	5	-	-	-	-	8	8	8	-	-	-
	B	-		-	6	-	-	-	-	8	8	8	-	-	-
	C	-	-		-	-	-	-	-	8	8	8	-	-	-
	D	5	7	-		-	-	-	-	8	8	8	-	-	-
	E	-	-	-	-		-	-	7	-	-	-	8	8	8
	F	-	-	-	-	-		-	5	-	-	-	8	8	8
	G	-	-	-	-	-	-		-	-	-	-	8	8	8
	H	-	-	-	-	5	5	-		-	-	-	8	8	8
	I	0	0	0	0	-	-	-	-		-	-	-	-	-
	J	0	0	0	0	-	-	-	-	-		-	-	-	-
	K	0	0	0	0	-	-	-	-	-	-		-	-	-
	L	-	-	-	-	0	0	0	0	-	-	-		-	-
	M	-	-	-	-	0	0	0	0	-	-	-	-		-
	N	-	-	-	-	0	0	0	0	-	-	-	-	-	

Phases in Stage

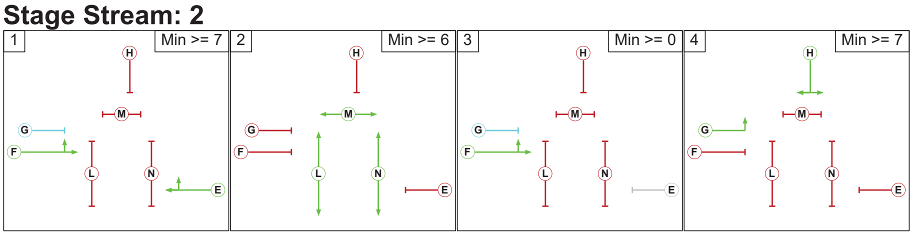
Stream	Stage No.	Phases in Stage
1	1	A B
1	2	I J K
1	3	C D
1	4	B
2	1	E F
2	2	L M N
2	3	F
2	4	G H

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

		To Stage			
		1	2	3	4
From Stage	1		8	6	0
	2	2		2	2
	3	7	X		7
	4	2	8	6	

Stage Stream: 2

		To Stage			
		1	2	3	4
From Stage	1		8	0	7
	2	2		2	2
	3	2	8		5
	4	5	X	5	

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Ashgrove Rd West E/B)	8/1 (Right)	1439	0	2/1	1.09	All	2.00	-	0.50	2	2.00
				2/2	1.09	All					
4/2 (Ashgrove Rd West W/B)	10/1 (Right)	1439	0	6/1	1.09	All	2.00	-	0.50	2	2.00
				6/2	1.09	All					

Full Input Data And Results

Lane Input Data

Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
Junction: Unnamed Junction												
1/1 (Ashgrove Rd West E/B)	U	A	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
1/2 (Ashgrove Rd West E/B)	O	A	2	3	8.0	Geom	-	3.00	0.00	N	Arm 8 Right	9.00
2/1 (Internal Link W/B)	U	B C	2	3	3.0	Geom	-	3.00	0.00	Y	Arm 8 Left	12.00
2/2 (Internal Link W/B)	U	B	2	3	3.5	Geom	-	3.00	0.00	N	Arm 7 Ahead	Inf
3/1 (Foresterhill Rd N/B)	U	D	2	3	2.4	Geom	-	3.75	0.00	Y	Arm 7 Left	7.00
3/2 (Foresterhill Rd N/B)	U	D	2	3	60.0	Geom	-	3.75	0.00	N	Arm 6 Right	12.00
4/1 (Ashgrove Rd West W/B)	U	E	2	3	4.2	Geom	-	3.15	0.00	Y	Arm 2 Ahead	Inf
4/2 (Ashgrove Rd West W/B)	O	E	2	3	60.0	Geom	-	3.15	0.00	N	Arm 10 Right	8.00
5/1 (Forresterhill Rd S/B)	U	H	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 2 Right	10.00
											Arm 9 Left	11.00
6/1 (Internal Link E/B)	U	F G	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 10 Left	6.00
6/2 (Internal Link E/B)	U	F	2	3	60.0	Geom	-	3.00	0.00	N	Arm 9 Ahead	Inf
7/1 (Ashgrove Rd West Exit W/B)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Foresterhill Rd Exit S/B)	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1 (Ashgrove Rd West Exit E/B)	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1 (Foresterhill Rd Exit N/B)	U		2	3	60.0	Inf	-	-	-	-	-	-

Full Input Data And Results

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM'	08:00	09:00	01:00	
2: 'PM'	17:00	18:00	01:00	

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'AM')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	86	103	26	215
	B	78	0	149	43	270
	C	20	49	0	25	94
	D	59	123	13	0	195
	Tot.	157	258	265	94	774

Traffic Lane Flows

Lane	Scenario 1: AM
Junction: Unnamed Junction	
1/1 (with short)	195(In) 182(Out)
1/2 (short)	13
2/1	252
2/2	69
3/1 (short)	25
3/2 (with short)	94(In) 69(Out)
4/1 (short)	192
4/2 (with short)	270(In) 78(Out)
5/1	215
6/1	79
6/2	172
7/1	94
8/1	265
9/1	258
10/1	157

Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Ashgrove Rd West E/B)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
1/2 (Ashgrove Rd West E/B)	3.00	0.00	N	Arm 8 Right	9.00	100.0 %	1761	1761
2/1 (Internal Link W/B)	3.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1702	1702
2/2 (Internal Link W/B)	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
3/1 (Foresterhill Rd N/B)	3.75	0.00	Y	Arm 7 Left	7.00	100.0 %	1639	1639
3/2 (Foresterhill Rd N/B)	3.75	0.00	N	Arm 6 Right	12.00	100.0 %	1893	1893
4/1 (Ashgrove Rd West W/B)	3.15	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1930	1930
4/2 (Ashgrove Rd West W/B)	3.15	0.00	N	Arm 10 Right	8.00	100.0 %	1743	1743
5/1 (Forresterhill Rd S/B)	3.75	0.00	Y	Arm 2 Right	10.00	60.0 %	1739	1739
				Arm 9 Left	11.00	40.0 %		
6/1 (Internal Link E/B)	3.00	0.00	Y	Arm 10 Left	6.00	100.0 %	1532	1532
6/2 (Internal Link E/B)	3.00	0.00	N	Arm 9 Ahead	Inf	100.0 %	2055	2055
7/1 (Ashgrove Rd West Exit W/B Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Foresterhill Rd Exit S/B Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Ashgrove Rd West Exit E/B Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (Foresterhill Rd Exit N/B Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM' (FG2: 'PM', Plan 2: 'PM')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	122	35	62	219
	B	145	0	46	78	269
	C	28	90	0	112	230
	D	47	137	9	0	193
	Tot.	220	349	90	252	911

Traffic Lane Flows

Lane	Scenario 2: PM
Junction: Unnamed Junction	
1/1 (with short)	193(In) 184(Out)
1/2 (short)	9
2/1	81
2/2	140
3/1 (short)	112
3/2 (with short)	230(In) 118(Out)
4/1 (short)	124
4/2 (with short)	269(In) 145(Out)
5/1	219
6/1	75
6/2	227
7/1	252
8/1	90
9/1	349
10/1	220

Lane Saturation Flows

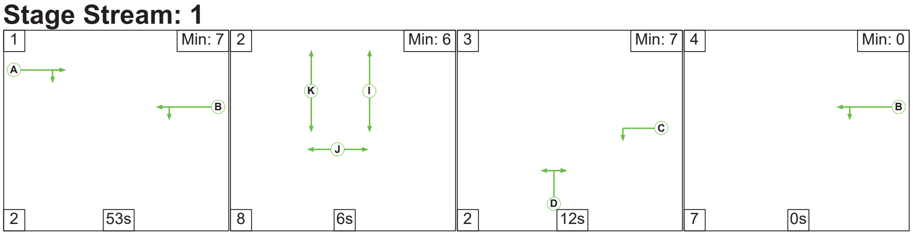
Junction: Unnamed Junction

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Ashgrove Rd West E/B)	3.00	0.00	Y	Arm 6 Ahead	Inf	100.0 %	1915	1915
1/2 (Ashgrove Rd West E/B)	3.00	0.00	N	Arm 8 Right	9.00	100.0 %	1761	1761
2/1 (Internal Link W/B)	3.00	0.00	Y	Arm 8 Left	12.00	100.0 %	1702	1702
2/2 (Internal Link W/B)	3.00	0.00	N	Arm 7 Ahead	Inf	100.0 %	2055	2055
3/1 (Foresterhill Rd N/B)	3.75	0.00	Y	Arm 7 Left	7.00	100.0 %	1639	1639
3/2 (Foresterhill Rd N/B)	3.75	0.00	N	Arm 6 Right	12.00	100.0 %	1893	1893
4/1 (Ashgrove Rd West W/B)	3.15	0.00	Y	Arm 2 Ahead	Inf	100.0 %	1930	1930
4/2 (Ashgrove Rd West W/B)	3.15	0.00	N	Arm 10 Right	8.00	100.0 %	1743	1743
5/1 (Forresterhill Rd S/B)	3.75	0.00	Y	Arm 2 Right	10.00	44.3 %	1742	1742
				Arm 9 Left	11.00	55.7 %		
6/1 (Internal Link E/B)	3.00	0.00	Y	Arm 10 Left	6.00	100.0 %	1532	1532
6/2 (Internal Link E/B)	3.00	0.00	N	Arm 9 Ahead	Inf	100.0 %	2055	2055
7/1 (Ashgrove Rd West Exit W/B Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Foresterhill Rd Exit S/B Lane 1)	Infinite Saturation Flow						Inf	Inf
9/1 (Ashgrove Rd West Exit E/B Lane 1)	Infinite Saturation Flow						Inf	Inf
10/1 (Foresterhill Rd Exit N/B Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'AM')

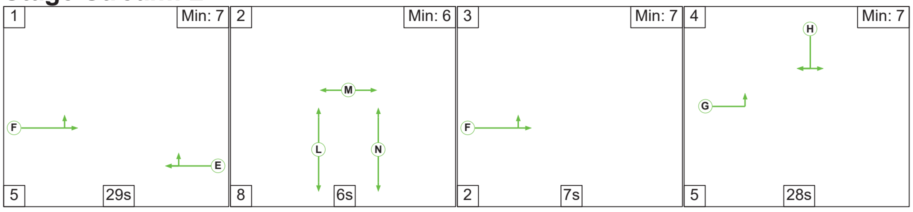
Stage Sequence Diagram

Stage Stream: 1



Full Input Data And Results

Stage Stream: 2



Stage Timings

Stage Stream: 1

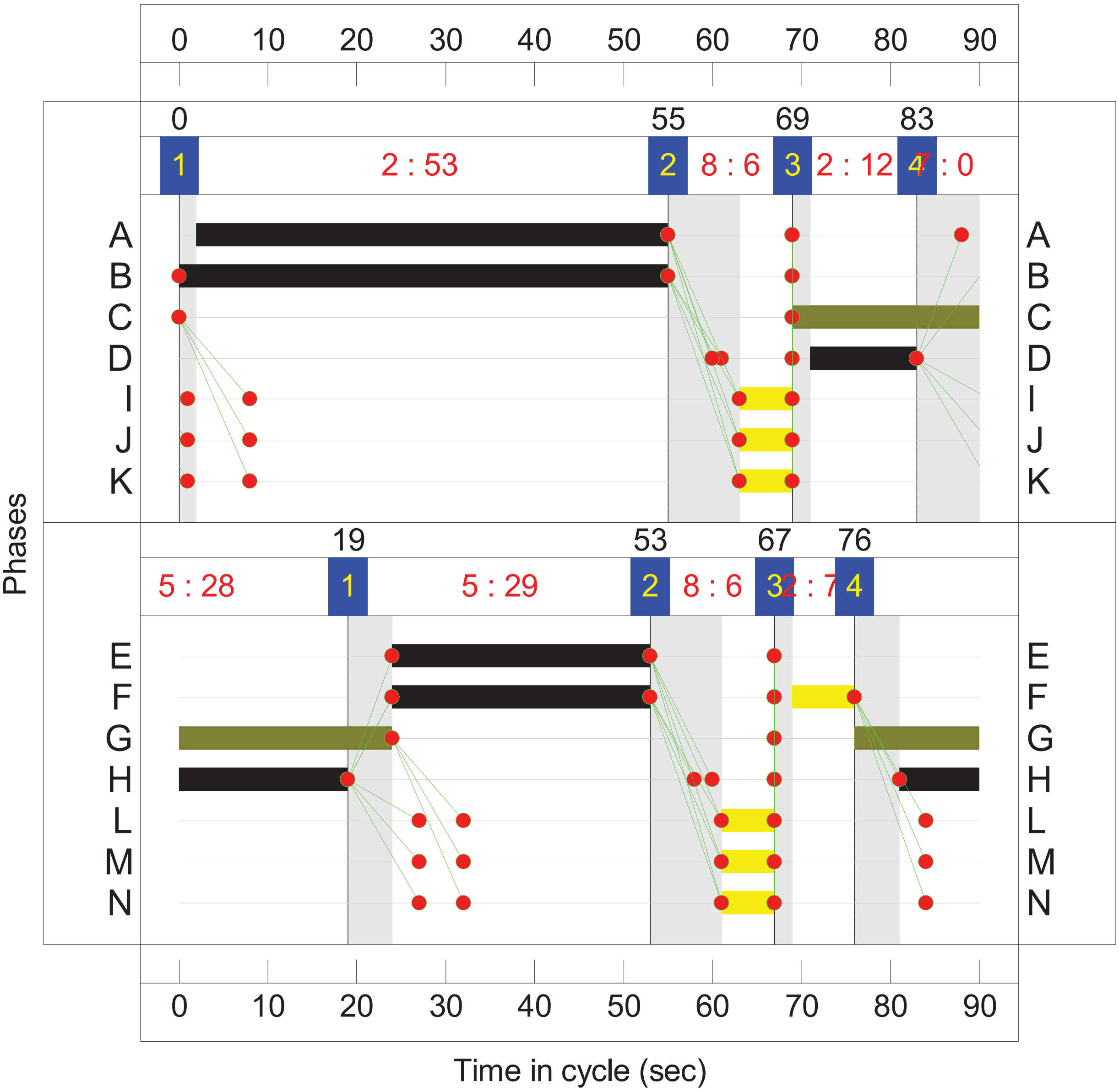
Stage	1	2	3	4
Duration	53	6	12	0
Change Point	0	55	69	83

Stage Stream: 2

Stage	1	2	3	4
Duration	29	6	7	28
Change Point	19	53	67	76

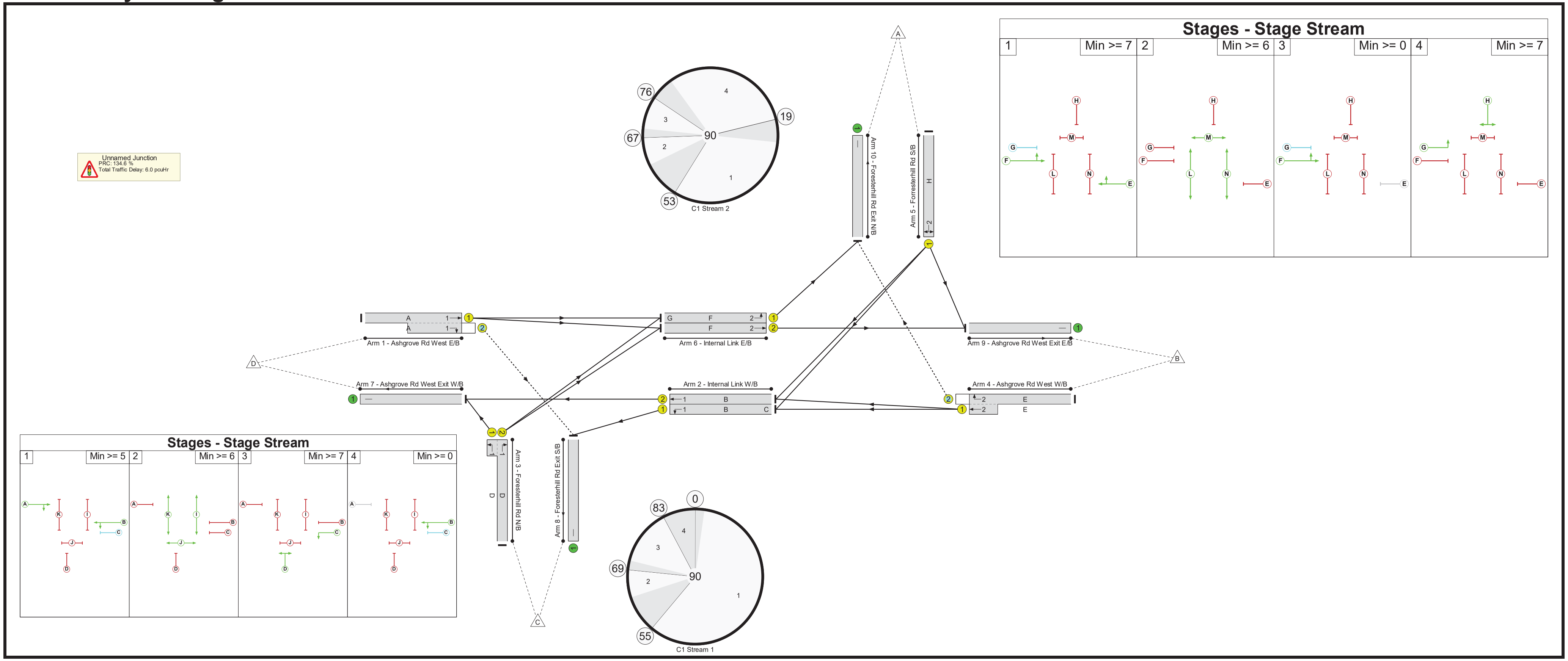
Full Input Data And Results

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Foresterhill Road - Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**38.4%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**38.4%**
1/1+1/2	Ashgrove Rd West E/B Ahead Right	U+O	1	N/A	A		1	53	-	195	1915:1761	1090+78	16.7 : 16.7%
2/1	Internal Link W/B Left	U	1	N/A	B	C	1	76	21	252	1702	1456	17.3%
2/2	Internal Link W/B Ahead	U	1	N/A	B		1	55	-	69	2055	1279	5.4%
3/2+3/1	Foresterhill Rd N/B Right Left	U	1	N/A	D		1	12	-	94	1893:1639	225+81	30.7 : 30.7%
4/2+4/1	Ashgrove Rd West W/B Ahead Right	O+U	2	N/A	E		1	29	-	270	1743:1930	206+506	37.9 : 37.9%
5/1	Forresterhill Rd S/B Right Left	U	2	N/A	H		1	28	-	215	1739	560	38.4%
6/1	Internal Link E/B Left	U	2	N/A	F	G	2	74	38	79	1532	1277	6.2%
6/2	Internal Link E/B Ahead	U	2	N/A	F		2	36	-	172	2055	868	19.8%
7/1	Ashgrove Rd West Exit W/B	U	N/A	N/A	-		-	-	-	94	Inf	Inf	0.0%
8/1	Foresterhill Rd Exit S/B	U	N/A	N/A	-		-	-	-	265	Inf	Inf	0.0%
9/1	Ashgrove Rd West Exit E/B	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%
10/1	Foresterhill Rd Exit N/B	U	N/A	N/A	-		-	-	-	157	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Foresterhill Road - Existing Layout	**-**	**-**	**91**	**0**	**0**	**4.7**	**1.2**	**0.1**	**6.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**91**	**0**	**0**	**4.7**	**1.2**	**0.1**	**6.0**	**-**	**-**	**-**	**-**
1/1+1/2	195	195	13	0	0	0.4	0.1	0.0	0.5	9.8	2.0	0.1	2.1
2/1	252	252	-	-	-	0.0	0.1	-	0.1	1.6	0.0	0.1	0.1
2/2	69	69	-	-	-	0.0	0.0	-	0.0	2.4	0.4	0.0	0.4
3/2+3/1	94	94	-	-	-	0.9	0.2	-	1.1	42.5	1.5	0.2	1.7
4/2+4/1	270	270	78	0	0	1.6	0.3	0.1	2.0	26.7	3.6	0.3	3.9
5/1	215	215	-	-	-	1.4	0.3	-	1.7	28.8	4.1	0.3	4.4
6/1	79	79	-	-	-	0.0	0.0	-	0.1	2.7	0.3	0.0	0.3
6/2	172	172	-	-	-	0.3	0.1	-	0.5	9.5	1.5	0.1	1.6
7/1	94	94	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	265	265	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	157	157	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

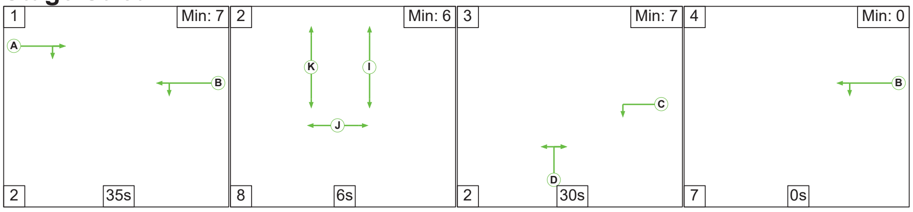
C1 Stream: 1 PRC for Signalled Lanes (%): 193.1 Total Delay for Signalled Lanes (pcuHr): 1.79 Cycle Time (s): 90
C1 Stream: 2 PRC for Signalled Lanes (%): 134.6 Total Delay for Signalled Lanes (pcuHr): 4.23 Cycle Time (s): 90
PRC Over All Lanes (%): 134.6 Total Delay Over All Lanes(pcuHr): 6.03

Full Input Data And Results

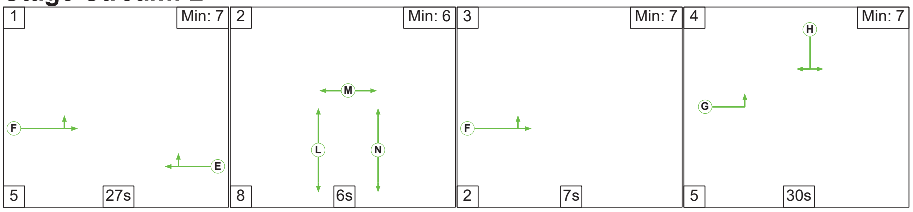
Scenario 2: 'PM' (FG2: 'PM', Plan 2: 'PM')

Stage Sequence Diagram

Stage Stream: 1



Stage Stream: 2



Stage Timings

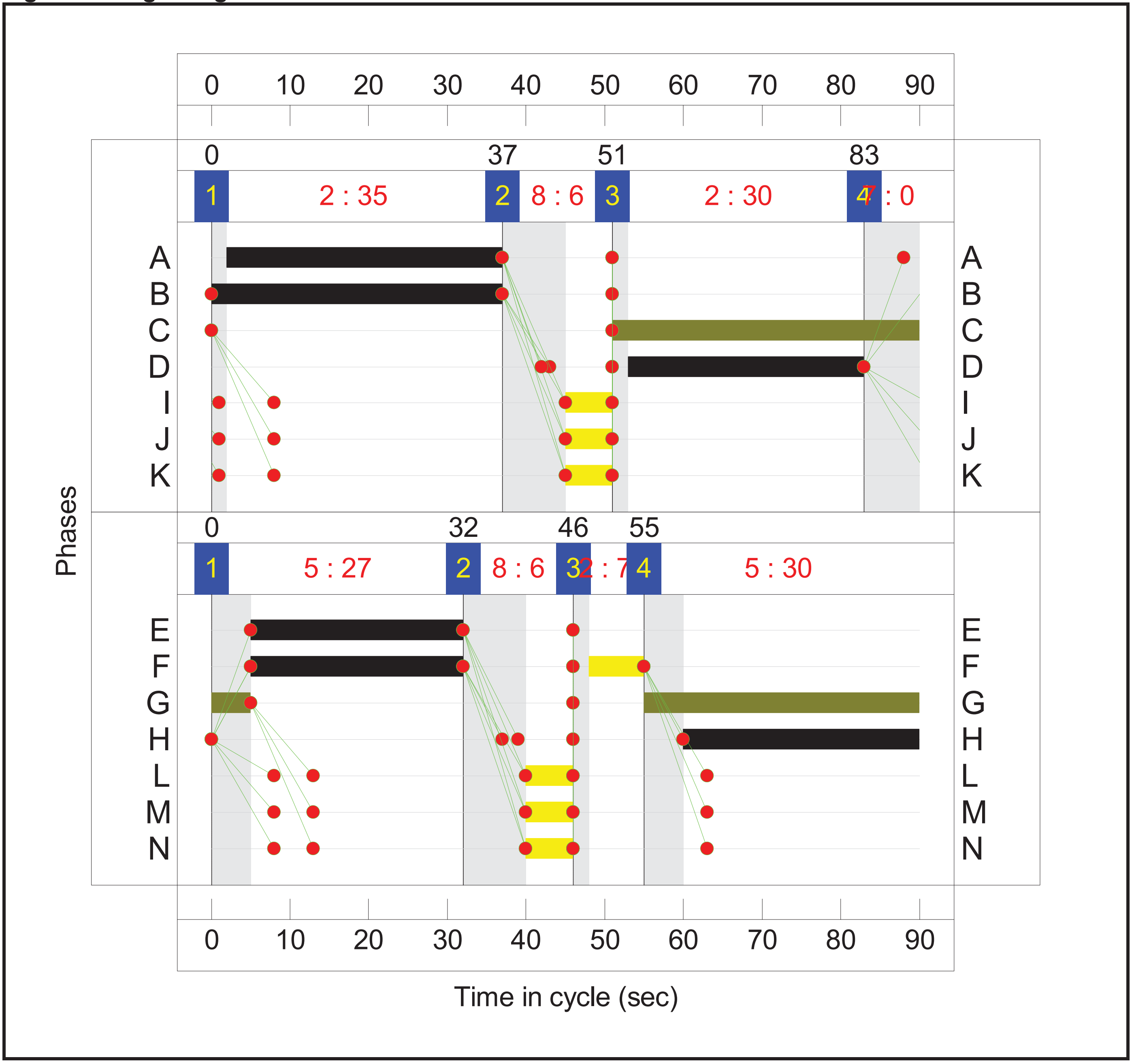
Stage Stream: 1

Stage	1	2	3	4
Duration	35	6	30	0
Change Point	0	37	51	83

Stage Stream: 2

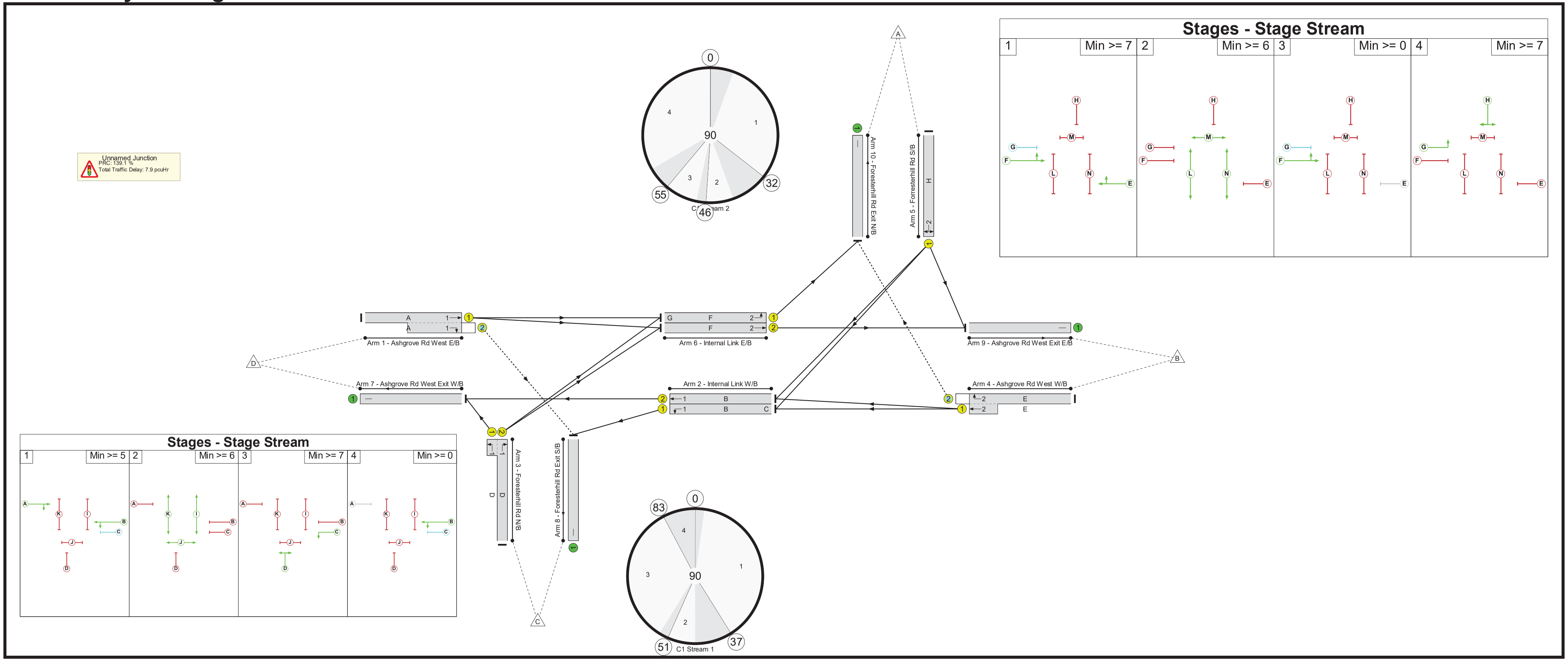
Stage	1	2	3	4
Duration	27	6	7	30
Change Point	0	32	46	55

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Foresterhill Road - Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**37.6%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**37.6%**
1/1+1/2	Ashgrove Rd West E/B Ahead Right	U+O	1	N/A	A		1	35	-	193	1915:1761	744+36	24.7 : 24.7%
2/1	Internal Link W/B Left	U	1	N/A	B	C	1	76	39	81	1702	1456	5.6%
2/2	Internal Link W/B Ahead	U	1	N/A	B		1	37	-	140	2055	868	16.1%
3/2+3/1	Foresterhill Rd N/B Right Left	U	1	N/A	D		1	30	-	230	1893:1639	364+346	32.4 : 32.4%
4/2+4/1	Ashgrove Rd West W/B Ahead Right	O+U	2	N/A	E		1	27	-	269	1743:1930	385+329	37.6 : 37.6%
5/1	Forresterhill Rd S/B Right Left	U	2	N/A	H		1	30	-	219	1742	600	36.5%
6/1	Internal Link E/B Left	U	2	N/A	F	G	2	74	40	75	1532	1277	5.9%
6/2	Internal Link E/B Ahead	U	2	N/A	F		2	34	-	227	2055	822	27.6%
7/1	Ashgrove Rd West Exit W/B	U	N/A	N/A	-		-	-	-	252	Inf	Inf	0.0%
8/1	Foresterhill Rd Exit S/B	U	N/A	N/A	-		-	-	-	90	Inf	Inf	0.0%
9/1	Ashgrove Rd West Exit E/B	U	N/A	N/A	-		-	-	-	349	Inf	Inf	0.0%
10/1	Foresterhill Rd Exit N/B	U	N/A	N/A	-		-	-	-	220	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Foresterhill Road - Existing Layout	**-**	**-**	**154**	**0**	**0**	**6.4**	**1.3**	**0.2**	**7.9**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**154**	**0**	**0**	**6.4**	**1.3**	**0.2**	**7.9**	**-**	**-**	**-**	**-**
1/1+1/2	193	193	9	0	0	1.0	0.2	0.0	1.1	21.0	3.0	0.2	3.2
2/1	81	81	-	-	-	0.0	0.0	-	0.0	1.3	0.0	0.0	0.0
2/2	140	140	-	-	-	0.4	0.1	-	0.5	11.6	1.5	0.1	1.6
3/2+3/1	230	230	-	-	-	1.3	0.2	-	1.6	24.4	2.0	0.2	2.3
4/2+4/1	269	269	145	0	0	1.7	0.3	0.2	2.2	29.5	2.8	0.3	3.1
5/1	219	219	-	-	-	1.3	0.3	-	1.6	26.8	4.1	0.3	4.4
6/1	75	75	-	-	-	0.1	0.0	-	0.1	4.6	0.7	0.0	0.7
6/2	227	227	-	-	-	0.6	0.2	-	0.8	13.2	2.4	0.2	2.5
7/1	252	252	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	90	90	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	349	349	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	220	220	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 Stream: 1 PRC for Signalled Lanes (%): 178.0 Total Delay for Signalled Lanes (pcuHr): 3.17 Cycle Time (s): 90
C1 Stream: 2 PRC for Signalled Lanes (%): 139.1 Total Delay for Signalled Lanes (pcuHr): 4.77 Cycle Time (s): 90
PRC Over All Lanes (%): 139.1 Total Delay Over All Lanes(pcuHr): 7.94

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Linked Compact.j10
Path: C:\Users\JOLL2764\OneDrive Corp\OneDrive - SNC Lavalin Group\Ashgrove\Feasibility\Work\Traffic Models\Option Testing\Foresterhill Rd\2022-08-03 Arcady Compacts
Report generation date: 06/09/2022 12:15:04

»Supplied Flows - 2022, AM
»Supplied Flows - 2022, PM

Summary of junction performance

	AM				PM			
	Queue (PCU)	Delay (s)	RFC	Network Residual Capacity	Queue (PCU)	Delay (s)	RFC	Network Residual Capacity
	Supplied Flows - 2022							
1 - West Roundabout - 1 - ARW Internal (east)	0.9	8.96	0.47	34 % [1 - West Roundabout - 1 - ARW Internal (east)]	0.5	6.88	0.32	32 % [2 - East Roundabout - 1 - ARW Internal (west)]
1 - West Roundabout - 2 - Foresterhill (south)	0.2	6.07	0.15		0.6	8.81	0.38	
1 - West Roundabout - 3 - ARW (west)	0.4	6.98	0.29		0.4	7.31	0.30	
2 - East Roundabout - 1 - ARW Internal (west)	0.6	7.87	0.38		0.9	9.77	0.47	
2 - East Roundabout - 2 - Foresterhill (north)	0.5	8.03	0.35		0.6	8.71	0.37	
2 - East Roundabout - 3 - ARW (east)	0.7	9.00	0.43		0.7	8.48	0.41	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	Foresterhill Road - Compact Roundabout
Location	Ashgrove Road, Aberdeen
Site number	
Date	03/08/2022
Version	
Status	(new file)
Identifier	
Client	Aberdeen City Council
Jobnumber	
Enumerator	WSATKINS\JOLL2764
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	00:00	01:30	15	✓
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Supplied Flows	✓	100.000	100.000

Supplied Flows - 2022, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - West Roundabout - 1 - ARW Internal (east)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - East Roundabout - 1 - ARW Internal (west)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - West Roundabout	HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Vehicle Mix	2 - East Roundabout	HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	West Roundabout	Standard Roundabout		1, 2, 3	7.88	A
2	East Roundabout	Standard Roundabout		1, 2, 3	8.33	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	34	1 - West Roundabout - 1 - ARW Internal (east)	8.13	A

Arms

Arms

Junction	Arm	Name	Description	No give-way line
1 - West Roundabout	1	ARW Internal (east)		
	2	Foresterhill (south)		
	3	ARW (west)		
2 - East Roundabout	1	ARW Internal (west)		
	2	Foresterhill (north)		
	3	ARW (east)		

Roundabout Geometry

Junction	Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - West Roundabout	1 - ARW Internal (east)	3.00	3.00	0.0	5.0	20.0	32.0		
	2 - Foresterhill (south)	3.00	3.00	0.0	4.0	20.0	31.0		
	3 - ARW (west)	3.00	3.00	0.0	5.0	20.0	32.0		
2 - East Roundabout	1 - ARW Internal (west)	3.00	3.00	0.0	5.0	20.0	31.0		
	2 - Foresterhill (north)	3.00	3.00	0.0	5.0	20.0	31.0		
	3 - ARW (east)	3.00	3.00	0.0	5.0	20.0	32.0		

Zebra Crossings

Junction	Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
1 - West Roundabout	1 - ARW Internal (east)	1.00	1.00		Distance	6.00	4.29
	2 - Foresterhill (south)	1.00	1.00		Distance	6.00	4.29
	3 - ARW (west)	1.00	1.00		Distance	6.00	4.29
2 - East Roundabout	1 - ARW Internal (west)	1.00	1.00		Distance	6.00	4.29
	2 - Foresterhill (north)	1.00	1.00		Distance	6.00	4.29
	3 - ARW (east)	1.00	1.00		Distance	6.00	4.29

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/hr)
1 - West Roundabout	1 - ARW Internal (east)	0.424	769
	2 - Foresterhill (south)	0.401	728
	3 - ARW (west)	0.424	769
2 - East Roundabout	1 - ARW Internal (west)	0.426	772
	2 - Foresterhill (north)	0.426	772
	3 - ARW (east)	0.424	769

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - West Roundabout	1 - ARW Internal (east)	2	1	Simple (vertical queueing)	Normal	0	100.00	
2 - East Roundabout	1 - ARW Internal (west)	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - West Roundabout	1 - ARW Internal (east)	✓				
	2 - Foresterhill (south)		ONE HOUR	✓	94	100.000
	3 - ARW (west)		ONE HOUR	✓	195	100.000
2 - East Roundabout	1 - ARW Internal (west)	✓				
	2 - Foresterhill (north)		ONE HOUR	✓	215	100.000
	3 - ARW (east)		ONE HOUR	✓	270	100.000

Demand overview (Pedestrians)

Junction	Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - West Roundabout	1 - ARW Internal (east)	[ONEHOUR]	29.00
	2 - Foresterhill (south)	[ONEHOUR]	15.00
	3 - ARW (west)	[ONEHOUR]	7.00
2 - East Roundabout	1 - ARW Internal (west)	[ONEHOUR]	29.00
	2 - Foresterhill (north)	[ONEHOUR]	7.00
	3 - ARW (east)	[ONEHOUR]	15.00

Origin-Destination Data

1 - West Roundabout

Demand (PCU/hr)

		To		
		1 - ARW Internal (east)	2 - Foresterhill (south)	3 - ARW (west)
From	1 - ARW Internal (east)	0	252	69
	2 - Foresterhill (south)	69	0	25
	3 - ARW (west)	182	13	0

2 - East Roundabout

Demand (PCU/hr)

		To		
		1 - ARW Internal (west)	2 - Foresterhill (north)	3 - ARW (east)
From	1 - ARW Internal (west)	0	79	172
	2 - Foresterhill (north)	129	0	86
	3 - ARW (east)	192	78	0

Vehicle Mix

1 - West Roundabout

Heavy Vehicle Percentages

		To		
		1 - ARW Internal (east)	2 - Foresterhill (south)	3 - ARW (west)
From	1 - ARW Internal (east)	0	0	0
	2 - Foresterhill (south)	0	0	0
	3 - ARW (west)	0	0	0

2 - East Roundabout

Heavy Vehicle Percentages

		To		
		1 - ARW Internal (west)	2 - Foresterhill (north)	3 - ARW (east)
From	1 - ARW Internal (west)	0	0	0
	2 - Foresterhill (north)	0	0	0
	3 - ARW (east)	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - West Roundabout	1 - ARW Internal (east)	0.47	8.96	0.9	A	294	441
	2 - Foresterhill (south)	0.15	6.07	0.2	A	86	129
	3 - ARW (west)	0.29	6.98	0.4	A	179	268
2 - East Roundabout	1 - ARW Internal (west)	0.38	7.87	0.6	A	230	345
	2 - Foresterhill (north)	0.35	8.03	0.5	A	197	296
	3 - ARW (east)	0.43	9.00	0.7	A	248	372

Main Results for each time segment

00:00 - 00:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	240	60	10	21.83	762	0.315	238	188	0.0	0.5	6.847	A
	2 - Foresterhill (south)	71	18	51	11.29	707	0.100	70	197	0.0	0.1	5.648	A
	3 - ARW (west)	147	37	52	5.27	745	0.197	146	70	0.0	0.2	6.000	A
2 - East Roundabout	1 - ARW Internal (west)	188	47	58	21.83	747	0.251	186	240	0.0	0.3	6.405	A
	2 - Foresterhill (north)	162	40	128	5.27	715	0.226	161	117	0.0	0.3	6.476	A
	3 - ARW (east)	203	51	96	11.29	724	0.281	202	192	0.0	0.4	6.878	A

00:15 - 00:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	288	72	12	26.07	759	0.379	287	225	0.5	0.6	7.618	A
	2 - Foresterhill (south)	85	21	62	13.48	703	0.120	84	237	0.1	0.1	5.821	A
	3 - ARW (west)	175	44	62	6.29	739	0.237	175	84	0.2	0.3	6.381	A
2 - East Roundabout	1 - ARW Internal (west)	225	56	70	26.07	741	0.304	225	288	0.3	0.4	6.962	A
	2 - Foresterhill (north)	193	48	154	6.29	703	0.275	193	141	0.3	0.4	7.057	A
	3 - ARW (east)	243	61	116	13.48	713	0.340	242	231	0.4	0.5	7.640	A

00:30 - 00:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	352	88	14	31.93	755	0.467	351	276	0.6	0.9	8.893	A
	2 - Foresterhill (south)	103	26	76	16.52	697	0.148	103	290	0.1	0.2	6.061	A
	3 - ARW (west)	215	54	76	7.71	730	0.294	214	103	0.3	0.4	6.969	A
2 - East Roundabout	1 - ARW Internal (west)	276	69	86	31.93	734	0.376	275	352	0.4	0.6	7.842	A
	2 - Foresterhill (north)	237	59	189	7.71	686	0.345	236	172	0.4	0.5	7.999	A
	3 - ARW (east)	297	74	142	16.52	697	0.426	296	283	0.5	0.7	8.960	A

00:45 - 01:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	353	88	14	31.93	755	0.468	353	276	0.9	0.9	8.961	A
	2 - Foresterhill (south)	103	26	76	16.52	697	0.149	103	292	0.2	0.2	6.065	A
	3 - ARW (west)	215	54	76	7.71	730	0.294	215	103	0.4	0.4	6.981	A
2 - East Roundabout	1 - ARW Internal (west)	276	69	86	31.93	733	0.377	276	353	0.6	0.6	7.874	A
	2 - Foresterhill (north)	237	59	189	7.71	685	0.345	237	173	0.5	0.5	8.027	A
	3 - ARW (east)	297	74	142	16.52	697	0.426	297	284	0.7	0.7	9.002	A

01:00 - 01:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	290	72	12	26.07	759	0.381	291	226	0.9	0.6	7.695	A
	2 - Foresterhill (south)	85	21	62	13.48	703	0.120	85	240	0.2	0.1	5.829	A
	3 - ARW (west)	175	44	62	6.29	739	0.237	176	85	0.4	0.3	6.396	A
2 - East Roundabout	1 - ARW Internal (west)	226	57	70	26.07	741	0.305	227	290	0.6	0.4	7.008	A
	2 - Foresterhill (north)	193	48	155	6.29	702	0.275	194	142	0.5	0.4	7.092	A
	3 - ARW (east)	243	61	116	13.48	713	0.341	244	233	0.7	0.5	7.691	A

01:15 - 01:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	242	61	10	21.83	762	0.318	243	189	0.6	0.5	6.946	A
	2 - Foresterhill (south)	71	18	52	11.29	707	0.100	71	200	0.1	0.1	5.663	A
	3 - ARW (west)	147	37	52	5.27	745	0.197	147	71	0.3	0.2	6.029	A
2 - East Roundabout	1 - ARW Internal (west)	189	47	59	21.83	746	0.254	190	242	0.4	0.3	6.470	A
	2 - Foresterhill (north)	162	40	130	5.27	714	0.227	162	119	0.4	0.3	6.523	A
	3 - ARW (east)	203	51	97	11.29	723	0.281	204	195	0.5	0.4	6.936	A

Supplied Flows - 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Linked Roundabout	1 - West Roundabout - 1 - ARW Internal (east)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	2 - East Roundabout - 1 - ARW Internal (west)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Vehicle Mix	1 - West Roundabout	HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Vehicle Mix	2 - East Roundabout	HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	West Roundabout	Standard Roundabout		1, 2, 3	7.70	A
2	East Roundabout	Standard Roundabout		1, 2, 3	9.04	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	32	2 - East Roundabout - 1 - ARW Internal (west)	8.44	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (PCU/hr)	Flow multiplier (%)	Internal storage space (PCU)
1 - West Roundabout	1 - ARW Internal (east)	2	1	Simple (vertical queueing)	Normal	0	100.00	
2 - East Roundabout	1 - ARW Internal (west)	1	1	Simple (vertical queueing)	Normal	0	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - West Roundabout	1 - ARW Internal (east)	✓				
	2 - Foresterhill (south)		ONE HOUR	✓	229	100.000
	3 - ARW (west)		ONE HOUR	✓	193	100.000
2 - East Roundabout	1 - ARW Internal (west)	✓				
	2 - Foresterhill (north)		ONE HOUR	✓	218	100.000
	3 - ARW (east)		ONE HOUR	✓	268	100.000

Demand overview (Pedestrians)

Junction	Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - West Roundabout	1 - ARW Internal (east)	[ONEHOUR]	16.00
	2 - Foresterhill (south)	[ONEHOUR]	7.00
	3 - ARW (west)	[ONEHOUR]	11.00
2 - East Roundabout	1 - ARW Internal (west)	[ONEHOUR]	24.00
	2 - Foresterhill (north)	[ONEHOUR]	7.00
	3 - ARW (east)	[ONEHOUR]	11.00

Origin-Destination Data

1 - West Roundabout

Demand (PCU/hr)

		To		
		1 - ARW Internal (east)	2 - Foresterhill (south)	3 - ARW (west)
From	1 - ARW Internal (east)	0	81	140
	2 - Foresterhill (south)	117	0	112
	3 - ARW (west)	184	9	0

Demand (PCU/hr)

To

2 - East Roundabout

		1 - ARW Internal (west)	2 - Foresterhill (north)	3 - ARW (east)
From	1 - ARW Internal (west)	0	75	227
	2 - Foresterhill (north)	96	0	122
	3 - ARW (east)	123	145	0

Vehicle Mix

Heavy Vehicle Percentages

1 - West Roundabout

		To		
		1 - ARW Internal (east)	2 - Foresterhill (south)	3 - ARW (west)
From	1 - ARW Internal (east)	0	0	0
	2 - Foresterhill (south)	0	0	0
	3 - ARW (west)	0	0	0

Heavy Vehicle Percentages

2 - East Roundabout

		To		
		1 - ARW Internal (west)	2 - Foresterhill (north)	3 - ARW (east)
From	1 - ARW Internal (west)	0	0	0
	2 - Foresterhill (north)	0	0	0
	3 - ARW (east)	0	0	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - West Roundabout	1 - ARW Internal (east)	0.32	6.88	0.5	A	201	301
	2 - Foresterhill (south)	0.38	8.81	0.6	A	210	315
	3 - ARW (west)	0.30	7.31	0.4	A	177	266
2 - East Roundabout	1 - ARW Internal (west)	0.47	9.77	0.9	A	276	414
	2 - Foresterhill (north)	0.37	8.71	0.6	A	200	300
	3 - ARW (east)	0.41	8.48	0.7	A	246	369

Main Results for each time segment

00:00 - 00:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	164	41	7	12.05	766	0.214	163	225	0.0	0.3	5.952	A
	2 - Foresterhill (south)	172	43	103	5.27	684	0.252	171	66	0.0	0.3	6.995	A
	3 - ARW (west)	145	36	87	8.28	728	0.200	144	187	0.0	0.2	6.155	A
2 - East Roundabout	1 - ARW Internal (west)	225	56	108	18.07	724	0.311	223	164	0.0	0.4	7.159	A
	2 - Foresterhill (north)	164	41	168	5.27	696	0.236	163	164	0.0	0.3	6.742	A
	3 - ARW (east)	202	50	72	8.28	737	0.274	200	259	0.0	0.4	6.688	A

00:15 - 00:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	196	49	8	14.38	765	0.257	196	270	0.3	0.3	6.321	A
	2 - Foresterhill (south)	206	51	124	6.29	674	0.305	205	80	0.3	0.4	7.668	A
	3 - ARW (west)	174	43	105	9.89	719	0.241	173	225	0.2	0.3	6.597	A
2 - East Roundabout	1 - ARW Internal (west)	270	68	130	21.58	714	0.378	270	196	0.4	0.6	8.085	A
	2 - Foresterhill (north)	196	49	203	6.29	678	0.289	196	197	0.3	0.4	7.456	A
	3 - ARW (east)	241	60	86	9.89	730	0.330	240	312	0.4	0.5	7.350	A

00:30 - 00:45

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	240	60	10	17.62	764	0.315	240	331	0.3	0.5	6.858	A
	2 - Foresterhill (south)	252	63	152	7.71	661	0.381	251	98	0.4	0.6	8.772	A
	3 - ARW (west)	212	53	128	12.11	705	0.302	212	275	0.3	0.4	7.300	A
2 - East Roundabout	1 - ARW Internal (west)	331	83	159	26.42	700	0.472	330	240	0.6	0.9	9.686	A
	2 - Foresterhill (north)	240	60	248	7.71	654	0.367	239	241	0.4	0.6	8.670	A
	3 - ARW (east)	295	74	105	12.11	720	0.410	294	382	0.5	0.7	8.442	A

00:45 - 01:00

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	241	60	10	17.62	764	0.315	241	331	0.5	0.5	6.877	A
	2 - Foresterhill (south)	252	63	153	7.71	661	0.382	252	98	0.6	0.6	8.809	A

	3 - ARW (west)	212	53	129	12.11	705	0.302	212	276	0.4	0.4	7.314	A
2 - East Roundabout	1 - ARW Internal (west)	331	83	160	26.42	700	0.474	331	241	0.9	0.9	9.767	A
	2 - Foresterhill (north)	240	60	249	7.71	653	0.368	240	242	0.6	0.6	8.714	A
	3 - ARW (east)	295	74	106	12.11	720	0.410	295	383	0.7	0.7	8.475	A

01:00 - 01:15

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	198	49	8	14.38	765	0.258	198	271	0.5	0.4	6.349	A
	2 - Foresterhill (south)	206	51	125	6.29	674	0.305	207	81	0.6	0.4	7.713	A
	3 - ARW (west)	174	43	106	9.89	718	0.242	174	226	0.4	0.3	6.619	A
2 - East Roundabout	1 - ARW Internal (west)	271	68	131	21.58	714	0.380	272	198	0.9	0.6	8.176	A
	2 - Foresterhill (north)	196	49	205	6.29	677	0.290	197	198	0.6	0.4	7.508	A
	3 - ARW (east)	241	60	87	9.89	730	0.330	242	315	0.7	0.5	7.388	A

01:15 - 01:30

Junction	Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - West Roundabout	1 - ARW Internal (east)	165	41	7	12.05	766	0.216	166	227	0.4	0.3	5.998	A
	2 - Foresterhill (south)	172	43	105	5.27	684	0.252	173	67	0.4	0.3	7.057	A
	3 - ARW (west)	145	36	88	8.28	728	0.200	146	189	0.3	0.3	6.185	A
2 - East Roundabout	1 - ARW Internal (west)	227	57	109	18.07	724	0.314	228	165	0.6	0.5	7.263	A
	2 - Foresterhill (north)	164	41	171	5.27	694	0.236	165	166	0.4	0.3	6.805	A
	3 - ARW (east)	202	50	72	8.28	737	0.274	202	263	0.5	0.4	6.743	A

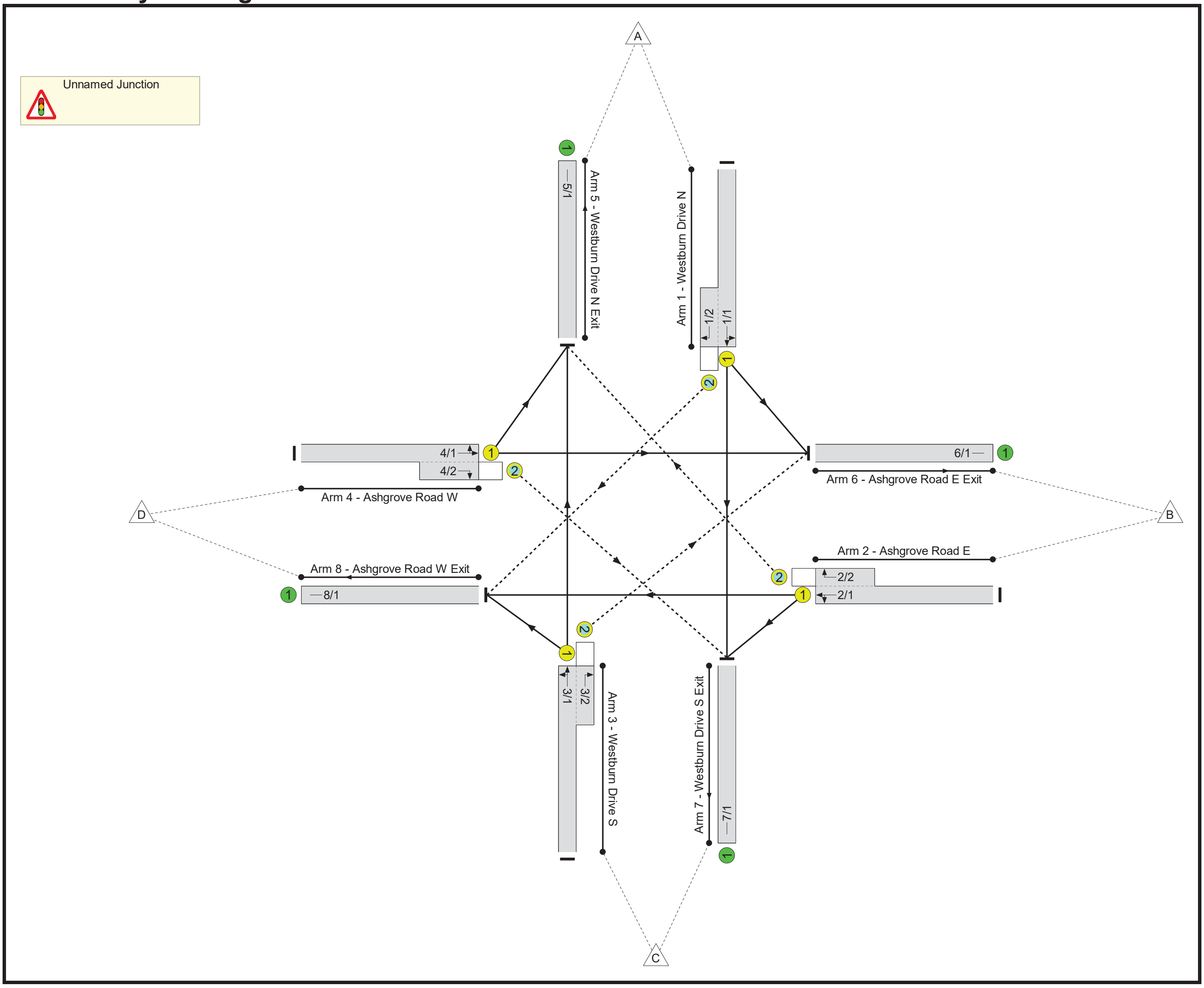
Full Input Data And Results

User and Project Details

Project:	**Ashgrove Connects**
Title:	**Westburn Drive - Existing Layout**
Location:	
Client:	Aberdeen City Council
Site Ref(s):	3
Date Completed:	12/08/2022
Checked By:	KF
Checked By Date:	16/08/2022
Additional detail:	
File name:	2022-02-21 Westburn Dr Existing.lsg3x
Author:	C Jolly
Company:	Atkins
Address:	10 Canning Street, Edinburgth, EH3 8EG

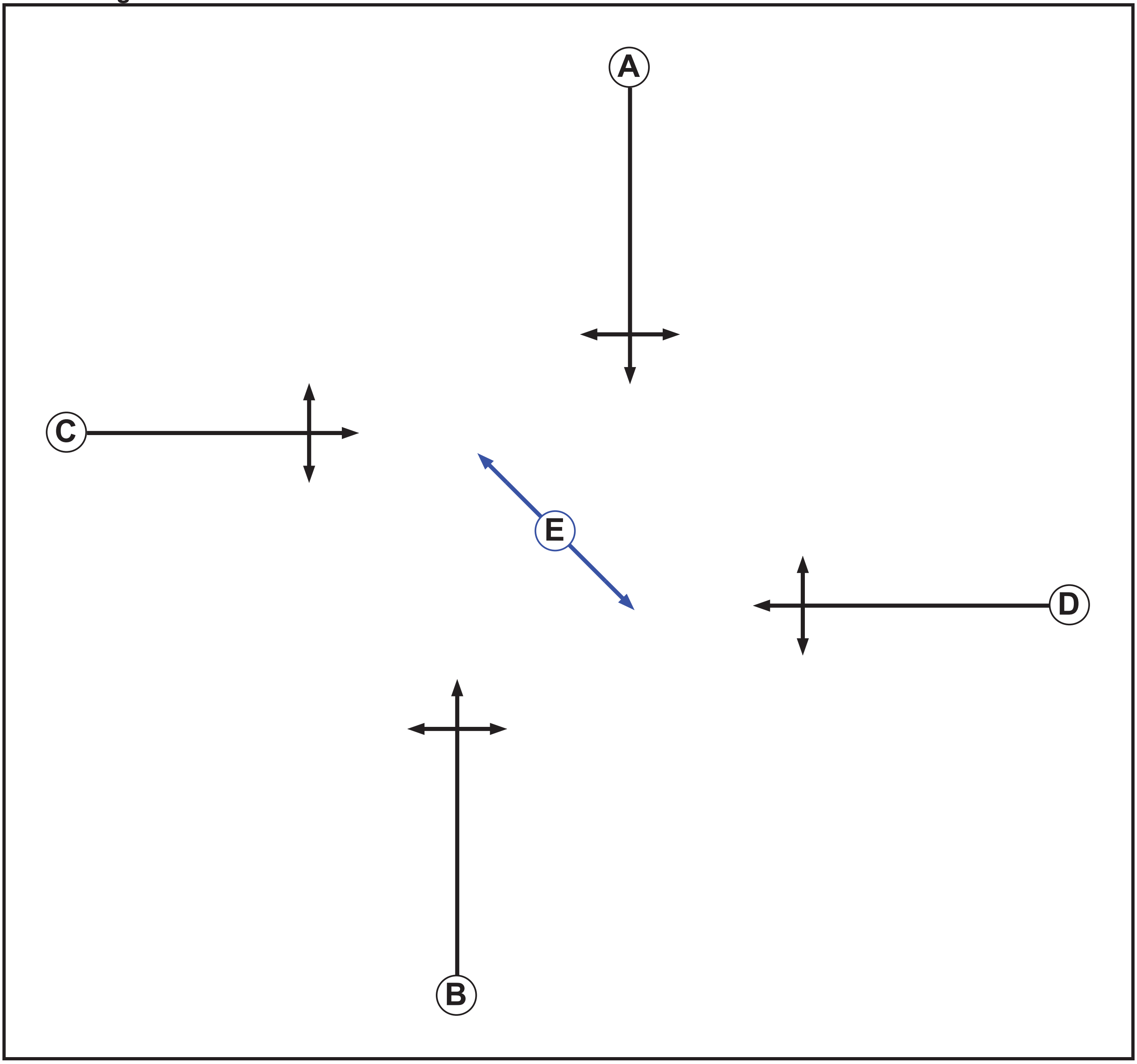
Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		10	10

Full Input Data And Results

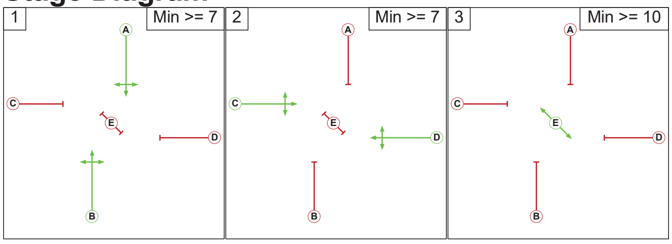
Phase Intergreens Matrix

	Starting Phase					
		A	B	C	D	E
Terminating Phase	A		-	5	5	8
	B	-		5	5	8
	C	5	5		-	8
	D	5	5	-		8
	E	10	10	10	10	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	C D
3	E

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

	To Stage			
		1	2	3
From Stage	1		5	8
	2	5		8
	3	10	10	

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Westburn Drive N)	8/1 (Right)	1439	0	3/1	1.09	All	2.00	-	0.50	2	2.00
				3/2	1.09	All					
2/2 (Ashgrove Road E)	5/1 (Right)	1439	0	4/1	1.09	All	2.00	-	0.50	2	2.00
3/2 (Westburn Drive S)	6/1 (Right)	1439	0	1/1	1.09	All	2.00	-	0.50	2	2.00
				1/2	1.09	All					
4/2 (Ashgrove Road W)	7/1 (Right)	1439	0	2/1	1.09	All	2.00	-	0.50	2	2.00

Full Input Data And Results

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Westburn Drive N)	U	A	2	3	60.0	Geom	-	2.50	0.00	Y	Arm 6 Left	Inf
											Arm 7 Ahead	Inf
1/2 (Westburn Drive N)	O	A	2	3	5.0	Geom	-	2.50	0.00	N	Arm 8 Right	Inf
2/1 (Ashgrove Road E)	U	D	2	3	60.0	Geom	-	2.50	0.00	Y	Arm 7 Left	Inf
											Arm 8 Ahead	Inf
2/2 (Ashgrove Road E)	O	D	2	3	5.0	Geom	-	2.50	0.00	N	Arm 5 Right	Inf
3/1 (Westburn Drive S)	U	B	2	3	60.0	Geom	-	2.75	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	Inf
3/2 (Westburn Drive S)	O	B	2	3	5.0	Geom	-	2.75	0.00	N	Arm 6 Right	Inf
4/1 (Ashgrove Road W)	U	C	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 5 Left	Inf
											Arm 6 Ahead	Inf
4/2 (Ashgrove Road W)	O	C	2	3	5.0	Geom	-	3.00	0.00	N	Arm 7 Right	Inf
5/1 (Westburn Drive N Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Ashgrove Road E Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Westburn Drive S Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Ashgrove Road W Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM'	08:00	09:00	01:00	
2: 'PM'	17:00	18:00	01:00	

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'Supplied / Existing')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	112	395	155	662
	B	93	0	26	53	172
	C	371	37	0	63	471
	D	57	99	78	0	234
	Tot.	521	248	499	271	1539

Traffic Lane Flows

Lane	Scenario 1: AM
Junction: Unnamed Junction	
1/1 (with short)	662(In) 507(Out)
1/2 (short)	155
2/1 (with short)	172(In) 79(Out)
2/2 (short)	93
3/1 (with short)	471(In) 434(Out)
3/2 (short)	37
4/1 (with short)	234(In) 156(Out)
4/2 (short)	78
5/1	521
6/1	248
7/1	499
8/1	271

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Westburn Drive N)	2.50	0.00	Y	Arm 6 Left	Inf	22.1 %	1865	1865
				Arm 7 Ahead	Inf	77.9 %		
1/2 (Westburn Drive N)	2.50	0.00	N	Arm 8 Right	Inf	100.0 %	2005	2005
2/1 (Ashgrove Road E)	2.50	0.00	Y	Arm 7 Left	Inf	32.9 %	1865	1865
				Arm 8 Ahead	Inf	67.1 %		
2/2 (Ashgrove Road E)	2.50	0.00	N	Arm 5 Right	Inf	100.0 %	2005	2005
3/1 (Westburn Drive S)	2.75	0.00	Y	Arm 5 Ahead	Inf	85.5 %	1890	1890
				Arm 8 Left	Inf	14.5 %		
3/2 (Westburn Drive S)	2.75	0.00	N	Arm 6 Right	Inf	100.0 %	2030	2030
4/1 (Ashgrove Road W)	3.00	0.00	Y	Arm 5 Left	Inf	36.5 %	1915	1915
				Arm 6 Ahead	Inf	63.5 %		
4/2 (Ashgrove Road W)	3.00	0.00	N	Arm 7 Right	Inf	100.0 %	2055	2055
5/1 (Westburn Drive N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Ashgrove Road E Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Westburn Drive S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Ashgrove Road W Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM' (FG2: 'PM', Plan 1: 'Supplied / Existing')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	81	478	84	643
	B	70	0	38	71	179
	C	443	110	0	103	656
	D	105	160	92	0	357
	Tot.	618	351	608	258	1835

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM
Junction: Unnamed Junction	
1/1 (with short)	643(In) 559(Out)
1/2 (short)	84
2/1 (with short)	179(In) 109(Out)
2/2 (short)	70
3/1 (with short)	656(In) 546(Out)
3/2 (short)	110
4/1 (with short)	357(In) 265(Out)
4/2 (short)	92
5/1	618
6/1	351
7/1	608
8/1	258

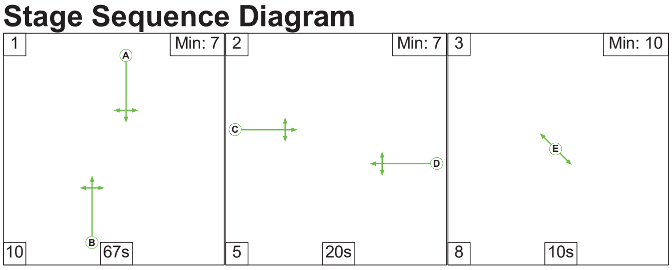
Full Input Data And Results

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Westburn Drive N)	2.50	0.00	Y	Arm 6 Left	Inf	14.5 %	1865	1865
				Arm 7 Ahead	Inf	85.5 %		
1/2 (Westburn Drive N)	2.50	0.00	N	Arm 8 Right	Inf	100.0 %	2005	2005
2/1 (Ashgrove Road E)	2.50	0.00	Y	Arm 7 Left	Inf	34.9 %	1865	1865
				Arm 8 Ahead	Inf	65.1 %		
2/2 (Ashgrove Road E)	2.50	0.00	N	Arm 5 Right	Inf	100.0 %	2005	2005
3/1 (Westburn Drive S)	2.75	0.00	Y	Arm 5 Ahead	Inf	81.1 %	1890	1890
				Arm 8 Left	Inf	18.9 %		
3/2 (Westburn Drive S)	2.75	0.00	N	Arm 6 Right	Inf	100.0 %	2030	2030
4/1 (Ashgrove Road W)	3.00	0.00	Y	Arm 5 Left	Inf	39.6 %	1915	1915
				Arm 6 Ahead	Inf	60.4 %		
4/2 (Ashgrove Road W)	3.00	0.00	N	Arm 7 Right	Inf	100.0 %	2055	2055
5/1 (Westburn Drive N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Ashgrove Road E Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Westburn Drive S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Ashgrove Road W Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'Supplied / Existing')

Stage Sequence Diagram

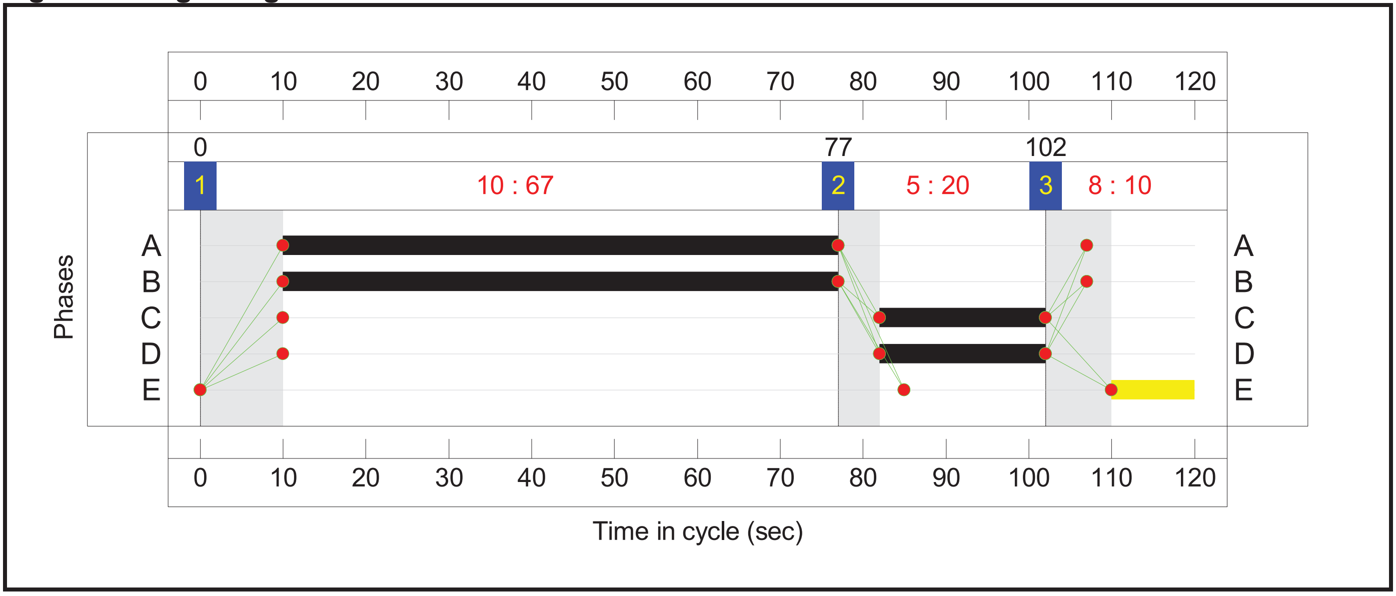


Stage Timings

Stage	1	2	3
Duration	67	20	10
Change Point	0	77	102

Full Input Data And Results

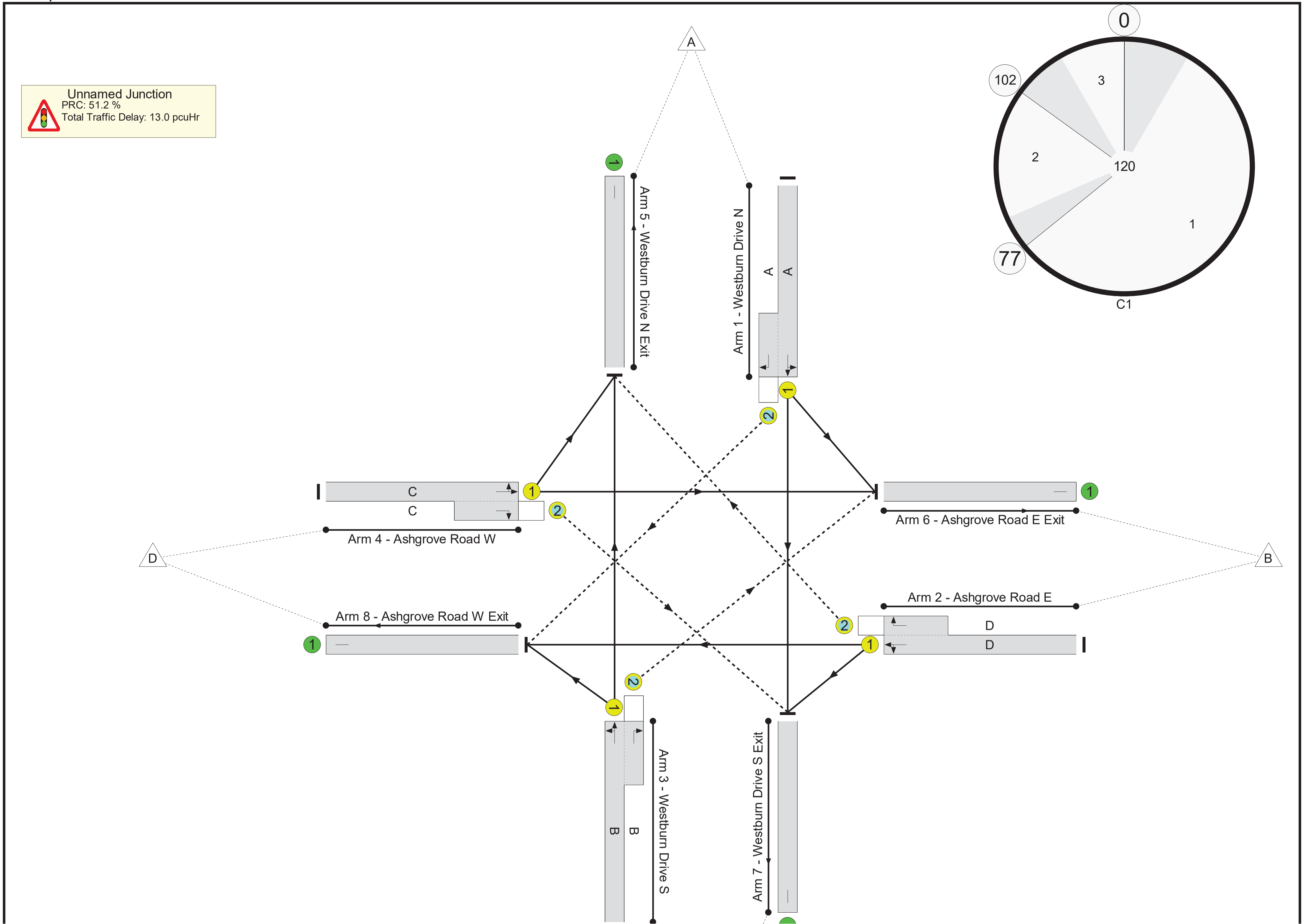
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Westburn Drive - Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**59.5%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**59.5%**
1/1+1/2	Westburn Drive N Left Ahead Right	U+O	N/A	N/A	A		1	67	-	662	1865:2005	852+260	59.5 : 59.5%
2/1+2/2	Ashgrove Road E Right Left Ahead	U+O	N/A	N/A	D		1	20	-	172	1865:2005	141+166	56.1 : 56.1%
3/1+3/2	Westburn Drive S Ahead Right Left	U+O	N/A	N/A	B		1	67	-	471	1890:2030	996+85	43.6 : 43.6%
4/1+4/2	Ashgrove Road W Left Ahead Right	U+O	N/A	N/A	C		1	20	-	234	1915:2055	281+140	55.6 : 55.6%
5/1	Westburn Drive N Exit	U	N/A	N/A	-		-	-	-	521	Inf	Inf	0.0%
6/1	Ashgrove Road E Exit	U	N/A	N/A	-		-	-	-	248	Inf	Inf	0.0%
7/1	Westburn Drive S Exit	U	N/A	N/A	-		-	-	-	499	Inf	Inf	0.0%
8/1	Ashgrove Road W Exit	U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%

Full Input Data And Results

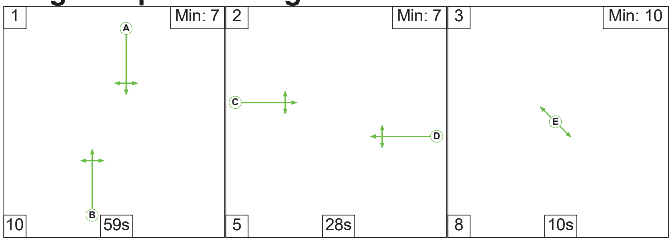
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Westburn Drive - Existing Layout	**-**	**-**	**363**	**0**	**0**	**9.8**	**2.4**	**0.8**	**13.0**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**363**	**0**	**0**	**9.8**	**2.4**	**0.8**	**13.0**	**-**	**-**	**-**	**-**
1/1+1/2	662	662	155	0	0	2.9	0.7	0.3	4.0	21.8	12.4	0.7	13.2
2/1+2/2	172	172	93	0	0	2.1	0.6	0.2	2.9	61.2	2.9	0.6	3.6
3/1+3/2	471	471	37	0	0	1.9	0.4	0.2	2.5	18.8	8.5	0.4	8.9
4/1+4/2	234	234	78	0	0	2.9	0.6	0.1	3.6	55.0	4.6	0.6	5.3
5/1	521	521	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	248	248	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	499	499	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 51.2 Total Delay for Signalled Lanes (pcuHr): 12.98 Cycle Time (s): 120
PRC Over All Lanes (%): 51.2 Total Delay Over All Lanes(pcuHr): 12.98

Full Input Data And Results

Scenario 2: 'PM' (FG2: 'PM', Plan 1: 'Supplied / Existing')

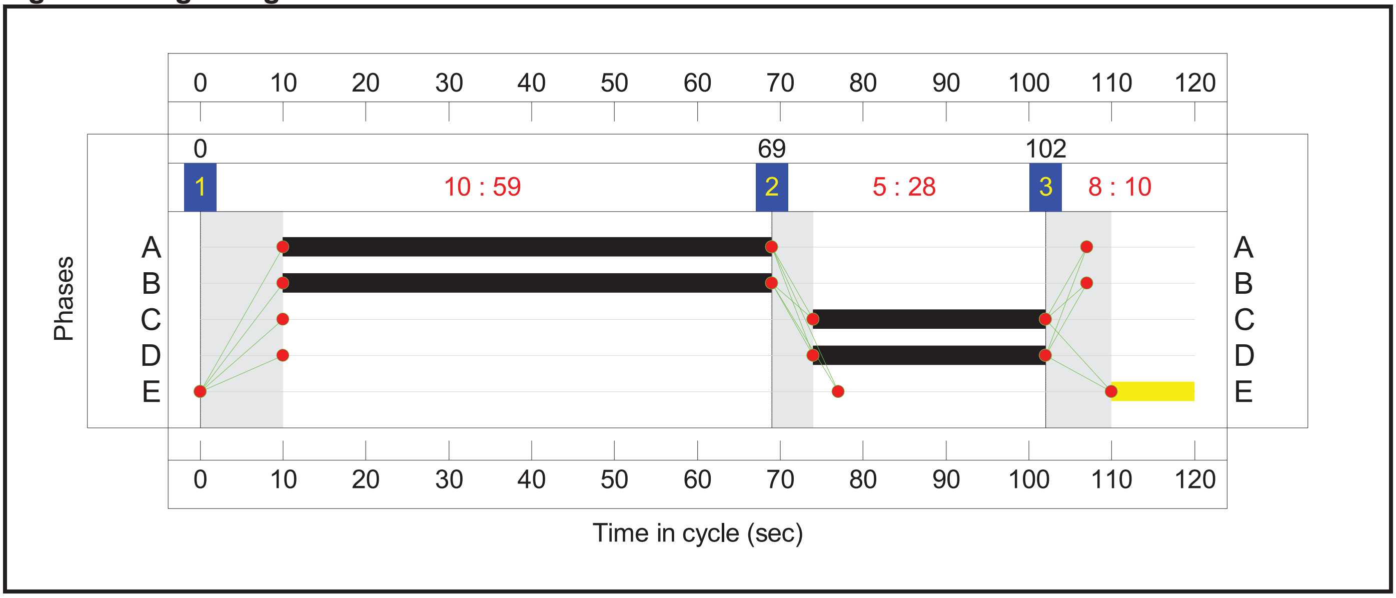
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	59	28	10
Change Point	0	69	102

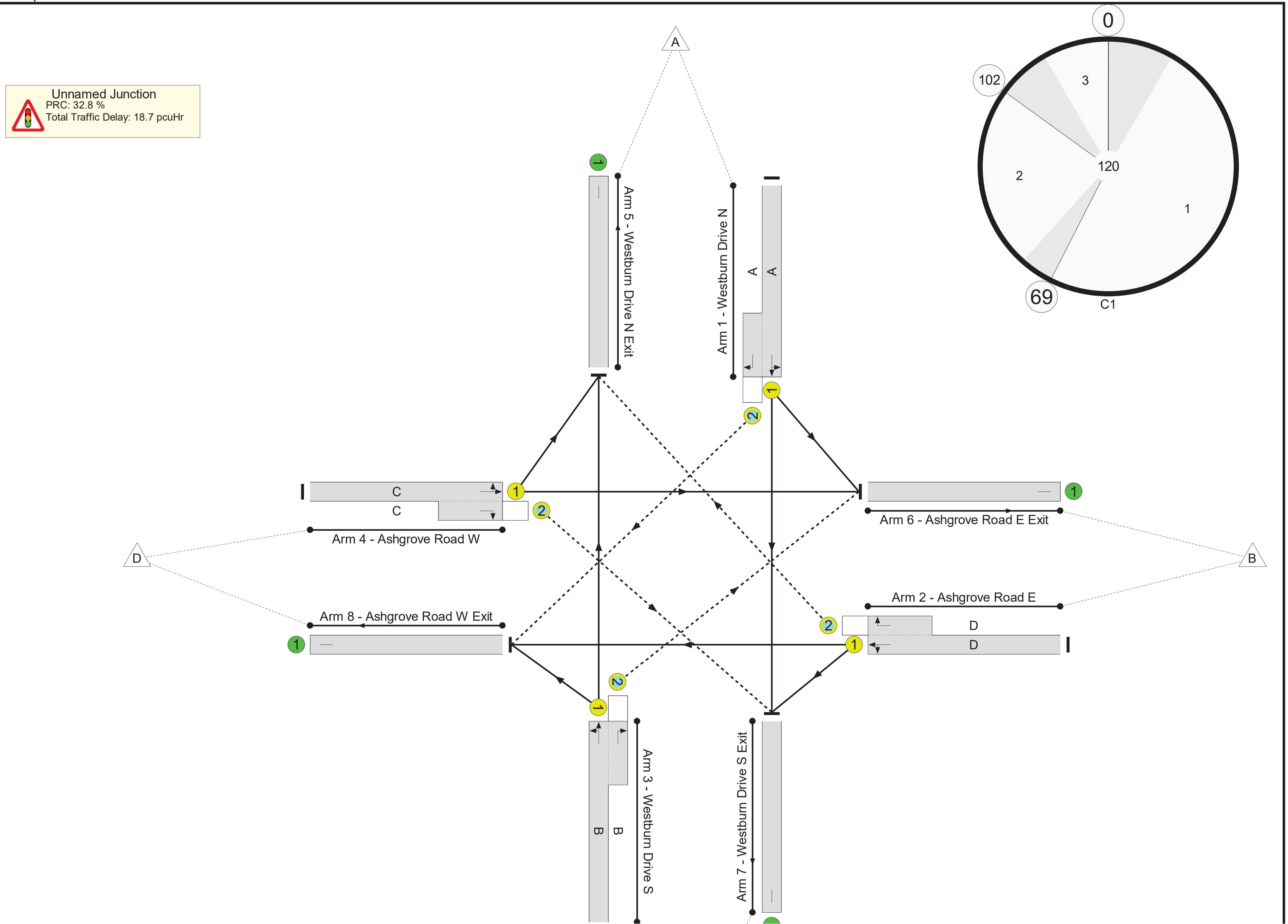
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Westburn Drive - Existing Layout	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.7%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**67.7%**
1/1+1/2	Westburn Drive N Left Ahead Right	U+O	N/A	N/A	A		1	59	-	643	1865:2005	832+125	67.2 : 67.2%
2/1+2/2	Ashgrove Road E Right Left Ahead	U+O	N/A	N/A	D		1	28	-	179	1865:2005	254+163	42.8 : 42.8%
3/1+3/2	Westburn Drive S Ahead Right Left	U+O	N/A	N/A	B		1	59	-	656	1890:2030	813+164	67.1 : 67.1%
4/1+4/2	Ashgrove Road W Left Ahead Right	U+O	N/A	N/A	C		1	28	-	357	1915:2055	391+136	67.7 : 67.7%
5/1	Westburn Drive N Exit	U	N/A	N/A	-		-	-	-	618	Inf	Inf	0.0%
6/1	Ashgrove Road E Exit	U	N/A	N/A	-		-	-	-	351	Inf	Inf	0.0%
7/1	Westburn Drive S Exit	U	N/A	N/A	-		-	-	-	608	Inf	Inf	0.0%
8/1	Ashgrove Road W Exit	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Westburn Drive - Existing Layout	**-**	**-**	**356**	**0**	**0**	**13.7**	**3.4**	**1.5**	**18.7**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**356**	**0**	**0**	**13.7**	**3.4**	**1.5**	**18.7**	**-**	**-**	**-**	**-**
1/1+1/2	643	643	84	0	0	3.9	1.0	0.6	5.5	30.9	15.1	1.0	16.2
2/1+2/2	179	179	70	0	0	1.8	0.4	0.3	2.5	49.8	2.9	0.4	3.3
3/1+3/2	656	656	110	0	0	4.0	1.0	0.5	5.6	30.8	15.2	1.0	16.2
4/1+4/2	357	357	92	0	0	3.9	1.0	0.1	5.1	51.2	8.9	1.0	9.9
5/1	618	618	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	351	351	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 32.8 Total Delay for Signalled Lanes (pcuHr): 18.67 Cycle Time (s): 120
PRC Over All Lanes (%): 32.8 Total Delay Over All Lanes(pcuHr): 18.67

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Westburn Junction (compact roundabout) 110822.j10
Path: C:\Users\JOLL2764\OneDrive Corp\OneDrive - SNC Lavalin Group\Ashgrove\Feasibility\Work\Traffic Models\STAGE 2 MODELS\3 Westburn\Option 1 - Compact Roundabout
Report generation date: 12/08/2022 16:14:56

»Westburn Junction (compact roundabout) - 2022 Proposed, AM
»Westburn Junction (compact roundabout) - 2022 Proposed, PM

Summary of junction performance

	AM								PM							
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Junction Delay (s)	Junction LOS	Network Residual Capacity
	Westburn Junction (compact roundabout) - 2022 Proposed															
1 - Westburn Drive (N)	D1	2.3	11.59	0.68	B	11.46	B	24 % [4 - Ashgrove Road (W)]	D2	2.8	14.58	0.72	B	25.85	D	-10 % [4 - Ashgrove Road (W)]
2 - Ashgrove Road (E)		0.7	13.31	0.39	B					0.8	15.13	0.43	C			
3 - Westburn Drive (S)		1.2	8.06	0.51	A					2.4	11.97	0.69	B			
4 - Ashgrove Road (W)		1.2	16.56	0.52	C					7.8	77.01	0.91	F			

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

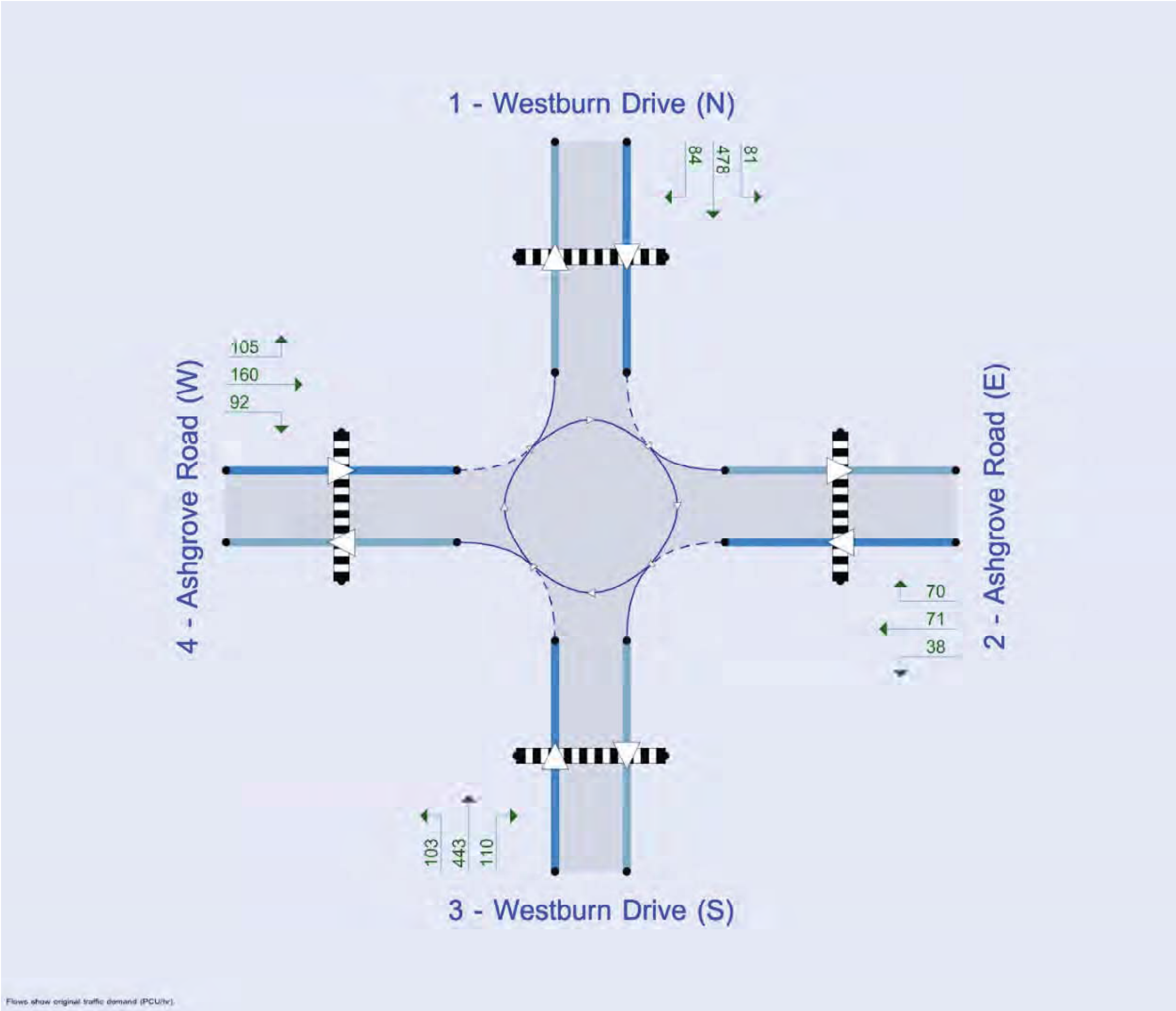
File summary

File Description

Title	
Location	
Site number	
Date	28/07/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WSATKINS\BEAG7302
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Proposed	AM	ONE HOUR	07:45	09:15	15	✓
D2	2022 Proposed	PM	ONE HOUR	16:45	18:15	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Westburn Junction (compact roundabout)	✓	100.000	100.000

Westburn Junction (compact roundabout) - 2022 Proposed, AM

Data Errors and Warnings
No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Westburn Junction (compact roundabout)	Standard Roundabout		1, 2, 3, 4	11.46	B

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	24	4 - Ashgrove Road (W)	11.46	B

Arms

Arms

Arm	Name	Description	No give-way line
1	Westburn Drive (N)		
2	Ashgrove Road (E)		
3	Westburn Drive (S)		
4	Ashgrove Road (W)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Westburn Drive (N)	4.63	4.67	1.2	6.0	24.0	41.0		
2 - Ashgrove Road (E)	3.44	3.68	3.0	4.0	24.0	51.0		
3 - Westburn Drive (S)	4.60	4.80	2.2	10.0	24.0	67.0		
4 - Ashgrove Road (W)	3.25	3.27	1.9	5.0	24.0	53.0		

Zebra Crossings

Arm	Space between crossing and junction entry (Zebra) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
1 - Westburn Drive (N)	1.00	1.00		Distance	9.20	6.57
2 - Ashgrove Road (E)	1.00	1.00		Distance	6.00	4.29
3 - Westburn Drive (S)	1.00	1.00		Distance	9.25	6.61
4 - Ashgrove Road (W)	1.00	1.00		Distance	6.00	4.29

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Westburn Drive (N)	0.512	1198
2 - Ashgrove Road (E)	0.394	805
3 - Westburn Drive (S)	0.501	1185
4 - Ashgrove Road (W)	0.399	766

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022 Proposed	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Westburn Drive (N)		ONE HOUR	✓	662	100.000
2 - Ashgrove Road (E)		ONE HOUR	✓	172	100.000
3 - Westburn Drive (S)		ONE HOUR	✓	471	100.000
4 - Ashgrove Road (W)		ONE HOUR	✓	234	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Westburn Drive (N)	[ONEHOUR]	5.00
2 - Ashgrove Road (E)	[ONEHOUR]	17.00
3 - Westburn Drive (S)	[ONEHOUR]	10.00
4 - Ashgrove Road (W)	[ONEHOUR]	12.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Westburn Drive (N)	2 - Ashgrove Road (E)	3 - Westburn Drive (S)	4 - Ashgrove Road (W)
From	1 - Westburn Drive (N)	0	112	395	155
	2 - Ashgrove Road (E)	93	0	26	53
	3 - Westburn Drive (S)	371	37	0	63
	4 - Ashgrove Road (W)	57	99	78	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Westburn Drive (N)	2 - Ashgrove Road (E)	3 - Westburn Drive (S)	4 - Ashgrove Road (W)
From	1 - Westburn Drive (N)	0	10	10	10
	2 - Ashgrove Road (E)	10	0	10	10
	3 - Westburn Drive (S)	10	10	0	10
	4 - Ashgrove Road (W)	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Westburn Drive (N)	0.68	11.59	2.3	B	607	911
2 - Ashgrove Road (E)	0.39	13.31	0.7	B	158	237
3 - Westburn Drive (S)	0.51	8.06	1.2	A	432	648
4 - Ashgrove Road (W)	0.52	16.56	1.2	C	215	322

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	498	125	160	3.76	1114	0.448	495	389	0.0	0.9	6.364	A
2 - Ashgrove Road (E)	129	32	469	12.80	593	0.218	128	185	0.0	0.3	8.498	A
3 - Westburn Drive (S)	355	89	225	7.53	1069	0.332	352	373	0.0	0.5	5.509	A
4 - Ashgrove Road (W)	176	44	375	9.03	588	0.299	174	203	0.0	0.5	9.523	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	595	149	192	4.49	1096	0.543	594	467	0.9	1.3	7.862	A
2 - Ashgrove Road (E)	155	39	563	15.28	548	0.282	154	222	0.3	0.4	10.038	B
3 - Westburn Drive (S)	423	106	270	8.99	1044	0.405	423	447	0.5	0.7	6.361	A
4 - Ashgrove Road (W)	210	53	449	10.79	550	0.383	210	243	0.5	0.7	11.612	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	729	182	234	5.51	1071	0.681	725	571	1.3	2.3	11.322	B
2 - Ashgrove Road (E)	189	47	688	18.72	488	0.388	188	271	0.4	0.7	13.150	B
3 - Westburn Drive (S)	519	130	330	11.01	1011	0.513	517	546	0.7	1.1	7.993	A
4 - Ashgrove Road (W)	258	64	550	13.21	497	0.518	256	297	0.7	1.1	16.251	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	729	182	236	5.51	1070	0.681	729	574	2.3	2.3	11.589	B
2 - Ashgrove Road (E)	189	47	691	18.72	487	0.389	189	273	0.7	0.7	13.314	B
3 - Westburn Drive (S)	519	130	331	11.01	1010	0.514	519	549	1.1	1.2	8.059	A
4 - Ashgrove Road (W)	258	64	552	13.21	496	0.519	258	298	1.1	1.2	16.556	C

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	595	149	194	4.49	1094	0.544	599	471	2.3	1.3	8.058	A
2 - Ashgrove Road (E)	155	39	568	15.28	546	0.283	156	225	0.7	0.4	10.181	B
3 - Westburn Drive (S)	423	106	272	8.99	1043	0.406	425	452	1.2	0.8	6.425	A
4 - Ashgrove Road (W)	210	53	452	10.79	548	0.384	212	245	1.2	0.7	11.852	B

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	498	125	162	3.76	1112	0.448	500	393	1.3	0.9	6.487	A
2 - Ashgrove Road (E)	129	32	475	12.80	591	0.219	130	187	0.4	0.3	8.610	A
3 - Westburn Drive (S)	355	89	227	7.53	1068	0.332	355	377	0.8	0.6	5.568	A
4 - Ashgrove Road (W)	176	44	378	9.03	587	0.300	177	205	0.7	0.5	9.691	A

Westburn Junction (compact roundabout) - 2022 Proposed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Last Run	Last Run	2 - Ashgrove Road (E) - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 2 timesegment(s).
Last Run	Last Run	4 - Ashgrove Road (W) - Capacity	Pedestrian Crossing causes blocking on previous arm due to traffic queing to leave the junction in 2 timesegment(s).

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Westburn Junction (compact roundabout)	Standard Roundabout		1, 2, 3, 4	25.85	D

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	-10	4 - Ashgrove Road (W)	25.85	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022 Proposed	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Westburn Drive (N)		ONE HOUR	✓	643	100.000
2 - Ashgrove Road (E)		ONE HOUR	✓	179	100.000
3 - Westburn Drive (S)		ONE HOUR	✓	656	100.000
4 - Ashgrove Road (W)		ONE HOUR	✓	357	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
1 - Westburn Drive (N)	[ONEHOUR]	23.00
2 - Ashgrove Road (E)	[ONEHOUR]	16.00
3 - Westburn Drive (S)	[ONEHOUR]	12.00
4 - Ashgrove Road (W)	[ONEHOUR]	10.00

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Westburn Drive (N)	**2 - Ashgrove Road (E)**	**3 - Westburn Drive (S)**	**4 - Ashgrove Road (W)**
From	**1 - Westburn Drive (N)**	0	81	478	84
	2 - Ashgrove Road (E)	70	0	38	71
	3 - Westburn Drive (S)	443	110	0	103
	4 - Ashgrove Road (W)	105	160	92	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Westburn Drive (N)	**2 - Ashgrove Road (E)**	**3 - Westburn Drive (S)**	**4 - Ashgrove Road (W)**
From	**1 - Westburn Drive (N)**	0	10	10	10
	2 - Ashgrove Road (E)	10	0	10	10

	3 - Westburn Drive (S)	10	10	0	10
	4 - Ashgrove Road (W)	10	10	10	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Westburn Drive (N)	0.72	14.58	2.8	B	590	885
2 - Ashgrove Road (E)	0.43	15.13	0.8	C	164	246
3 - Westburn Drive (S)	0.69	11.97	2.4	B	602	903
4 - Ashgrove Road (W)	0.91	77.01	7.8	F	328	491

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	484	121	269	17.32	1053	0.460	480	461	0.0	0.9	6.868	A
2 - Ashgrove Road (E)	135	34	488	12.05	575	0.234	133	261	0.0	0.3	8.941	A
3 - Westburn Drive (S)	494	123	168	9.03	1098	0.450	490	454	0.0	0.9	6.481	A
4 - Ashgrove Road (W)	269	67	466	7.53	544	0.494	265	193	0.0	1.0	13.986	B

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	578	145	323	20.68	1022	0.566	576	553	0.9	1.4	8.845	A
2 - Ashgrove Road (E)	161	40	585	14.38	526	0.306	160	313	0.3	0.5	10.822	B
3 - Westburn Drive (S)	590	147	202	10.79	1079	0.547	588	544	0.9	1.3	8.037	A
4 - Ashgrove Road (W)	321	80	558	8.99	496	0.647	318	231	1.0	1.9	21.780	C

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	708	177	385	25.32	984	0.720	703	672	1.4	2.7	13.854	B
2 - Ashgrove Road (E)	197	49	711	17.62	462	0.426	196	377	0.5	0.8	14.795	B
3 - Westburn Drive (S)	722	181	246	13.21	1053	0.686	718	661	1.3	2.3	11.674	B
4 - Ashgrove Road (W)	393	98	682	11.01	433	0.908	375	282	1.9	6.4	56.440	F

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	708	177	394	25.32	978	0.724	708	679	2.7	2.8	14.581	B
2 - Ashgrove Road (E)	197	49	718	17.62	459	0.430	197	384	0.8	0.8	15.135	C
3 - Westburn Drive (S)	722	181	248	13.21	1052	0.686	722	668	2.3	2.4	11.966	B
4 - Ashgrove Road (W)	393	98	686	11.01	431	0.913	387	284	6.4	7.8	77.010	F

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	578	145	342	20.68	1011	0.572	583	565	2.8	1.5	9.364	A
2 - Ashgrove Road (E)	161	40	598	14.38	519	0.310	162	327	0.8	0.5	11.133	B
3 - Westburn Drive (S)	590	147	204	10.79	1078	0.547	594	556	2.4	1.4	8.249	A
4 - Ashgrove Road (W)	321	80	564	8.99	492	0.652	343	234	7.8	2.2	29.866	D

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Westburn Drive (N)	484	121	276	17.32	1049	0.461	486	468	1.5	1.0	7.057	A
2 - Ashgrove Road (E)	135	34	495	12.05	571	0.236	135	267	0.5	0.3	9.099	A
3 - Westburn Drive (S)	494	123	170	9.03	1097	0.450	496	461	1.4	0.9	6.610	A
4 - Ashgrove Road (W)	269	67	471	7.53	541	0.497	273	195	2.2	1.1	15.020	C

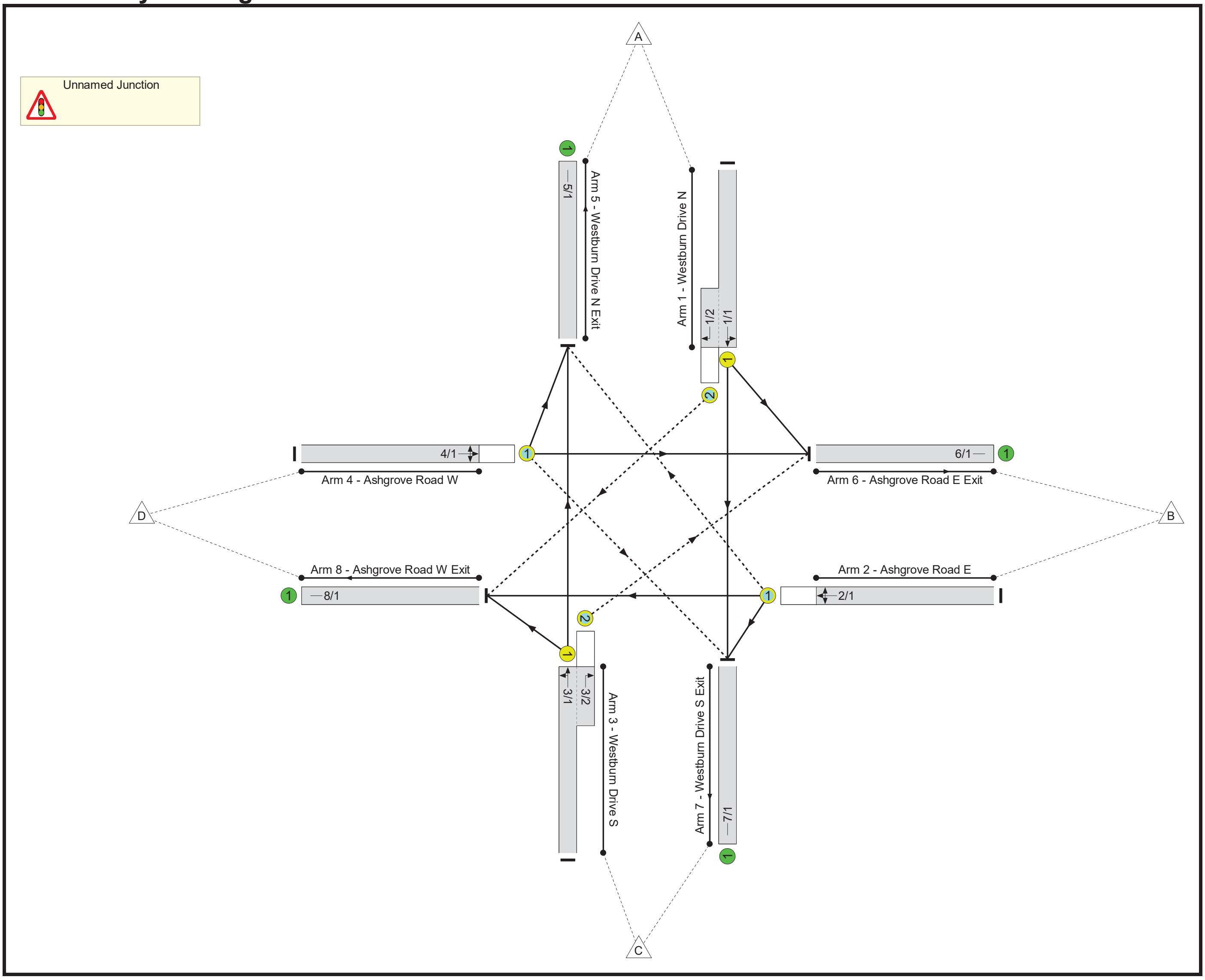
Full Input Data And Results

Full Input Data And Results

User and Project Details

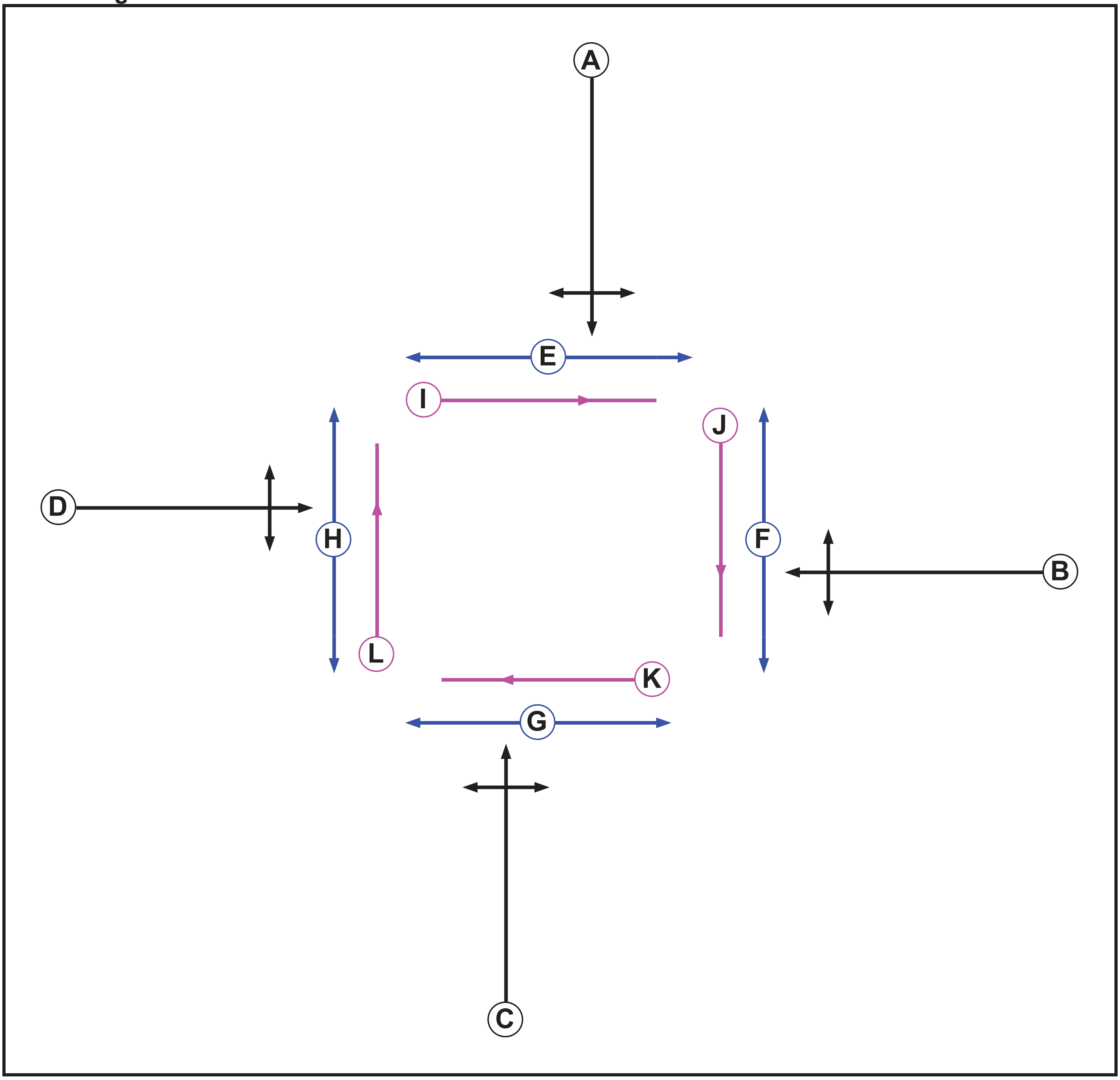
Project:	**Ashgrove Connects**
Title:	**Westburn Drive - Stage 2 Layout Option 2**
Location:	
Client:	Aberdeen City Council
Site Ref(s):	3
Date Completed:	12/08/2022
Checked By:	KF
Checked By Date:	16/08/2022
Additional detail:	
File name:	2022-08-12 Westburn Dr Crossroads_Stage 2.lsg3x
Author:	C Jolly
Company:	Atkins
Address:	10 Canning Street, Edinburgth, EH3 8EG

Network Layout Diagram



Full Input Data And Results

Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Pedestrian		6	6
F	Pedestrian		6	6
G	Pedestrian		6	6
H	Pedestrian		6	6
I	Cycle		7	7
J	Cycle		7	7
K	Cycle		7	7
L	Cycle		7	7

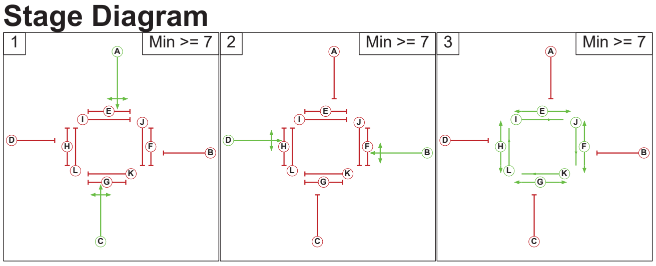
Phase Intergreens Matrix

		Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K	L
Terminating Phase	A		6	-	6	5	7	8	8	5	7	7	8
	B	6		5	-	8	5	7	8	8	5	7	7
	C	-	5		5	8	8	5	7	7	7	5	7
	D	5	-	5		7	8	8	5	7	7	8	5
	E	14	14	14	14		-	-	-	-	-	-	-
	F	12	12	12	12	-		-	-	-	-	-	-
	G	13	13	13	13	-	-		-	-	-	-	-
	H	12	12	12	12	-	-	-		-	-	-	-
	I	7	7	7	7	-	-	-	-		-	-	-
	J	7	7	7	7	-	-	-	-	-		-	-
	K	7	7	7	7	-	-	-	-	-	-		-
	L	7	7	7	7	-	-	-	-	-	-	-	

Phases in Stage

Stage No.	Phases in Stage
1	A C
2	B D
3	E F G H I J K L

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	3	I	Gaining absolute	8	8
1	3	J	Gaining absolute	8	8
1	3	K	Gaining absolute	8	8
2	3	J	Gaining absolute	8	8
2	3	L	Gaining absolute	8	8

Prohibited Stage Change

		To Stage		
		1	2	3
From Stage	1		6	8
	2	6		8
	3	14	14	

Give-Way Lane Input Data

Junction: Unnamed Junction

Lane	Movement	Max Flow when Giving Way (PCU/Hr)	Min Flow when Giving Way (PCU/Hr)	Opposing Lane	Opp. Lane Coeff.	Opp. Mvmnts.	Right Turn Storage (PCU)	Non-Blocking Storage (PCU)	RTF	Right Turn Move up (s)	Max Turns in Intergreen (PCU)
1/2 (Westburn Drive N)	8/1 (Right)	1439	0	3/1	1.09	All	3.00	-	0.50	3	3.00
				3/2	1.09	All					
2/1 (Ashgrove Road E)	5/1 (Right)	1439	0	4/1	1.09	All	3.00	-	0.50	3	3.00
3/2 (Westburn Drive S)	6/1 (Right)	1439	0	1/1	1.09	All	3.00	-	0.50	3	3.00
				1/2	1.09	All					
4/1 (Ashgrove Road W)	7/1 (Right)	1439	0	2/1	1.09	All	3.00	-	0.50	3	3.00

Lane Input Data

Junction: Unnamed Junction												
Lane	Lane Type	Phases	Start Disp.	End Disp.	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient	Nearside Lane	Turns	Turning Radius (m)
1/1 (Westburn Drive N)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 6 Left	11.00
											Arm 7 Ahead	Inf
1/2 (Westburn Drive N)	O	A	2	3	5.0	Geom	-	2.75	0.00	N	Arm 8 Right	15.00
2/1 (Ashgrove Road E)	O	B	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Right	17.00
											Arm 7 Left	10.00
											Arm 8 Ahead	Inf
3/1 (Westburn Drive S)	U	C	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 5 Ahead	Inf
											Arm 8 Left	10.00
3/2 (Westburn Drive S)	O	C	2	3	5.0	Geom	-	2.75	0.00	N	Arm 6 Right	13.00
4/1 (Ashgrove Road W)	O	D	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 5 Left	10.00
											Arm 6 Ahead	Inf
											Arm 7 Right	17.00
5/1 (Westburn Drive N Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1 (Ashgrove Road E Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Westburn Drive S Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1 (Ashgrove Road W Exit)	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM'	08:00	09:00	01:00	
2: 'PM'	17:00	18:00	01:00	

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'Supplied / Existing')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	112	395	155	662
	B	93	0	26	53	172
	C	371	37	0	63	471
	D	57	99	78	0	234
	Tot.	521	248	499	271	1539

Traffic Lane Flows

Lane	Scenario 1: AM
Junction: Unnamed Junction	
1/1 (with short)	662(In) 507(Out)
1/2 (short)	155
2/1	172
3/1 (with short)	471(In) 434(Out)
3/2 (short)	37
4/1	234
5/1	521
6/1	248
7/1	499
8/1	271

Lane Saturation Flows

Junction: Unnamed Junction								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Westburn Drive N)	3.25	0.00	Y	Arm 6 Left	11.00	22.1 %	1883	1883
				Arm 7 Ahead	Inf	77.9 %		
1/2 (Westburn Drive N)	2.75	0.00	N	Arm 8 Right	15.00	100.0 %	1845	1845
2/1 (Ashgrove Road E)	3.25	0.00	Y	Arm 5 Right	17.00	54.1 %	1812	1812
				Arm 7 Left	10.00	15.1 %		
				Arm 8 Ahead	Inf	30.8 %		
3/1 (Westburn Drive S)	3.25	0.00	Y	Arm 5 Ahead	Inf	85.5 %	1899	1899
				Arm 8 Left	10.00	14.5 %		
3/2 (Westburn Drive S)	2.75	0.00	N	Arm 6 Right	13.00	100.0 %	1820	1820
4/1 (Ashgrove Road W)	3.40	0.00	Y	Arm 5 Left	10.00	24.4 %	1834	1834
				Arm 6 Ahead	Inf	42.3 %		
				Arm 7 Right	17.00	33.3 %		
5/1 (Westburn Drive N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Ashgrove Road E Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Westburn Drive S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Ashgrove Road W Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM' (FG2: 'PM', Plan 1: 'Supplied / Existing')

Traffic Flows, Desired

Desired Flow :

	Destination					
		A	B	C	D	Tot.
Origin	A	0	81	478	84	643
	B	70	0	38	71	179
	C	443	110	0	103	656
	D	105	160	92	0	357
	Tot.	618	351	608	258	1835

Traffic Lane Flows

Lane	Scenario 2: PM
Junction: Unnamed Junction	
1/1 (with short)	643(In) 559(Out)
1/2 (short)	84
2/1	179
3/1 (with short)	656(In) 546(Out)
3/2 (short)	110
4/1	357
5/1	618
6/1	351
7/1	608
8/1	258

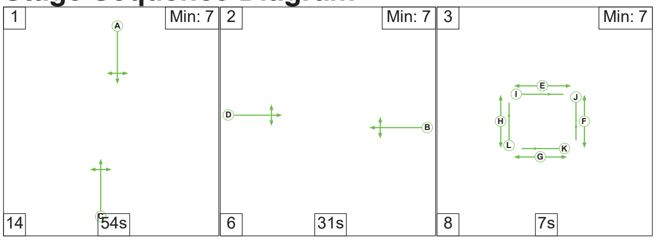
Lane Saturation Flows

Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
Junction: Unnamed Junction								
1/1 (Westburn Drive N)	3.25	0.00	Y	Arm 6 Left	11.00	14.5 %	1902	1902
				Arm 7 Ahead	Inf	85.5 %		
1/2 (Westburn Drive N)	2.75	0.00	N	Arm 8 Right	15.00	100.0 %	1845	1845
2/1 (Ashgrove Road E)	3.25	0.00	Y	Arm 5 Right	17.00	39.1 %	1819	1819
				Arm 7 Left	10.00	21.2 %		
				Arm 8 Ahead	Inf	39.7 %		
3/1 (Westburn Drive S)	3.25	0.00	Y	Arm 5 Ahead	Inf	81.1 %	1887	1887
				Arm 8 Left	10.00	18.9 %		
3/2 (Westburn Drive S)	2.75	0.00	N	Arm 6 Right	13.00	100.0 %	1820	1820
4/1 (Ashgrove Road W)	3.40	0.00	Y	Arm 5 Left	10.00	29.4 %	1832	1832
				Arm 6 Ahead	Inf	44.8 %		
				Arm 7 Right	17.00	25.8 %		
5/1 (Westburn Drive N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
6/1 (Ashgrove Road E Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
7/1 (Westburn Drive S Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
8/1 (Ashgrove Road W Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: 'AM' (FG1: 'AM', Plan 1: 'Supplied / Existing')

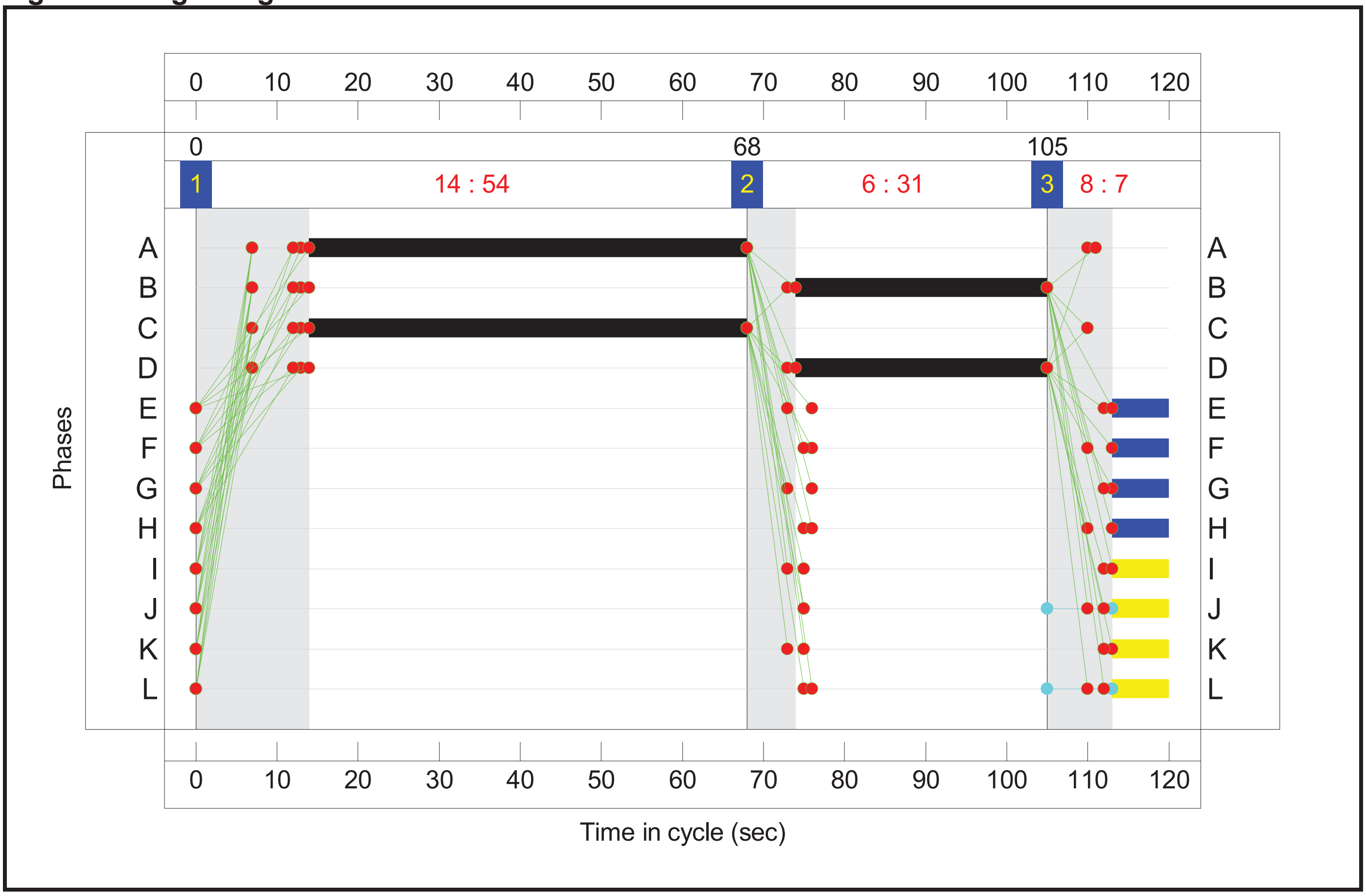
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	54	31	7
Change Point	0	68	105

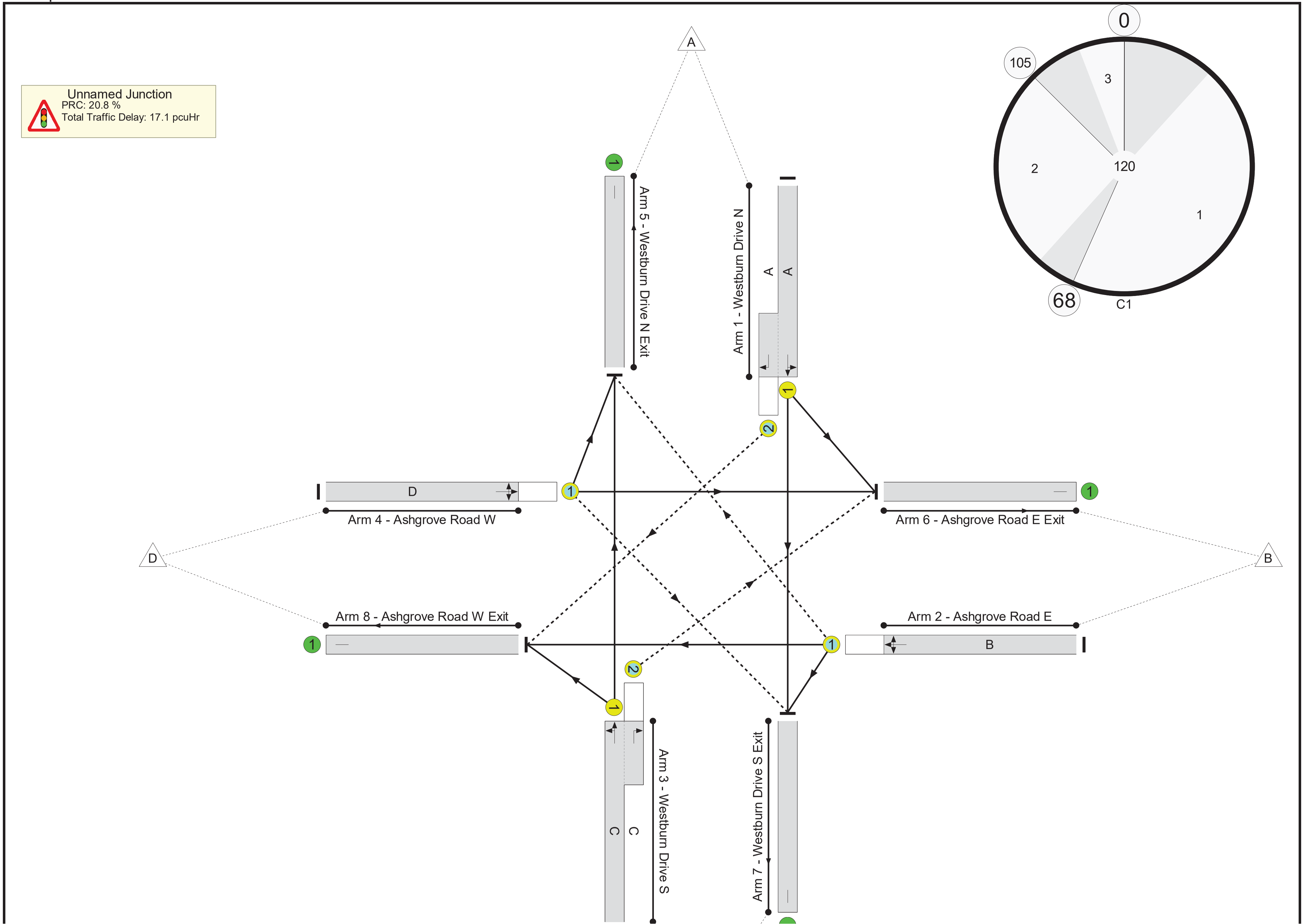
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Westburn Drive - Stage 2 Layout Option 2	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.5%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**74.5%**
1/1+1/2	Westburn Drive N Left Ahead Right	U+O	N/A	N/A	A		1	54	-	662	1883:1845	688+210	73.7 : 73.7%
2/1	Ashgrove Road E Right Left Ahead	O	N/A	N/A	B		1	31	-	172	1812	259	66.5%
3/1+3/2	Westburn Drive S Ahead Right Left	U+O	N/A	N/A	C		1	54	-	471	1899:1820	818+70	53.0 : 53.0%
4/1	Ashgrove Road W Left Ahead Right	O	N/A	N/A	D		1	31	-	234	1834	314	74.5%
5/1	Westburn Drive N Exit	U	N/A	N/A	-		-	-	-	521	Inf	Inf	0.0%
6/1	Ashgrove Road E Exit	U	N/A	N/A	-		-	-	-	248	Inf	Inf	0.0%
7/1	Westburn Drive S Exit	U	N/A	N/A	-		-	-	-	499	Inf	Inf	0.0%
8/1	Ashgrove Road W Exit	U	N/A	N/A	-		-	-	-	271	Inf	Inf	0.0%

Full Input Data And Results

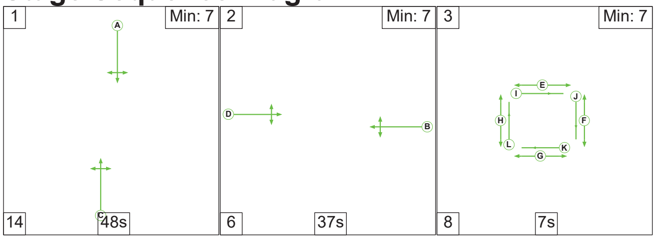
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Westburn Drive - Stage 2 Layout Option 2	-	-	**346**	**0**	**17**	**12.0**	**4.3**	**0.9**	**17.1**	-	-	-	-
Unnamed Junction	-	-	**346**	**0**	**17**	**12.0**	**4.3**	**0.9**	**17.1**	-	-	-	-
1/1+1/2	662	662	154	0	1	4.6	1.4	0.5	6.5	35.3	16.1	1.4	17.5
2/1	172	172	80	0	13	1.7	1.0	0.1	2.8	57.8	4.7	1.0	5.7
3/1+3/2	471	471	37	0	0	3.0	0.6	0.2	3.8	28.7	10.6	0.6	11.1
4/1	234	234	76	0	2	2.6	1.4	0.1	4.1	63.6	7.3	1.4	8.8
5/1	521	521	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	248	248	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	499	499	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	271	271	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 20.8 Total Delay for Signalled Lanes (pcuHr): 17.14 Cycle Time (s): 120
PRC Over All Lanes (%): 20.8 Total Delay Over All Lanes(pcuHr): 17.14

Full Input Data And Results

Scenario 2: 'PM' (FG2: 'PM', Plan 1: 'Supplied / Existing')

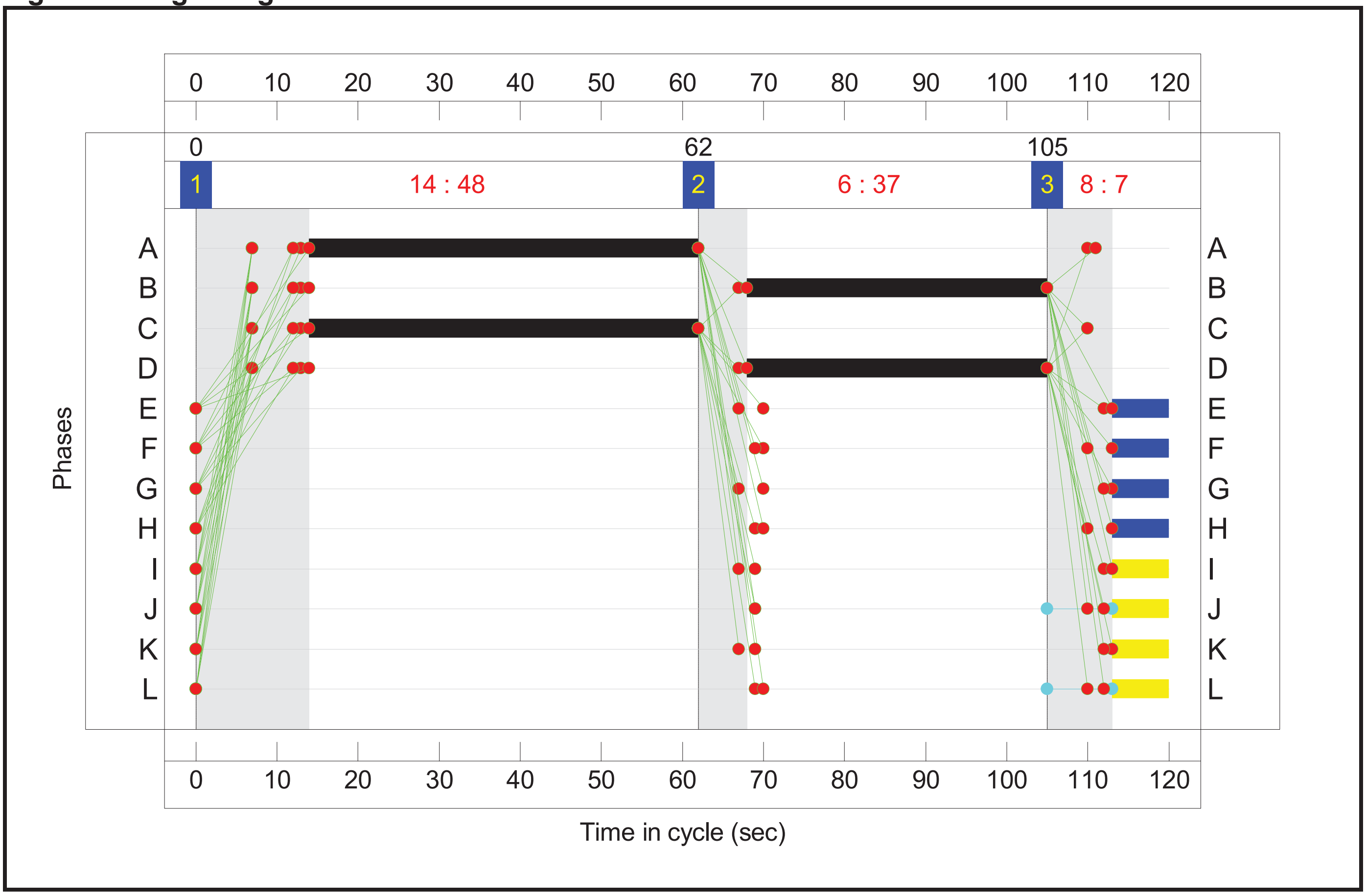
Stage Sequence Diagram



Stage Timings

Stage	1	2	3
Duration	48	37	7
Change Point	0	62	105

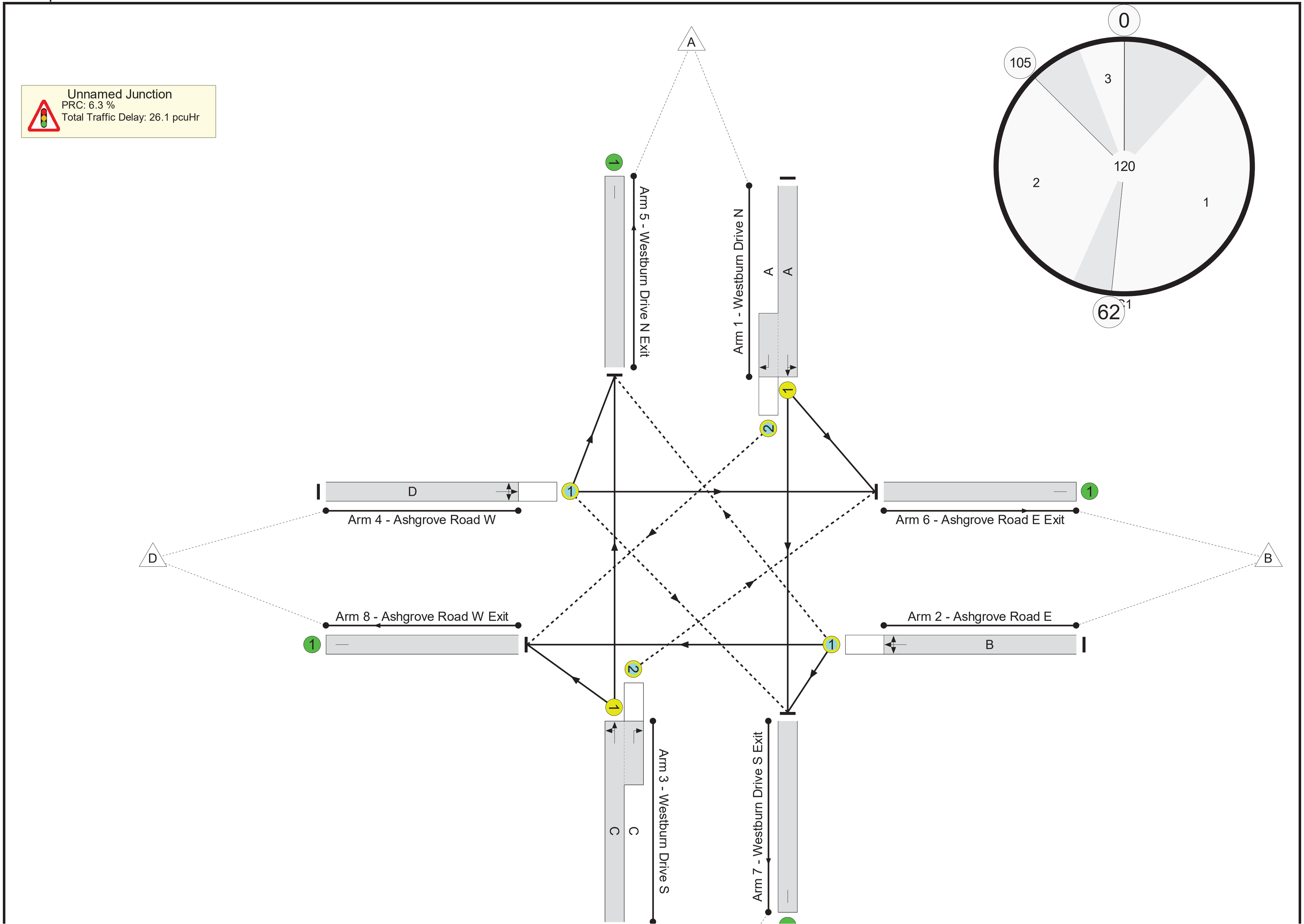
Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram

Full Input Data And Results



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Westburn Drive - Stage 2 Layout Option 2	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.6%**
Unnamed Junction	-	-	**N/A**	-	-		-	-	-	-	-	-	**84.6%**
1/1+1/2	Westburn Drive N Left Ahead Right	U+O	N/A	N/A	A		1	48	-	643	1902:1845	699+102	80.0 : 82.3%
2/1	Ashgrove Road E Right Left Ahead	O	N/A	N/A	B		1	37	-	179	1819	255	70.2%
3/1+3/2	Westburn Drive S Ahead Right Left	U+O	N/A	N/A	C		1	48	-	656	1887:1820	657+132	83.1 : 83.1%
4/1	Ashgrove Road W Left Ahead Right	O	N/A	N/A	D		1	37	-	357	1832	422	84.6%
5/1	Westburn Drive N Exit	U	N/A	N/A	-		-	-	-	618	Inf	Inf	0.0%
6/1	Ashgrove Road E Exit	U	N/A	N/A	-		-	-	-	351	Inf	Inf	0.0%
7/1	Westburn Drive S Exit	U	N/A	N/A	-		-	-	-	608	Inf	Inf	0.0%
8/1	Ashgrove Road W Exit	U	N/A	N/A	-		-	-	-	258	Inf	Inf	0.0%

Full Input Data And Results

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Westburn Drive - Stage 2 Layout Option 2	**-**	**-**	**253**	**0**	**103**	**16.6**	**8.0**	**1.5**	**26.1**	**-**	**-**	**-**	**-**
Unnamed Junction	**-**	**-**	**253**	**0**	**103**	**16.6**	**8.0**	**1.5**	**26.1**	**-**	**-**	**-**	**-**
1/1+1/2	643	643	13	0	71	5.4	2.0	0.7	8.1	45.2	17.8	2.0	19.8
2/1	179	179	56	0	14	1.6	1.1	0.1	2.8	55.8	4.6	1.1	5.8
3/1+3/2	656	656	95	0	15	5.6	2.4	0.7	8.7	47.7	18.3	2.4	20.7
4/1	357	357	90	0	2	4.0	2.6	0.1	6.6	66.6	11.3	2.6	13.9
5/1	618	618	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	351	351	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	608	608	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	258	258	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 6.3 Total Delay for Signalled Lanes (pcuHr): 26.14 Cycle Time (s): 120
PRC Over All Lanes (%): 6.3 Total Delay Over All Lanes(pcuHr): 26.14

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Ashgrove-Laurelwood Priority EXISTING 180822.j10
Path: C:\Users\JOLL2764\OneDrive Corp\OneDrive - SNC Lavalin Group\Ashgrove\Phase 2 Report\Traffic Modelling\4 Laurelwood
Report generation date: 18/08/2022 18:22:24

»2022 Model - 2022, AM
»2022 Model - 2022, PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2022 Model - 2022											
Stream B-AC	D1	0.2	6.61	0.18	A	214 % [Stream C-AB]	D2	0.4	8.13	0.30	A	115 % [Stream C-AB]
Stream C-AB		0.3	7.88	0.23	A			0.7	7.78	0.34	A	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	18/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WSATKINS\COMB3402
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	08:00	09:30	15	✓
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2022 Model	✓	100.000	100.000

2022 Model - 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ashgrove Road - Laurelwood Avenue	T-Junction	Two-way	Two-way	Two-way		4.85	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	214	Stream C-AB	4.85	A

Arms

Arms

Arm	Name	Description	Arm type
A	Ashgrove Road (East)		Major
B	Laurelwood Avenue		Minor
C	Ashgrove Road (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Ashgrove Road (West)	6.43			0.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Laurelwood Avenue	One lane	4.08	0	0

Zebra Crossings

Arm	Space between crossing and junction entry (Left) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
B - Laurelwood Avenue	1.00	1.00		Distance	5.80	4.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	530	0.095	0.239	0.151	0.342
B-C	691	0.104	0.263	-	-
C-B	574	0.218	0.218	-	-

The slopes and intercepts shown above include custom intercept adjustments only.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ashgrove Road (East)		ONE HOUR	✓	72	100.000
B - Laurelwood Avenue		ONE HOUR	✓	111	100.000
C - Ashgrove Road (West)		ONE HOUR	✓	171	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Ashgrove Road (East)		
B - Laurelwood Avenue	[ONEHOUR]	68.00
C - Ashgrove Road (West)		

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	14	58
	B - Laurelwood Avenue	2	0	109
	C - Ashgrove Road (West)	58	113	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	1	1
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.18	6.61	0.2	A	102	153
C-AB	0.23	7.88	0.3	A	114	171
C-A					43	64
A-B					13	19
A-C					53	80

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	84	21	51.19	673	0.124	83	0.0	0.1	6.093	A

C-AB	92	23		592	0.155	91	0.0	0.2	7.246	A
C-A	37	9				37				
A-B	11	3				11				
A-C	44	11				44				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	100	25	61.13	670	0.149	100	0.1	0.2	6.304	A
C-AB	111	28		596	0.187	111	0.2	0.2	7.502	A
C-A	42	11				42				
A-B	13	3				13				
A-C	52	13				52				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	122	31	74.87	666	0.183	122	0.2	0.2	6.611	A
C-AB	139	35		601	0.232	139	0.2	0.3	7.872	A
C-A	49	12				49				
A-B	15	4				15				
A-C	64	16				64				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	122	31	74.87	666	0.183	122	0.2	0.2	6.614	A
C-AB	139	35		601	0.232	139	0.3	0.3	7.882	A
C-A	49	12				49				
A-B	15	4				15				
A-C	64	16				64				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	100	25	61.13	670	0.149	100	0.2	0.2	6.314	A
C-AB	111	28		596	0.187	112	0.3	0.3	7.520	A
C-A	42	11				42				
A-B	13	3				13				
A-C	52	13				52				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	84	21	51.19	673	0.124	84	0.2	0.1	6.108	A
C-AB	92	23		592	0.155	92	0.3	0.2	7.277	A
C-A	37	9				37				
A-B	11	3				11				
A-C	44	11				44				

2022 Model - 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	B - Laurelwood Avenue - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ashgrove Road - Laurelwood Avenue	T-Junction	Two-way	Two-way	Two-way		5.73	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	115	Stream C-AB	5.73	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ashgrove Road (East)		ONE HOUR	✓	13	100.000
B - Laurelwood Avenue		ONE HOUR	✓	170	100.000
C - Ashgrove Road (West)		ONE HOUR	✓	345	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Ashgrove Road (East)		
B - Laurelwood Avenue	[ONEHOUR]	0.00
C - Ashgrove Road (West)		

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	2	11
	B - Laurelwood Avenue	27	0	143
	C - Ashgrove Road (West)	188	157	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	1	1
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.30	8.13	0.4	A	156	234
C-AB	0.34	7.78	0.7	A	194	291
C-A					122	184
A-B					2	3
A-C					10	15

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	128	32	0.00	640	0.200	127	0.0	0.2	7.001	A
C-AB	150	37		668	0.224	149	0.0	0.4	6.982	A
C-A	110	27				110				
A-B	2	0.38				2				
A-C	8	2				8				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	153	38	0.00	636	0.240	153	0.2	0.3	7.443	A
C-AB	188	47		687	0.273	187	0.4	0.5	7.277	A
C-A	123	31				123				
A-B	2	0.45				2				
A-C	10	2				10				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	187	47	0.00	630	0.297	187	0.3	0.4	8.114	A
C-AB	244	61		713	0.343	243	0.5	0.7	7.757	A
C-A	136	34				136				
A-B	2	0.55				2				
A-C	12	3				12				

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	187	47	0.00	630	0.297	187	0.4	0.4	8.130	A
C-AB	244	61		713	0.343	244	0.7	0.7	7.782	A
C-A	135	34				135				
A-B	2	0.55				2				
A-C	12	3				12				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	153	38	0.00	636	0.240	153	0.4	0.3	7.463	A
C-AB	188	47		687	0.273	189	0.7	0.5	7.314	A
C-A	122	31				122				
A-B	2	0.45				2				
A-C	10	2				10				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	128	32	0.00	640	0.200	128	0.3	0.3	7.038	A
C-AB	150	38		669	0.225	151	0.5	0.4	7.033	A
C-A	109	27				109				
A-B	2	0.38				2				
A-C	8	2				8				

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Ashgrove-Laurelwood Priority 180822.j10
Path: C:\Users\COMB3402\OneDrive\Desktop
Report generation date: 18/08/2022 14:55:06

»2022 Model - 2022, AM
»2022 Model - 2022, PM

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2022 Model - 2022											
Stream B-AC	D1	0.0	0.00	0.00	A	172 %	D2	0.0	0.00	0.00	A	93 %
Stream C-AB		0.4	8.35	0.24	A	[Stream C-AB]		0.7	8.42	0.37	A	[Stream C-AB]

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

File summary

File Description

Title	
Location	
Site number	
Date	18/08/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WSATKINS\COMB3402
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario	Time Period	Traffic profile	Start time	Finish time	Time segment length	Run

	name	name	type	(HH:mm)	(HH:mm)	(min)	automatically
D1	2022	AM	ONE HOUR	08:00	09:30	15	✓
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	2022 Model	✓	100.000	100.000

2022 Model - 2022, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ashgrove Road - Laurelwood Avenue	T-Junction	Two-way	Two-way	Two-way		2.97	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	172	Stream C-AB	2.97	A

Arms

Arms

Arm	Name	Description	Arm type
A	Ashgrove Road (East)		Major
B	Laurelwood Avenue		Minor
C	Ashgrove Road (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Ashgrove Road (West)	6.43			0.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Laurelwood Avenue	One lane	4.08	0	0

Zebra Crossings

Arm	Space between crossing and junction entry (Left) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (m)	Crossing time (s)
B - Laurelwood Avenue	1.00	1.00		Distance	5.80	4.14

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	530	0.095	0.239	0.151	0.342
B-C	691	0.104	0.263	-	-
C-B	574	0.218	0.218	-	-

The slopes and intercepts shown above include custom intercept adjustments only.
Streams may be combined, in which case capacity will be adjusted.
Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2022	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ashgrove Road (East)		ONE HOUR	✓	181	100.000
B - Laurelwood Avenue		ONE HOUR	✓	0	100.000
C - Ashgrove Road (West)		ONE HOUR	✓	171	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Ashgrove Road (East)		
B - Laurelwood Avenue	[ONEHOUR]	68.00
C - Ashgrove Road (West)		

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	14	167
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	58	113	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	1	1
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.24	8.35	0.4	A	115	172
C-A					42	63
A-B					13	19
A-C					153	230

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	51.19	543	0.000	0	0.0	0.0	0.000	A

C-AB	92	23		575	0.160	91	0.0	0.2	7.522	A
C-A	37	9				37				
A-B	11	3				11				
A-C	126	31				126				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	61.13	531	0.000	0	0.0	0.0	0.000	A
C-AB	112	28		575	0.194	112	0.2	0.3	7.844	A
C-A	42	10				42				
A-B	13	3				13				
A-C	150	38				150				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	74.87	516	0.000	0	0.0	0.0	0.000	A
C-AB	140	35		576	0.243	140	0.3	0.4	8.340	A
C-A	48	12				48				
A-B	15	4				15				
A-C	184	46				184				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	74.87	515	0.000	0	0.0	0.0	0.000	A
C-AB	140	35		576	0.243	140	0.4	0.4	8.352	A
C-A	48	12				48				
A-B	15	4				15				
A-C	184	46				184				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	61.13	531	0.000	0	0.0	0.0	0.000	A
C-AB	112	28		575	0.194	112	0.4	0.3	7.864	A
C-A	42	10				42				
A-B	13	3				13				
A-C	150	38				150				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	51.19	543	0.000	0	0.0	0.0	0.000	A
C-AB	92	23		575	0.160	92	0.3	0.2	7.542	A
C-A	37	9				37				
A-B	11	3				11				
A-C	126	31				126				

2022 Model - 2022, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	B - Laurelwood Avenue - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	Ashgrove Road - Laurelwood Avenue	T-Junction	Two-way	Two-way	Two-way		3.60	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	93	Stream C-AB	3.60	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2022	PM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Ashgrove Road (East)		ONE HOUR	✓	156	100.000
B - Laurelwood Avenue		ONE HOUR	✓	0	100.000
C - Ashgrove Road (West)		ONE HOUR	✓	345	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - Ashgrove Road (East)		
B - Laurelwood Avenue	[ONEHOUR]	0.00
C - Ashgrove Road (West)		

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	2	154
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	188	157	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Ashgrove Road (East)	B - Laurelwood Avenue	C - Ashgrove Road (West)
From	A - Ashgrove Road (East)	0	1	1
	B - Laurelwood Avenue	0	0	0
	C - Ashgrove Road (West)	1	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-AB	0.37	8.42	0.7	A	197	295
C-A					120	180
A-B					2	3
A-C					141	212

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	528	0.000	0	0.0	0.0	0.000	A
C-AB	151	38		647	0.234	150	0.0	0.4	7.303	A
C-A	108	27				108				
A-B	2	0.38				2				
A-C	116	29				116				

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	513	0.000	0	0.0	0.0	0.000	A
C-AB	190	48		662	0.287	189	0.4	0.5	7.707	A
C-A	120	30				120				
A-B	2	0.45				2				
A-C	138	35				138				

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	493	0.000	0	0.0	0.0	0.000	A
C-AB	249	62		682	0.365	248	0.5	0.7	8.380	A
C-A	131	33				131				
A-B	2	0.55				2				
A-C	170	42				170				

00:45 - 01:00

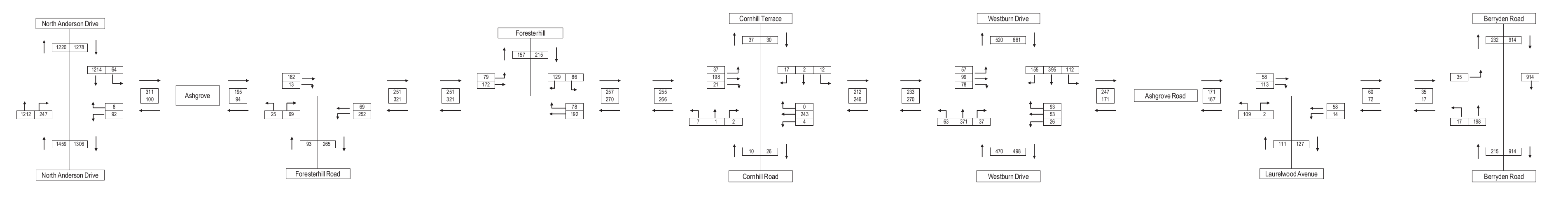
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	492	0.000	0	0.0	0.0	0.000	A
C-AB	249	62		682	0.365	249	0.7	0.7	8.416	A
C-A	131	33				131				
A-B	2	0.55				2				
A-C	170	42				170				

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	513	0.000	0	0.0	0.0	0.000	A
C-AB	190	48		662	0.288	191	0.7	0.5	7.753	A
C-A	120	30				120				
A-B	2	0.45				2				
A-C	138	35				138				

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	0.00	528	0.000	0	0.0	0.0	0.000	A
C-AB	152	38		647	0.235	152	0.5	0.4	7.366	A
C-A	108	27				108				
A-B	2	0.38				2				
A-C	116	29				116				



Aberdeen Ashgrove Road
Project No: 5212138

Supplied Flows

Figure CR-B 01 | **Weekday AM Peak Hour (08:00 - 09:00)**

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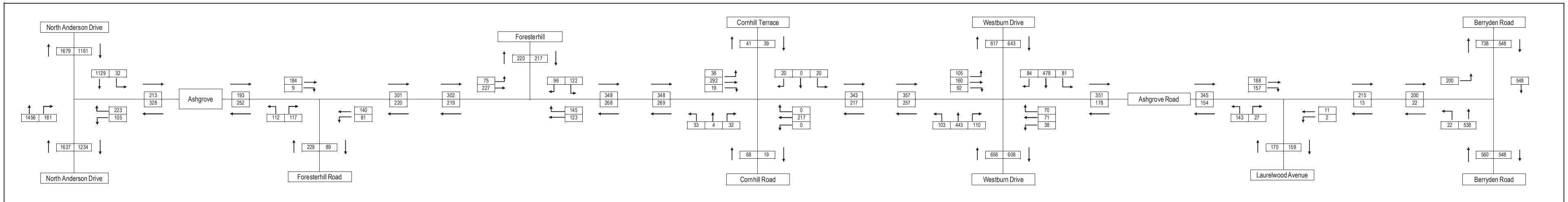

Aberdeen Ashgrove Road
Project No: 5212138

Supplied Flows

Figure CR-B 02 | **Weekday PM Peak Hour (17:00 - 18:00)**

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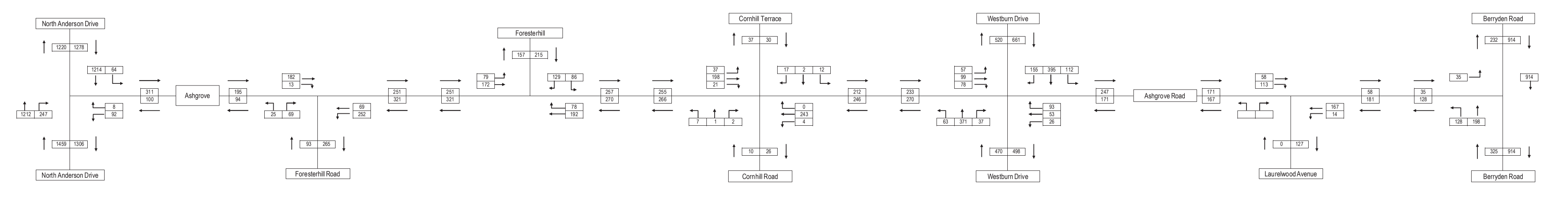

Aberdeen Ashgrove Road **Project No: 5212138**	**Redistributed Flows at Laurelwood Avenue / Ashgrove Road for One-way Southbound**
Figure CR-B 03	**Weekday AM Peak Hour (08:00 - 09:00)**

SNC·LAVALIN

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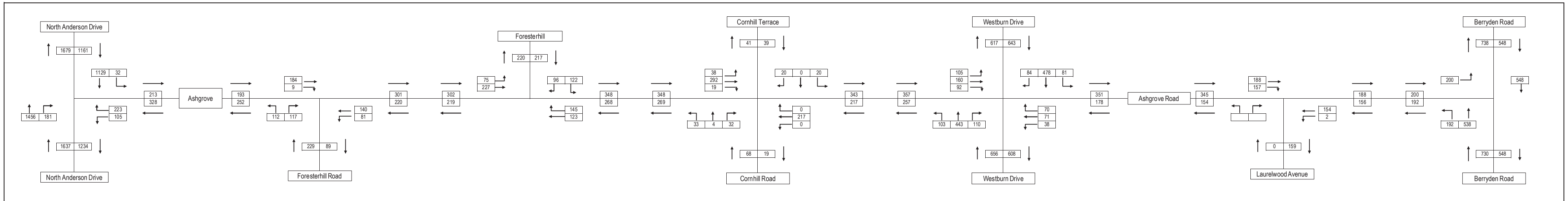

Aberdeen Ashgrove Road **Project No: 5212138**	**Redistributed Flows at Laurelwood Avenue / Ashgrove Road for One-way Southbound**
Figure CR-B 04	**Weekday PM Peak Hour (17:00 - 18:00)**

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Constituent Report CR-C

Monitoring & Evaluation Plan

Ashgrove Connects

Stage 1-2 Monitoring & Evaluation Plan

Aberdeen City Council

08 September 2022

1.2

Notice

This document and its contents have been prepared and are intended solely as information for Aberdeen City Councill and Nestrans in relation to the Ashgrove Connects Project.

Atkins Limited assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 21 pages including the cover.

Document history

Document title: Stage 1-2 Monitoring & Evaluation Plan

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft M&E Plan	AC	ED	CJ	AM	09/08/22
1.1	Revised Draft M&E Plan	AC	KD	CJ	AM	06/09/22
1.2	Final update	AC	CJ	AM	AM	08/09/22

Client signoff

Client	Aberdeen City Council
Project	Ashgrove Connects
Job number	5212138
Client signature/date	

Contents

Tables

1. Introduction

This document sets out the Monitoring and Evaluation Plan (M&E Plan) for the Ashgrove Connects Project. The plan developed in subsequent chapters has been prepared in order to establish a framework which would be used to capture, analyse and present data required to evaluate the likely impact of the project in future. This takes considerations of current Aberdeen City Council (ACC), Nestrans, Transport Scotland and other industry best practice guidance.

This document also outlines a series of project outcomes and performance indicators which would be used to evaluate the project's impact and details the monitoring strategy for future stages of the project. It is noted appropriate budget to undertake the proposed scope of monitoring works (surveys and reporting) would need to be agreed in addition to associated design, construction and management costs etc.

The implementation timescales associated with project delivery have not been provided at this stage.

1.1. Monitoring & Evaluation Plan – Purpose

An M&E Plan is a guide as to what you should monitor and evaluate, information and data required, and who you are evaluating for. It is a reference tool which guides future monitoring activities throughout the lifecycle of a transport or other infrastructure project. As most infrastructure projects typically require five to seven years to design and plan prior to implementation, it is often not possible to anticipate the likely impacts a given project will have when completed, particularly after an extended period.

An M&E Plan also outlines the evaluation criteria and questions and details a proposed data collection and monitoring approach used to establish the impact of the project. The main output of an M&E Plan is a data collection table/matrix, this is the critical tool used in the planning and management of surveys and analysis of data.

1.2. Guiding Policy

In preparing this study, the following policy documents have been taken into consideration and their defining principles carried forward to develop monitoring and evaluation tools specific to the Ashgrove Road and Ashgrove Road West study area. While the documents discussed below are not required to be explicitly followed these generally provide good practice guidance for smaller / non-trunk road projects such as Ashgrove Connects.

Design Manual for Roads and Bridges (DMRB), National Highways, Updated July 2022

DMRB Volume 5, SH 1/97 details the aims of evaluation schemes for transport intervention projects, these include:

- "To satisfy the demands of good management and public accountability by providing the answers to questions about the effects of a new or improved road.
- To identify the strengths and weaknesses in the techniques used for appraising projects, so that confidence in the roads programme is maintained.
- To allow the predictive ability of the traffic or transport models used to be monitored to establish whether any particular form of model is consistently more reliable than others when applied to particular types of projects; and
- To assist in the assessment of compensation under Part 1 of the Land Compensation (Scotland) Act 1973."

Scottish Transport Appraisal Guidance (STAG), Transport Scotland, Updated January 2022

Transport Scotland's monitoring and evaluation principles are set out in the Scottish Transport Appraisal Guidance (STAG). STAG advocates for evaluation indicators and targets derived from a series of transport planning and design objectives set for the project, STAG criteria and relevant policy directives, the aim of which is to identify:

- *"Whether the project is performing as intended.*
- *Whether, and to what extent, it is contributing to established policy directives; and*
- *Whether the implemented project continues to represent value for money."*

Scottish Trunk Road Infrastructure Project Evaluation (STRIPE), Transport Scotland, Updated January 2022

Transport Scotland's Scottish Trunk Road Infrastructure Project Evaluation (STRIPE) Guidance also sets out the specific requirements for the evaluation of roads-based projects. STRIPE states there should be two evaluations carried out during a projects post-implementation stage, this includes:

- *"A one-year after construction (1YA) Evaluation – to be undertaken one year after a given scheme's opening, this aims to provide an early indication that the project is operating as planned and is on-track to achieve its monitoring objectives. Information gathering for this should be supported by sources such as site visits/observations and stakeholder interviews.*
- *A Detailed Evaluation – undertaken three to five years (3YA-5YA) after a scheme's opening. This second evaluation considers a project's impacts, whether it has achieved its objectives and reviews the actual impacts against forecasts and determines the causes of any variances.*

2. Project Context

Ashgrove Connects is a proposed project to get local people involved in making Ashgrove Road and Ashgrove Road West work better for those who live, work, study and visit here. This is being progressed by Aberdeen City Council and funded by Nestrans as part of a programme of improvements across the city that will help provide people with more sustainable transport and lifestyle options.

Still at an early stage, the project currently includes proposals which would give greater space and priority to people, improve access to local shops and facilities and give people additional choice of travel mode. The project also aims to compliment proposed infrastructure changes along the Berryden Corridor, looking to further relieve local congestion, enhance journey time reliability, and improve infrastructure for walking and cycling in the area.

2.1. Location

The project focuses on areas to the north of Aberdeen city centre, between North Anderson Drive and Berryden Road. This area includes the communities of Stockethill, Cornhill, Ashgrove and Foresterhill. It is noted that Stockethill and Ashgrove are areas prioritised within the Aberdeen City Centre Locality Plan (2021-26).

The 'Design Area' for Ashgrove Connects is shown in Figure 2-1 below. It covers the full length of Ashgrove Road West and Ashgrove Road, between North Anderson Drive to the west and the A96 Powis Terrace to the east, and also includes Laurelwood Avenue.

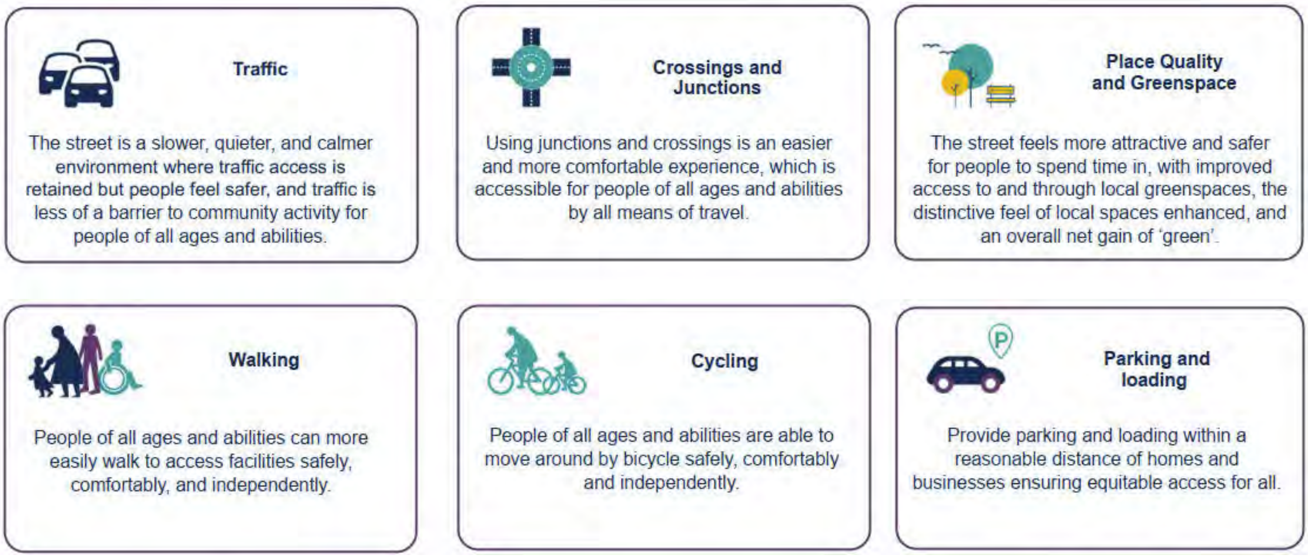
Full details of the current road network and local environment are described in the Baseline Assessment and Final Report.

Figure 2-1 - Ashgrove Connects Design Area

2.2. Design Objectives

During Stages 1-2 (Concept Design) six design objectives have been developed based on current ACC, Nestrans and other policy guidance, analysis of the existing street's operation and from community and stakeholder engagement undertaken to date. These are shown in Figure 2-2 below.

Figure 2-2 - Design Objectives



These objectives set out what the project should achieve and will be used to ensure the designs remain in line with community priorities as they develop

2.3. Stage 1-2 Community and Stakeholder Feedback

A breakdown of engagement activities undertaken during Stages 1 and 2 and their relevant target stakeholder groups are provided in Appendix A.

Upon analysing the comments and feedback collated throughout these engagement activities, a number of key themes and transport issues (both perceived and actual issues) emerged, these include:

Key Feedback

- Ashgrove Road and Ashgrove Road West have distinct feel to them which should be retained.
- A majority of people support measures to reduce motor vehicle traffic and traffic speeds in the area
- There is a lack of continuity for people walking/wheeling and cycling in the area
- There are currently difficulties accessing local amenities
- There is a lack of awareness of ACC's policy direction and concerns that projects which and prioritise vehicle traffic (and potentially increase congestion) are being proposed nearby.
- There are frustrations, particularly from residents at a lack of action to respond to current issues date

Perceived and actual transport/accessibility issues

- High traffic speeds cause an increase rate of collisions and perceived safety concerns.
- High traffic volumes, particularly on Laurelwood Avenue, is a concern for quality of life.
- Business customers park on Ashgrove Road, often blocking driveways and pavements, rather than using the off-street car parks provided nearby.
- The junction of Ashgrove Road with Berryden Road is heavily congested, resulting an increase rate of collisions and perceived noise and safety concerns.
- Restrictive visibility for road users, particularly at the Laurelwood Avenue-Ashgrove Road junction and Berryden Road-Laurelwood Avenue junction, results in perceived safety concerns.
- Trees enhance quality of street environment but create issues for footway accessibility/quality and access to properties.

3. Monitoring and Evaluation Framework

The M&E framework set out below in Table 3-1 aims to facilitate the effective assessment of the Ashgrove Connect project's performance pre and post construction, therefore allowing Aberdeen City Council, Nestrans and project team to achieve the expected results of the design's implementation.

Monitoring activities would be oriented towards tackling identified (actual and perceived) issues within the design area and achieving the design objectives. Evaluation of the project, similarly, will be oriented to assess the extent to which these issues have been mitigated and objectives have been achieved.

Performance Indicators and M&E Criteria

Progress towards the design objectives would be measured against a series of transport-based indicators and monitoring criteria identified at this stage by Atkins and as amended (if required) during subsequent design stages.

Performance indicators are intended to be SMART (specific, measurable, achievable, relevant and time-based) where possible and include both qualitative (community and stakeholder opinions) and quantitative (changes in traffic flows, journey times etc.) elements. Survey evidence gathered to measure these indicators should also incorporate respondent characteristics (such as age, gender, ethnicity) and geographic location, allowing for a more detailed analysis and consideration of potential equalities impacts.

Development of indicators and M&E criteria at this stage have been informed by The Scottish Government's Accessibility, Active Travel and Road Safety monitoring frameworks.

Table 3-1 - Monitoring & Evaluation Framework

Objective	Indicators	Evaluation Criteria	Data Source / Data Collection Requirements	Definition of Success
Traffic, Parking and Loading – The street is a slower, quieter and calmer environment where traffic access is retained by people feel safer, and traffic is less of a barrier to community activity. Provide parking and loading within a reasonable distance from homes.	• Vehicle movements by street and vehicle class • Vehicle speeds, • Rate of traffic collisions and casualties • Parking demand, duration and occupancy, by vehicle class, by road and type of parking facility	• Peak and daily through traffic movements in the area. • Percentage of LGV/HGV movements within peak and daily traffic flows • Mean, max and 85%ile traffic speeds. • Road collisions and casualties • Perceptions of safety in the design area • Walking Audit scoring for 'Feeling safe', 'Identity and belonging', 'Moving around', 'Public transport' 'Social contact', 'Streets and spaces' and 'Traffic and parking' criteria. • Daily parking demand • Average and maximum parking duration • Maximum daily parking occupancy	Existing Sources of data: • Stage 1-2 traffic speed and volume surveys • Road collision statistics to-date • Stage 1-2 engagement feedback • Baseline walking audits • Scottish Transport Statistics • Department for Transport Traffic Counts • Cycling Scotland Data Future Data Collection Requirements • Stage 3-4 engagement feedback • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits • Aberdeen City Council Active Travel Action Plan • Aberdeen City Local Outcome Improvement Plan	• Design interventions result in decreased vehicular traffic (and heavy vehicle traffic) travelling east-west along Ashgrove Road and Ashgrove Road West. • Design interventions result in decreased vehicular traffic speeds and maximum speeds on the street • A reduction in traffic collisions and the severity of collisions in the area. • A reduction in the rate of collisions involving active travel users. • All users of the street feel safer when moving around • The design provides sufficient parking capacity to satisfy current and future anticipated demand. • Updates to Walking Audits highlight improvements across the relevant criteria.
Walking – People of all ages and abilities can more easily walk to access facilities safely, comfortably and independently	• % of Walking/wheeling travel mode share • % of Walking/wheeling travel for recreation / leisure trips • Walking/wheeling journey times to local facilities • % of short journeys made by walking/active travel modes • Distance of walking trips • Public awareness of active travel modes • Perceived barriers to active modes • Perceived journey quality for active modes	• Weekday and weekend pedestrian movements at junctions and bus stops • Pedestrian movements and behaviour at the Ashgrove Road-Back Hilton Road junction • Walking audit scoring for all criteria • Perceptions of safety in the design area	Existing Sources of data: • Stage 1-2 active travel surveys • Road collision statistics to-date • Stage 1-2 engagement feedback • Baseline walking audits • Scottish Transport Statistics • Department for Transport Traffic Counts • Cycling Scotland Data Future Data Collection Requirements • Stage 3-4 engagement feedback • Engagement and findings of Behavioural Change Plan • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits • Aberdeen City Council Active Travel Action Plan • Aberdeen City Local Outcome Improvement Plan	• An increased number of people are observed to walk/wheel around the street each day. • Design interventions increase the likelihood of local residents walking/wheeling in the area. • Active modes become an attractive alternative to vehicle-based travel in the area. • All users of the street feel safer when moving around • People are more encouraged to dwell within the street. • Survey findings point to increased comfort when walking within the design area. • Updates to Walking Audits highlight improvements across all criteria. • Engagement feedback highlights the improved quality of walking journeys.

Objective	Indicators	Evaluation Criteria	Data Source / Data Collection Requirements	Definition of Success
Cycling – People of all ages and abilities are able to move around by bicycle safely, comfortably and independently**.**	• % of Cycle travel mode share • % of Cycling travel for recreation / leisure trips • Cycle journey times to local facilities • % of short journeys made by cycling/active travel modes • Distance of cycling trips • Public awareness of active travel modes • Perceived barriers to active modes • Perceived journey quality for active modes	• Weekday and weekend cycle movements at junctions and bus stops • Walking audit scoring for 'Moving around' and 'Streets and spaces' criteria • Uptake of cycle training/cycle skills courses, bike-ability training in schools etc.	Existing Sources of data: • Stage 1-2 active travel surveys • Road collision statistics to-date • Stage 1-2 engagement feedback • Baseline walking audits • Scottish Transport Statistics • Department for Transport Traffic Counts • Cycling Scotland Data • Hands up Scotland Survey Future Data Collection Requirements • Stage 3-4 engagement feedback • Engagement and findings of Behavioural Change Plan • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits • Aberdeen City Council Active Travel Action Plan • Aberdeen City Local Outcome Improvement Plan	• An increased number of people are observed to cycle around the street each day. • Design interventions increase the likelihood of local residents cycling in the area. • Active modes become an attractive alternative to vehicle-based travel in the area. • A reduction in traffic collisions and the severity of collisions involving cyclists. • All users of the street feel safer when moving around • Updates to Walking Audits highlight improvements across the relevant criteria. • Engagement feedback highlights the improved quality of cycling journeys.
Crossings and Junctions – Using junctions and crossings is an easier and more comfortable experience	• % active travel mode share • Walking/wheeling journey times to local facilities • % of short journeys made by walking/active travel modes • Perceived barriers to active modes • Perceived journey quality for active modes • Queueing and delays at junctions. • Vehicle journey time reliability	• Pedestrian and cycle crossing movements at junctions • Peak and daily through traffic movements in the area. • Mean, max and 85%ile traffic speeds. • Road collisions and casualties • Perceptions of safety at crossings and junctions • Walking audit scoring for 'Feeling safe', 'Moving around' and 'Traffic and parking' criteria	Existing Sources of data: • Stage 1-2 active travel surveys • Road collision statistics to-date • Stage 1-2 engagement feedback • Baseline walking audits • Scottish Transport Statistics • Department for Transport Traffic Counts • Cycling Scotland Data Future Data Collection Requirements • Stage 3-4 engagement feedback • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits • Aberdeen City Council Active Travel Action Plan • Aberdeen City Local Outcome Improvement Plan	• An increased number of people are observed to use active modes each day. • Active modes become an attractive alternative to vehicle-based travel in the area. • A reduction in traffic collisions and the severity of collisions at crossing points and junctions. • All users of the street feel safer when moving around • Pedestrian desire lines are more direct and dwell times are reduced at the Back Hilton Road – Ashgrove Road junction • Updates to Walking Audits highlight improvements across the relevant criteria. • Engagement feedback highlights the improved quality of crossings and junction performance.

Objective	Indicators	Evaluation Criteria	Data Source / Data Collection Requirements	Definition of Success
Place Quality and Greenspace – The street feels more attractive and safer for people to spend time in, with improved access to and through local green spaces, the distinctive feel of local spaces is enhanced and an overall net gain of 'green'.	• Vehicle movements by street and vehicle class • Vehicle speeds • Rate of traffic collisions and casualties • Transport emissions / Air quality • Parking demand & vehicle types • Community health and wellbeing • Perception of safety travelling by public transport and active modes • Attitudes towards/propensity to walking, cycling and other active modes • Quality of walking and cycling infrastructure • Public awareness of active travel	• Peak and daily through traffic movements in the area. • Percentage of LGV/HGV movements within peak and daily traffic flows • Mean, max and 85%ile traffic speeds. • Road collisions and casualties • Perceptions of safety in the design area • Time people spend in the design area • SIMD classification of the design/engagement area • Perceived attractiveness of the design area • Perceived friendliness of pedestrian, walking/wheeling and cycling in the design area • Walking Audit scoring for, 'Feeling safe', 'Identity and belonging' and 'Social contact' criteria.	Existing Sources of data: • Stage 1-2 traffic speed and volume surveys • Road collision statistics to-date • 2020 SIMD Data • Stage 1-2 engagement feedback • Baseline walking audits • Scottish Household Survey • Scottish Transport Statistics • Scottish Health Survey • Department for Transport Traffic Counts Future Data Collection Requirements • Stage 3-4 engagement feedback • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits	• Reprioritisation of road space results in a lower speed environment for vehicles. • Design interventions result in decreased vehicular traffic (and heavy vehicle traffic) travelling east-west along Ashgrove Road and Ashgrove Road West. • Design interventions result in decreased vehicular traffic speeds and maximum speeds on the street • The long-term changes to travel patterns positively contribute to public health and well-being and SIMD classification of the area. • A reduction in traffic collisions and the severity of collisions in the area. • All users of all abilities can become more independent when moving around the area. • All users of the street feel safer when moving around • People are more encouraged to dwell within the street.
Public Transport – Retain essential access for bus travel, improving its comfort, reliability, and safety.	• Public transport mode share • Bus journey times to local facilities • Satisfaction with public transport • Perceived barriers to public transport use and access • Local bus services and their frequency • Bus journey time reliability • Public transport patronage	• Peak and daily bus movements in the area. • Road collisions and casualties • Walking Audit scoring for 'Public transport' criteria	Existing Sources of data: • Stage 1-2 traffic speed and volume surveys • Baseline walking audits • First Bus Aberdeen and Stagecoach service provision & patronage reporting • Scottish Household Survey • Scottish Transport Statistics • Department for Transport Traffic Counts Future Data Collection Requirements • Stage 3-4 engagement feedback and event attendance. • Post-construction online/household surveys. • Post-construction traffic speed and volume surveys and walking audits	• Design interventions result in increased uptake of public transport in the area. • Local bus services see an increase in journey time reliability • Engagement feedback highlights improvements to bus service operation. • Additional bus services/more frequent services are provided locally. • Updates to Walking Audits highlight improvements to the 'public transport' criteria.

Objective	Indicators	Evaluation Criteria	Data Source / Data Collection Requirements	Definition of Success
Engagement – Engage with the local communities, businesses and stakeholders within the 'engagement area', so that they become more actively involved in the project and decision-making.	• No. of people attending events/activities • No. of website views/clicks • No. of survey respondents • % of positive survey responses • No. of stakeholder groups and local businesses involved/informed • Community/stakeholder connections created through project activities • 'Sense of community' within the design area	• Quality of gathered feedback throughout the design process • Number of community engagement activities held and attendances • Number of comments / responses received. • Number and diversity of community stakeholders engaged (e.g. community groups, businesses) • Diversity of demographic profile of those engaging with online material and the project team • Number of respondents (self-reporting) which are from protected characteristic groups • Number of working group meetings held and their attendance	Existing Sources of data: • Activities log • Stage 1-2 engagement feedback and event attendance. • Stakeholder Working Group meetings • Project website updates and social media posts. Future Data Collection Requirements • Activities log • Stage 3-4 engagement feedback and event attendance. • Stage 3-4 working group meetings • Project website updates and social media posts. • Post works focus group with working group members	• Local residents, businesses and stakeholders enthusiastically participate with engagement activities and events throughout the remaining design stages and post-construction updates. • Feedback gathered provided, specific, relevant and actionable comments for the project team. • A majority of comments and feedback received is positive • Drop-in style community events are well attended. • Continued feedback is received from those with protected characteristics (particularly mobility/sensory impairments). • An increasing number of local businesses and community stakeholder groups in the engagement process. • Increased online and social media attention for the project • Engagement feedback highlights stakeholders and the public feel their feedback is valued and part of the decision-making considerations.

4. Monitoring Strategy

This chapter outlines the proposed monitoring tools and methods to evaluate the impact of the project, including how data is currently being captured, how data is proposed to be captured in future and considerations going forward. Utilising all publicly available sources of data and the required scope of future surveys will be a consideration during subsequent design stages.

4.1. Baseline (Stage 1-2) Monitoring Tools

Traffic Speed and Volume Surveys

A 24-hour Traffic Speed and Volume survey was used to understand the current flows, classifications and speeds of vehicles in the area. This was done using three Automated Traffic Counters (ATCs) placed on Ashgrove Road West at Castleton Drive and University of Aberdeen Institute of Medical Science and Ashgrove Road (adjacent to Elder Place) between 12th-20th March 2022. Survey locations are shown below in Figure 4-1.

Figure 4-1 - ATC Survey Locations

Pedestrian and Cycle Crossing Counts

Walking and cycle crossing surveys were undertaken to understand the current levels of pedestrian and cycle movements and crossing behaviour in the area. These were performed using video-based surveys and manually enumerated for each approach up to 20m back from the junction from 06:00am-10:00pm between 12th–20th March 2022. These surveys were undertaken at five key junctions (with North Anderson Drive, Foresterhill Road, Cornhill Road/Cornhill Terrace, Westburn Drive and Laurelwood Avenue), and the three pairs of bus stops on Ashgrove Road West. These are shown below in Figure 4.2, and

Figure **4-3**.

Figure 4.2 – Pedestrian / Cycle Crossing Survey Locations

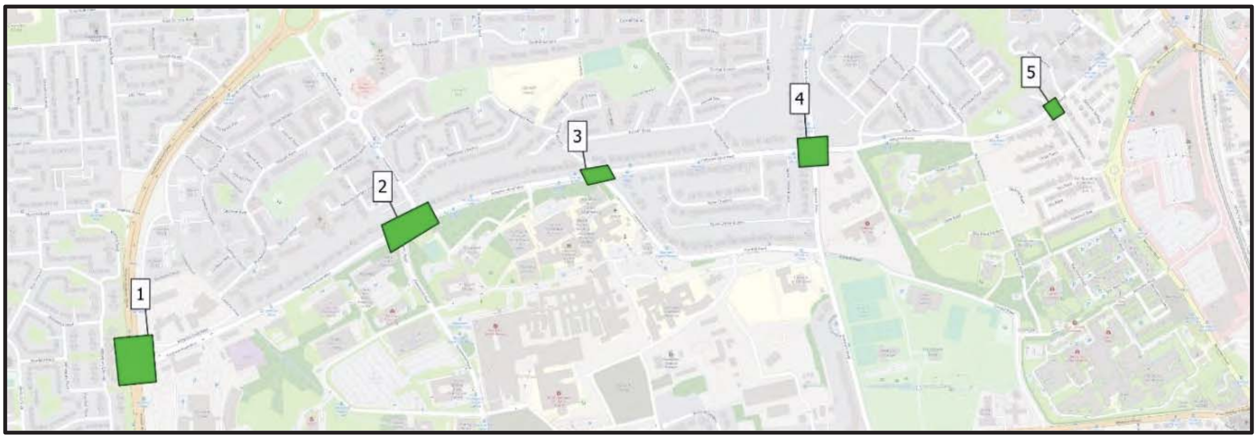
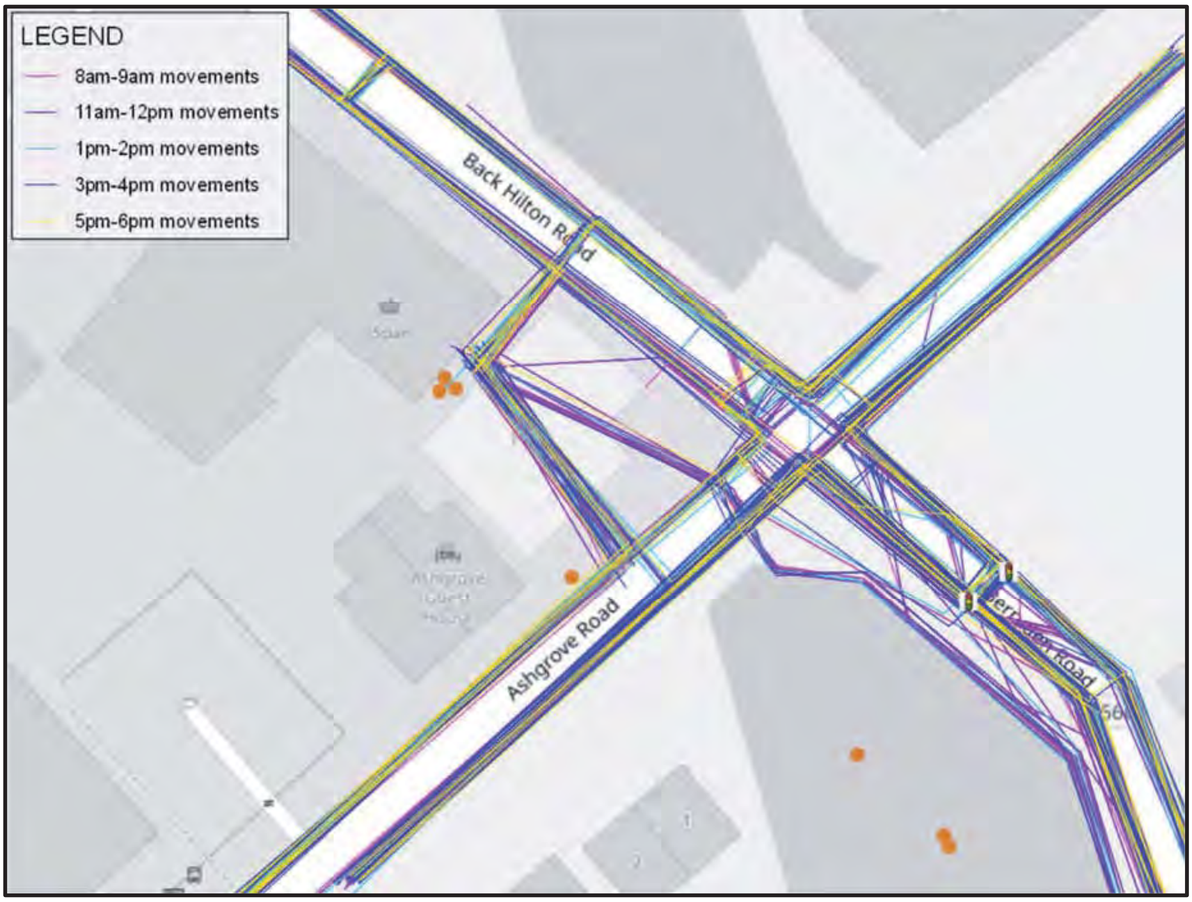


Figure 4-3 - Bus Stop Survey Locations

Public Life Survey

A Public Life Survey (PLS) was undertaken to understand pedestrian movements, current activity levels and to understand how users interact with the key local junction of Ashgrove Road-Berryden Road-Black Hilton Road. This was undertaken using half-hour video-based 'snapshots' taken of the busiest periods of activity. From these snapshots a pedestrian tracing plan was produced to illustrate key desire lines and crossing behaviours. Tracing results gathered are shown in Figure 4-4.

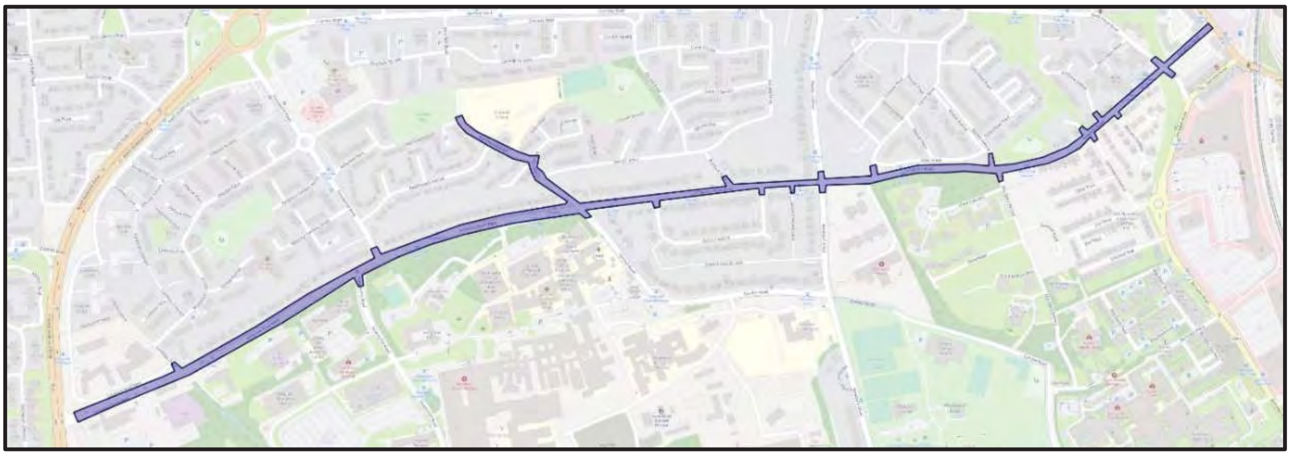
Figure 4-4 - Public Life Survey Location



Parking surveys

Car parking and loading surveys were undertaken to understand current parking demand on Ashgrove Road, Ashgrove Road West and the first 20m of adjacent side roads. These were performed from 06:00am-10:00pm between 26th-30th April 2022. Parking outwith kerbside/defined parking bays and presence of parking permits were also be recorded. The parking areas surveyed are shown in Figure 4-5.

Figure 4-5 - Parking Survey Area



Walking Audit

A total of 6 walking audits of the street were arranged with residents and members of stakeholder groups such as Aberdeen University, NHS Grampian and local schools, between 8th-23rd March 2022. The purpose of these audits was to gather environment and stakeholder and public opinions on the quality of the current street environment. This was done using a scoring exercise based on 7 key themes relating to place quality including:

- Feeling safe
- Identity and belonging
- Moving around
- Public transport
- Social contact
- Streets and spaces
- Traffic and parking

Engagement Activities

To assist the design process, a programme of engagement activities (Appendix A) was conducted. This included consultation via the project website, Aberdeen City Council's own consultation hub, public webinars, and survey questionnaires. Where possible additional survey questions regarding respondent's connection to the area, preferred mode of travel, characteristics (such as gender, age, ethnicity) and postcode have been included in order to gather baseline information of respondent's demographics and travel behaviour.

4.2. External Data Sources

Many of the indicators and monitoring criteria developed above are based on publicly available sources of data. Incorporating these allows the project team and those monitoring the project to set a more detailed baseline position prior to the construction stage and allows for trend-based analyses over time. These sources include:

Cycling Scotland Data – Scottish Government, Aberdeen City Council
DFT Annual Traffic Counts – UK Department for Transport
Hands Up Scotland Survey (HUSS) – Sustrans
Scottish Census – Scottish Government
Scottish Index of Multiple Deprivation (SIMD) – Scottish Government
Scottish Health Survey Data – Scottish Government, Aberdeen City Council
Scottish Household Survey Data – Scottish Government, Aberdeen City Council
Scottish Transport Statistics & Road Traffic Statistics – Scottish Government, UK Government

4.3. Future (Design Stages 3-4 and Post Construction) Monitoring Tools

The continued collection of both and qualitative quantitative data is key to inform the Monitoring and Evaluation Framework, understand progress towards overarching project outcomes/objectives and relative changes in performance indicators.

During Stages 3 and 4 it is anticipated further rounds of community and stakeholder engagement will be undertaken. These events will be used to attain feedback on the developing designs, better understand stakeholder requirements and monitor public sentiment and the overall success of the project.

4.4. Reporting Requirements

In line with Sustrans and Transport Scotland guidance detailed above, there are three main outputs of an M&E Plan, these are.

- Baseline Monitoring reports, which evidence the baseline performance and potential impacts of a proposed route/project and its surrounding study area from inception to project handover to / adoption by local authorities (in this instance Aberdeen City Council).
- 1YA (1 Year After) (Interim) Monitoring Studies, which presents the findings from data gathered and surveys undertaken one full year after a project's construction and certification. The 1YA study represents a benchmark for short-term objectives.
- 3YA-5YA (Final) Monitoring Studies, these present the findings from data gathered and surveys undertaken after the scheme has been operation for 3 or 5 years. 3YA or 5YA studies are used to evaluate longer-term objectives. These also serve as the final output of the Monitoring & Evaluation Plan.

Responsibilities

Members of the project team (with support from Aberdeen City Council and/or Nestrans) would be responsible to oversee data collection, survey activities and reporting during later stages of the project. Similar to the approach taken at this stage, this is anticipated to be conducted by third-party contractors.

4.4.1. Baseline Monitoring Report

Prior to the construction stage, a Baseline Monitoring & Evaluation Report should be prepared. Building upon the data Stage 1-2 Scheme Assessment Report and ongoing engagement activities this would contain the baseline data gathered throughout Stages 1-4 required to evidence the project's outcomes/objectives and performance indicators.

The following is anticipated to be included in order to provide a thorough baseline operational summary of the design/engagement area, relevant source data where possible could also be shared in an MS Excel format, including summary tables and graphs.

Baseline Traffic Speed and Volume survey findings

- Average daily, 5-day, 7-day traffic flows
- Vehicle flows by class, including HGV%
- Average, maximum and 85%ile traffic speeds

Parking survey findings

- Weekday and Weekend parking demand and occupancy by road
- Weekday and Weekend parking demand and occupancy by vehicle class
- Weekday and Weekend parking duration and average duration by road
- Parking demand by type of parking facility, designated bays, zone permits etc.

Active Travel Survey and Findings

- Weekday and weekend pedestrian and cycle crossing movements at junctions
- Weekday and weekend pedestrian and cycle movements at junctions, by approach
- Weekday and weekend pedestrian movements at bus stops
- Key desire lines and pedestrian behaviour at the Ashgrove Road-Back Hilton Road

Walking audit findings

- Considering scoring and comments from stakeholders such as residents, local businesses and community groups.

4.4.2. One Year After (1YA) and Three-Five Years After (3-5YA) Studies

Post construction of the finalised design, a One Year After monitoring study (1YA) and a Three or Five Years After (3YA - 5YA) monitoring study would be commissioned. These studies are anticipated to be supported by a programme of surveys and engagement with local residents and community groups, businesses and internal stakeholders (ACC and Nestrans) to gather their opinions of the benefits and drawbacks of the design when in operation.

Based on the indicators and monitoring criteria developed above, examples of comparative analyses which could be undertaken within the 1YA and 3YA or 5YA studies includes.

- Comparisons between baseline and post construction traffic flows, by vehicle class (e.g. bus and LGV/HGVs)
- Comparisons between baseline and post construction collisions rates, collision severities and user groups involved.
- Comparisons between baseline and post construction journey times and journey time reliability
- Comparison between baseline and post construction vehicles speeds, including mean and max speeds

Appendices

Appendix A. Stage 1-2 Engagement and Communications Activities

Stage 1 Engagement Activities

Date	Engagement Activity	Delivery method	Target audience
Stage 1: 'Define'			
07 March	Press release issued	Email	Local media / community
08 March	Briefing issued	Email	Local members
08 March	Introduction emails/letters issued	Email	All key stakeholders
08 March	Consultation opens	Website	All stakeholders
08 March	Door knocking	In person	Residents and businesses
08 March	Walking audit with NHS Grampian	In person	Street user representative
09 March	Walking audit with Community Groups	In person	Street user representative
14 March	Local member briefing held	Online meeting	Local members
16 March	Webinar	Online webinar	All stakeholders
21 March	Meetings with local residents	In person	Local residents
21 March	Walking audit with local residents	In person	Local residents
23 March	Walking audit with Cornhill Primary School	In person	Street user representative
23 March	Walking audit with Aberdeen University	In person	Street user representative
25 March	Consultation extended	Website	All stakeholders
3 April	Consultation closed	Website	All stakeholders
27 April	Stakeholder Working Group meeting held	Online meeting	Key stakeholders

Stage 2 Engagement Activities

Date	Engagement Activity	Delivery method	Target audience
Stage 2: 'Develop'			
18 May	Stakeholder Working Group meeting held	Online meeting	Key stakeholders
15 June	Stakeholder Working Group meeting held	Online meeting	Key stakeholders
21 June	Press release issued	Email	Local media / community
22 June	Email issued to stakeholders and local members	Email	Key stakeholders / local members
22 June	Consultation opens	Website	All
22 June	Door knocking	In person	Residents and businesses
22 June	Cairncry Primary School workshop	In person	Key stakeholder group
27 June	Local member briefing	In person	Key stakeholder group
28 June	Webinar	Online	All
5 July	Drop-in events	In person	All
6 July	Crosby House Care Home workshop	In person	All
12 July	Resident's workshop	In person	All
17 July	Consultation closes	Online	All
24 August	Stakeholder Working Group meeting held	Online	Key stakeholders

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Constituent Report CR-D1

Engagement Report (Stage 1)

Ashgrove Connects

Stage 1 Engagement Report

Aberdeen City Council

09 September 2022

Notice

This document and its contents have been prepared and are intended solely as information and use for Aberdeen City Council and Nestrans in relation to the Ashgrove Connects Project.

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This document has 19 pages including the cover.

Document history

Document title: Stage 1 Engagement Report

Document reference: 002

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	First draft	ED				19/04/2022
2.0	Final report	ED	CC	CJ	AM	09/09/2022

Client signoff

Client	Aberdeen City Council
Project	Ashgrove Connects
Job number	5212138
Client signature/date	

Contents

Figures

1. Introduction

1.1 Purpose

This report summarises the responses received during the initial engagement period for Ashgrove Connects which commenced on Tuesday 8th March and closed on Sunday 3rd April 2022.

The purpose of this initial engagement period was to raise awareness and understanding of the project locally and gather information from the community on their experiences of using the streets. The information gathered has been used to define priorities and objectives that the project will seek to achieve.

This report is intended to summarise the activities held, respondents and contributions received. The report does not seek to respond to or comment on responses. All contributions that have been verified by respondents can be viewed on the Comments Map of the project website: https://ashgroveconnects.commonplace.is/.

1.2 Methodology

Analysis of the responses received has been undertaken by Atkins using the data obtained from the methods used during the initial engagement period. These have been summarised below.

Project website

Participants on the project website were invited to drop pins on a map of the Ashgrove Connects design area to share their experiences of the streets. Upon dropping a pin, respondents were asked the following questions:

- What would you like to comment on? (Single choice with an open text "other" option)
- How do you feel about this? (Single choice scale from positive to negative)
- Why do you feel this way? (Multiple choice with an open text "other" option)
- How could we improve this? (Multiple choice with an open text "other" option)
- Any other comments? (Open-text response)

The topic choices provided under 'what would you like to comment on' were adapted from the Scottish Government's Place Standard Tool which provides a framework to structure conversations about place.

Participants could also agree with comments submitted by others. All demographic questions were optional.

There was a high level of variation in the detail of responses that people left, with some filling in the multiple-choice options, while others gave longer, more detailed responses in the open-text boxes. A summary of the results has been provided in this report.

Walking audit

Participants at the walking audits were able to discuss their experiences and score each of the topics being asked about on the project website in situ. The weather conditions and chosen route differed on each walk.

The discussions and results from the walking audits have been recorded separately to those submitted through the project website as these were conducted in groups. A summary of the discussion and scores from each walking audit has been provided in this report.

Other

Participants were also able to send contributions directly to the project team by email, phone, paper survey and through the chat function during the live webinar. Where possible, comments posted on social media were also recorded. Contributions submitted through these methods were entered into the project website by the project team.

2. Engagement activities

This chapter provides an overview of the activities held during the initial engagement period.

2.1. Project website

A dedicated project website was launched on Tuesday 8th March to act as the main communication reference point for the project moving forward: http://ashgroveconnects.commonplace.is.

Visitors to the website could read more about the project, interact with the Comments Map, watch a recording of the webinar and keep up to date with the latest news.

Figure 2-1 - Level of engagement through the project website

958 Visitors	130 Respondents	245 Comments	432 Agreements
An individual who visited the website.	A person who added a contribution.	A comment is a contribution made to express an opinion.	An agreement is a contribution to agree with a comment.

2.2. Walking audits

Walking audits were organised with stakeholder groups representing different street users to discuss their experiences of using the streets in situ with members of the project team. A total of 24 people participated at 6 walking audits. Following interest at the webinar, additional walking audits were organised with residents and the activity was also made available on the project website.

Participant at the walking audit: *"It was interesting to think critically about a street I've always used but never actively thought about."*

Figure 2-2 - Walking audits with community groups, Cornhill Primary School and Aberdeen University

2.3. Webinar

A live webinar was held on Wednesday 16th March to introduce the project, explain more about place and answer questions raised before and during the session. A total of 15 people participated at the webinar which was recorded and uploaded to the project website and has been viewed over 90 times.

Participant at the webinar: *"Thank you, very informative and well presented."*

2.4. Meetings

Meetings were also held with residents of Ashgrove Road West at Cairncry Community Centre on Monday 21st March to explain more about the project, discuss their experiences of the street and distribute paper surveys.

3. Respondents

This chapter provides an overview of the respondents to the initial engagement period. This includes demographic data from those who submitted this information through the project website.

3.1 Connection and travel mode

Respondents were asked about their connection to the area to provide an understand of their interest in the project. Figure 3.1 shows that most respondents live and work (44%) in the area. Respondents were also asked how they would normally travel through the area to provide an understanding of how people move around. Figure 3.2 shows that most respondents normally travel by active modes when combining on foot and by bike (55%) followed by car (39%).

Figure 3-1 - Connection to the area

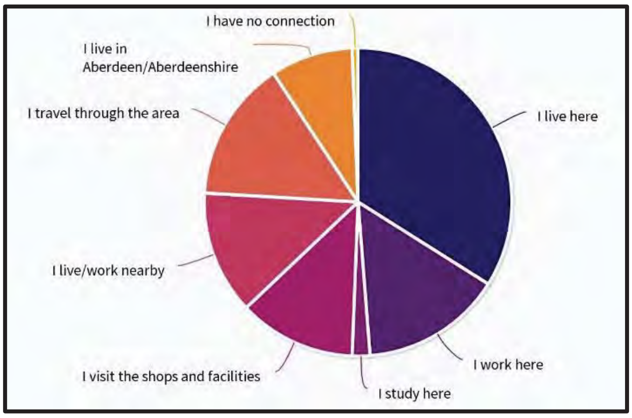
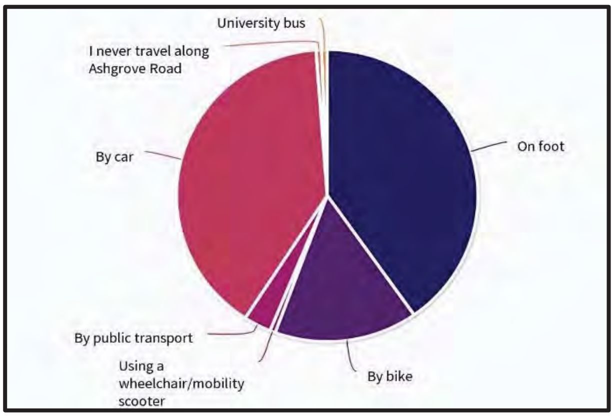


Figure 3-2 - Preferred travel mode



3.1. Gender, age, and ethnicity

Respondents were also asked about their gender, age, and ethnicity to provide an understanding of how balanced the engagement process had been. Figure 3.3 shows there were more female (57%) respondents and Figure 3.4 shows that most respondents fell within the 35-44 (34%) age category. Figure 3.5 shows most respondents were white (98%).

Figure 3-3 - Respondent' gender

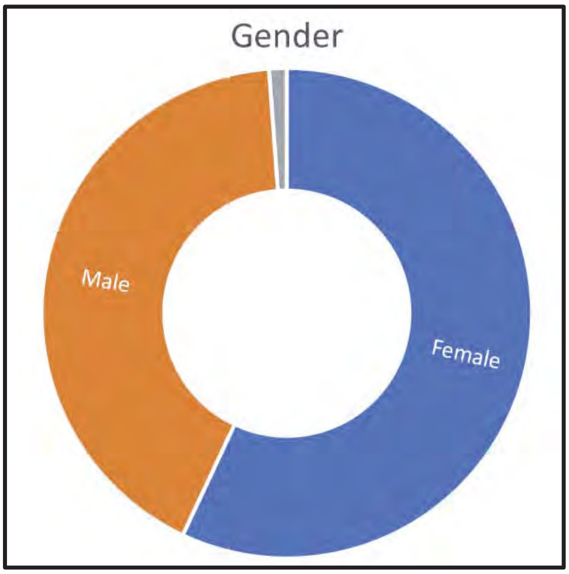


Figure 3-4 - Respondents' age

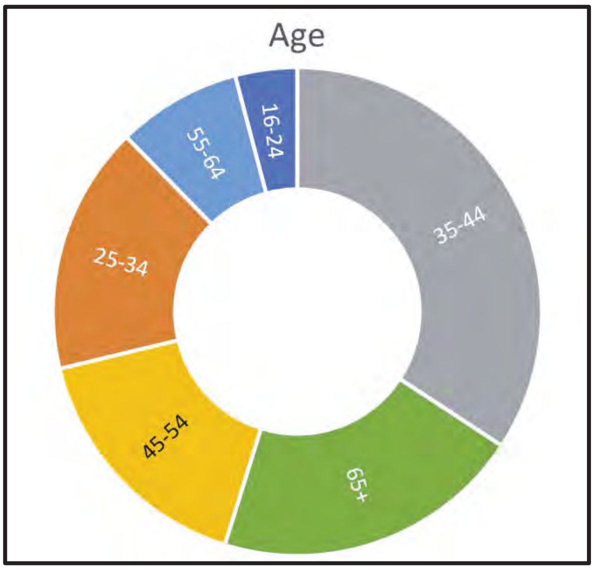
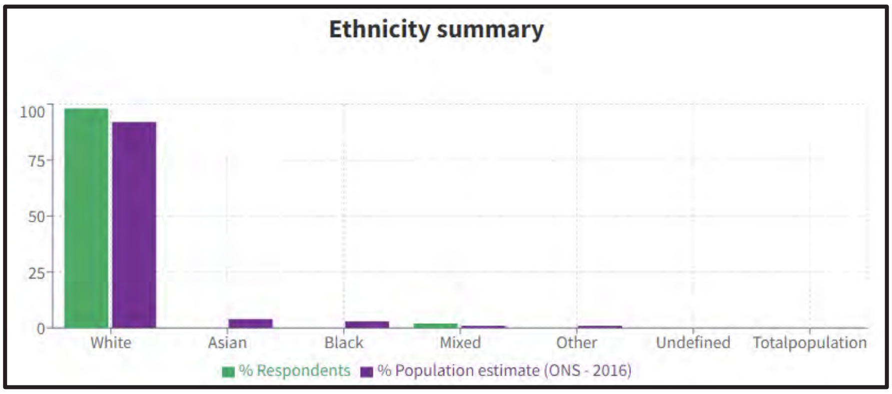


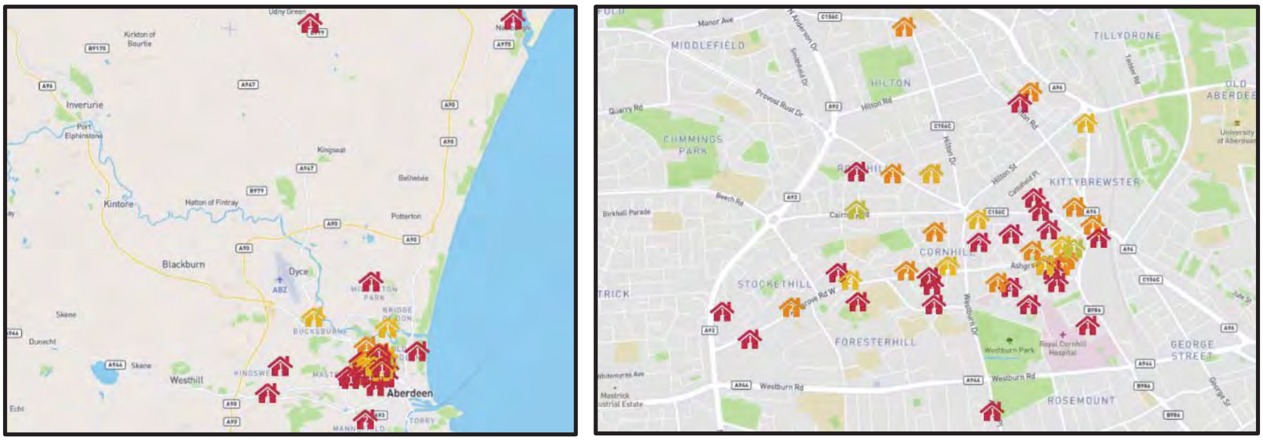
Figure 3-5 - Respondents' ethnicity against the estimated ethnicity of the local population



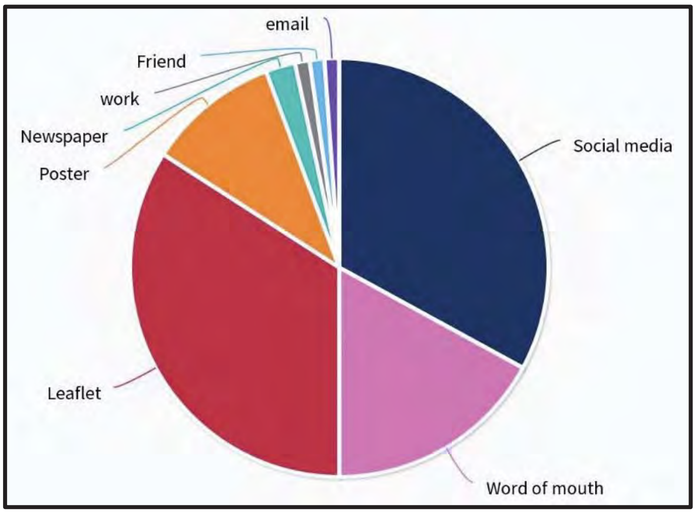
3.2. Postcode

Respondents were asked for their postcode to provide an understanding of where contributions were received from. Figure 3.6 presents the postcode of respondents covering Aberdeenshire and the local area. The colour of the icons corresponds to the average sentiment of the respondent’s comments (red = negative; orange = mostly negative; yellow = neutral; light green = mostly positive; and green = positive) and the number represents how many respondents provided the same postcode.

Figure 3-6 - Respondents' postcode



3.3. Communication methods



Respondents were asked how they had heard about the project to provide an understanding of the most successful communication methods.

Figure 3.7 shows social media (32%), leaflets (31%), word of mouth (15%), and posters (11%) were the most successful.

Figure 3-7 - How respondents found out about the project

4. Contributions

This chapter provides an overview of all the contributions received during this initial engagement period. This does not include findings from the walking audits which are provided separately in Chapter 5.

4.1. Overview

The total number of contributions received was 677 of which 245 were comments and 432 were agreements. Figure 4.1 shows the locations of verified contributions grouped together on the Comments Map. The colours correspond to the sentiment of the comment (red = dislike; amber = neutral; and green = like).

Figure 4-1 - Comments map

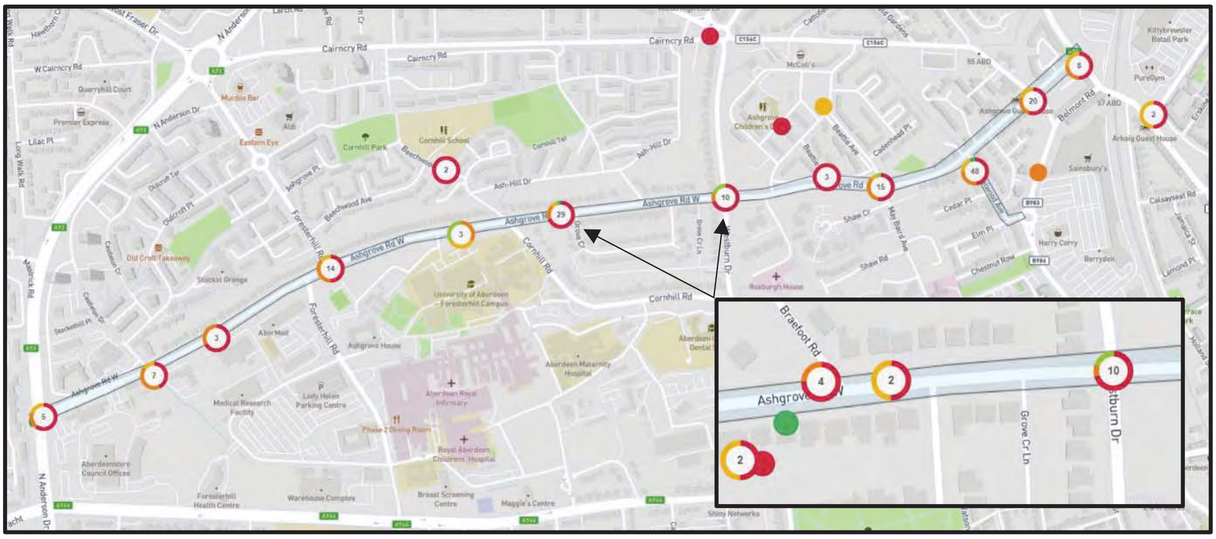


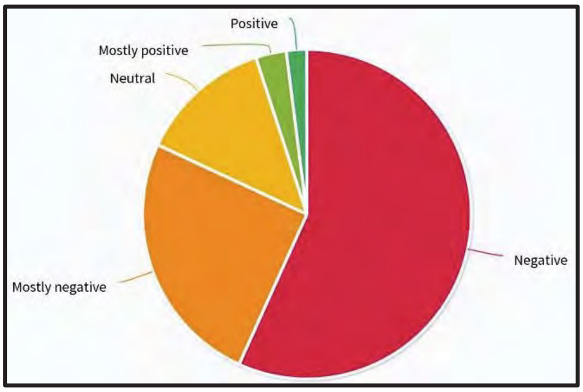
Figure 4.2 presents the topics respondents chose to comment on, with the most popular appearing the largest. Overall, the top three topics respondents commented on were *traffic and parking* (37%), *moving around on foot, by bike or wheelchair* (32%), and *feeling safe* (9%).

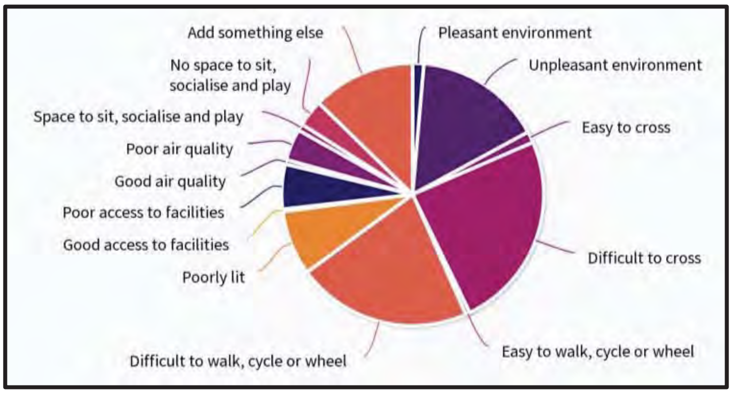
Figure 4-2 - Respondents' answers to what would you like to comment on

Overall, respondents felt negatively or mostly negatively (82%) about the topics they chose to comment on. The top three reasons why respondents felt this way were *difficult to cross* (24%), *difficult to walk, cycle and wheel* (22%) and *unpleasant environment* (16%). Respondents also frequently gave reasons such as high traffic speed and volume, poor junctions, confusing traffic lights and congestion.

Figure 4.3 presents the overall sentiment towards the themes and why respondents felt this way.

Figure 4-3 - Respondents' overall sentiment and the reasons why

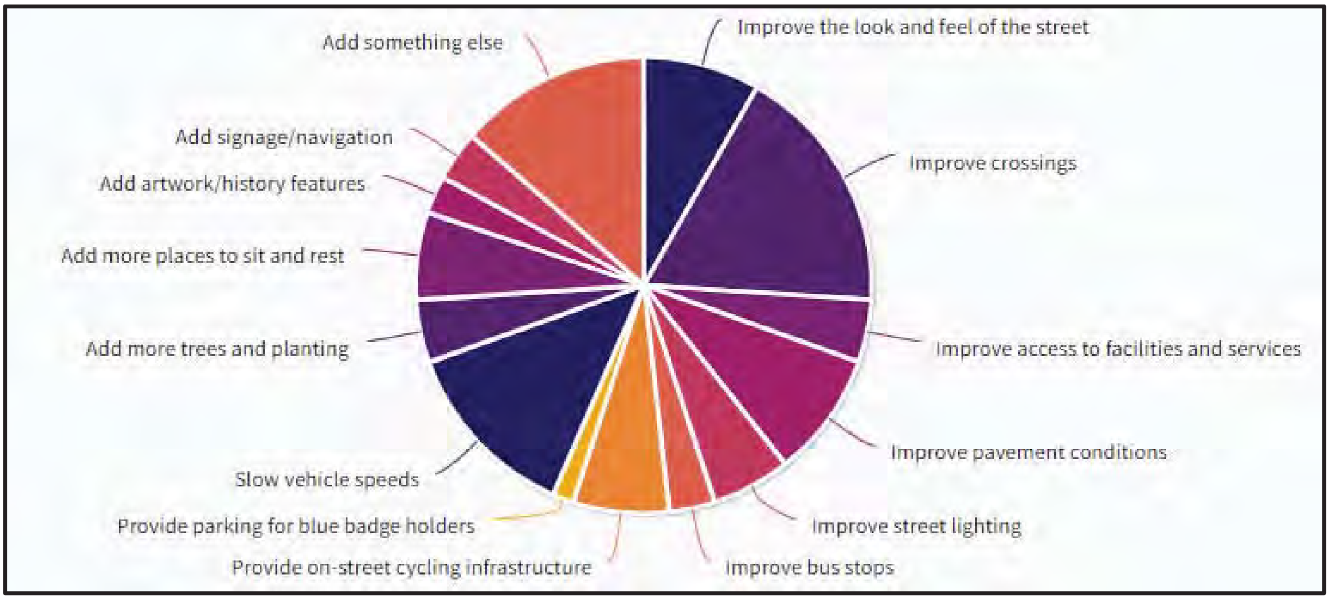




The top three improvements respondents suggested were *improve crossings* (18%), *slow vehicle speeds* (13%) and *improve the look and feel of the street* (8%). Respondents also frequently suggested improve access to greenspace, better maintenance, safer conditions for people cycling, reduce traffic volume and add more bins.

Figure 4.4 presents the improvements respondents suggested overall.

Figure 4-4 - Respondents' suggested improvements overall



Survey response with the most agreements overall was on traffic and parking (17 agreements):

"The Ashgrove Road West/Foresterhil Road staggered junction is confusing and overly complicated. Multiple times as a car driver and cyclist I have experienced near misses due to traffic in the wrong lane. The sequencing of the lights is suboptimal, with traffic getting stopped on the junction, blocking it for cross-traffic, and significant spells in the cycle where no traffic gets to use the crossing."

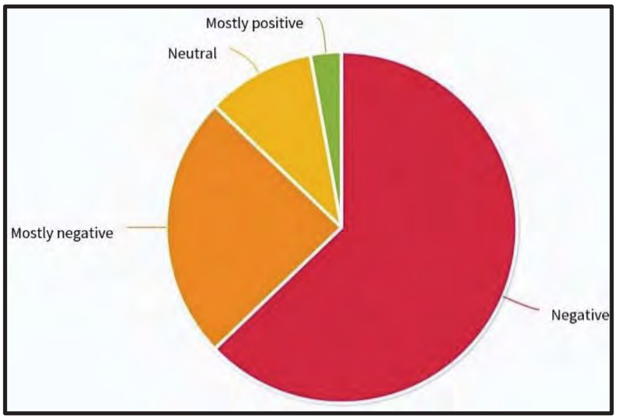
4.2. Traffic and Parking

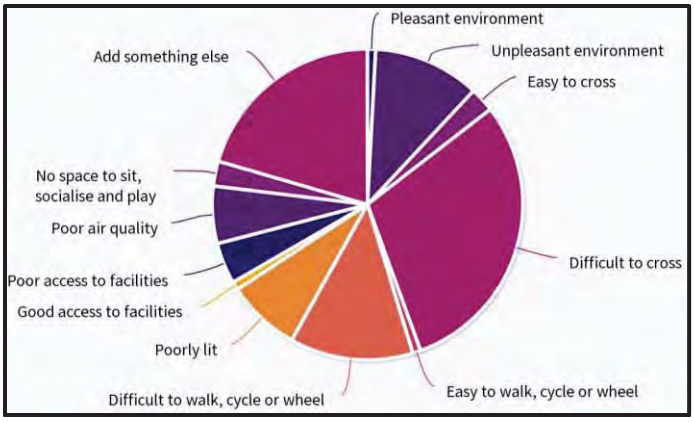
Respondents felt either negatively or mostly negatively (87%) about traffic and parking due to it being *difficult to cross* (30%), *difficult to walk, cycle or wheel* (13%) and unpleasant environment (11%). Respondents also regularly gave reasons such as: confusing and poor visibility at junctions, high traffic speeds, and too much congestion.

Figure 4.5 presents the sentiment towards traffic and parking and the reasons why respondents felt this way.

Survey respondent on other reasons: *"Congestion in traffic, dangerous for drivers and pedestrians."*

Figure 4-5 - Respondents' sentiment towards traffic and parking and the reasons why

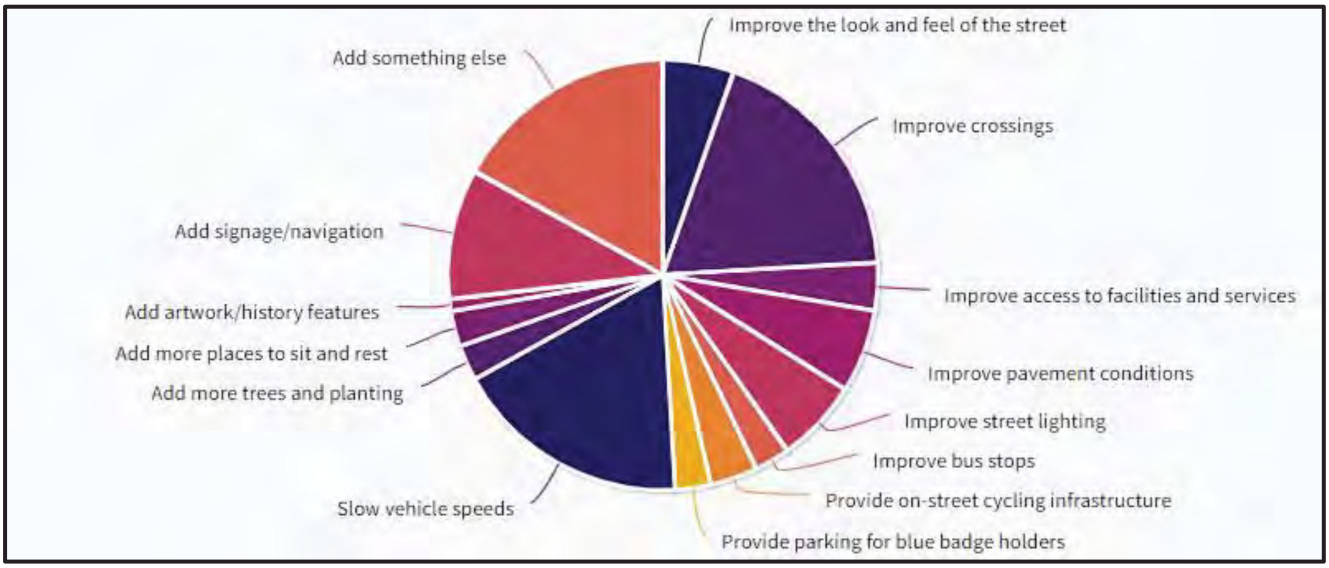




Respondents suggested this could be improved by *improve crossings* (19%), *slow vehicles* (18%) and *add signage navigation* (10%). Respondents also regularly suggested: add traffic lights, restrict parking at junction corners, and add traffic calming measures. Figure 4.6 presents the options respondents selected when describing how they would improve traffic and parking.

Survey respondent on other improvements: *"Traffic Island or similar to stop vehicles travelling from the Foresterhill Road direction cutting the corner at high speed as the turn right into Cornhill Road."*

Figure 4-6 - Respondents' suggested improvements for traffic and parking



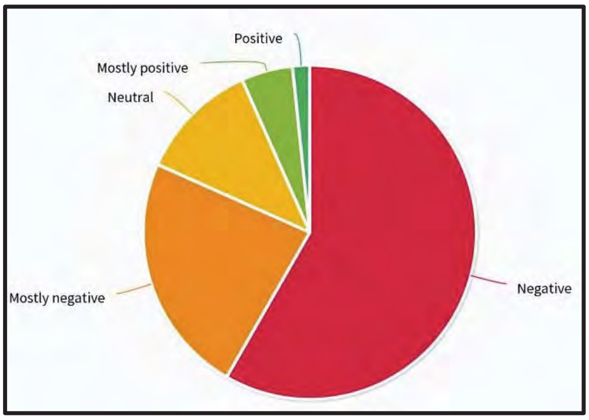
Survey respondent on any other comments: *"Ashgrove Road West was a better place to live when there was on street parking. The parking reduced the speed of the traffic. Now at times one takes their life in their hands when crossing the street.*

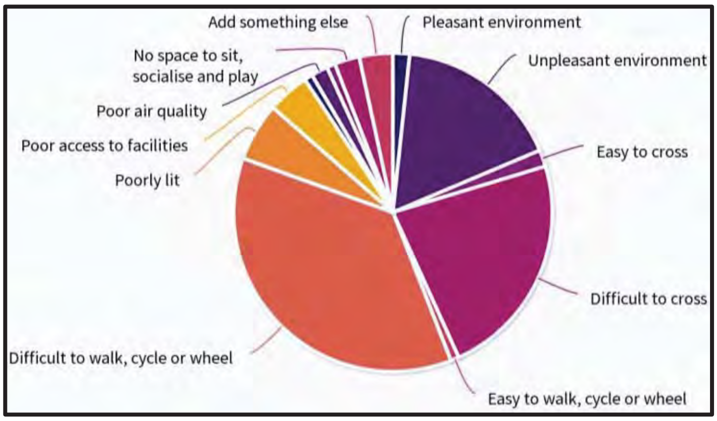
4.3. Moving Around on Foot, by Bike and Wheel

Respondents felt negatively or mostly negatively (81%) about moving around on foot, by bike and wheel due to it being *difficult to walk, cycle or wheel* (36%), *difficult to cross* (23%), and *unpleasant environment* (17%). Figure 4.7 presents the sentiment towards moving around on foot, by bike and wheel and the reasons why respondents felt this way.

Survey respondent on other reasons: *"Junction [Cornhill Terrace/Road] is very wide cars enter/exit very fast. Had near misses cycling uphill with vehicles using junction at speed."*

Figure 4-7 - Respondent's sentiment towards moving around and the reasons why

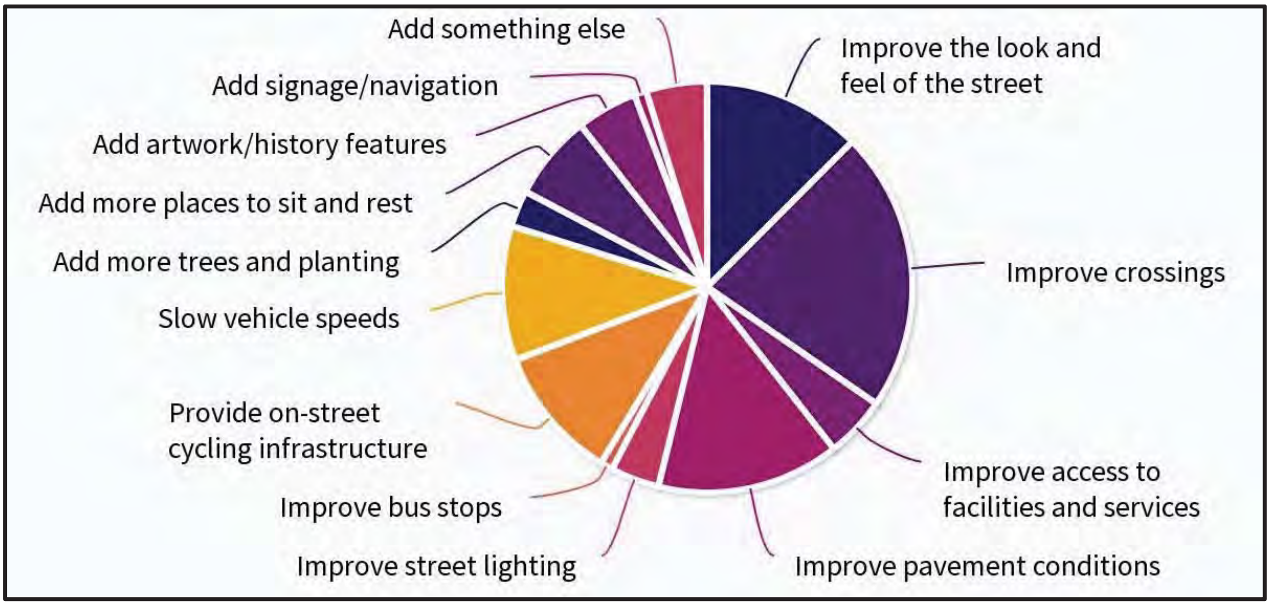




Respondents suggested this could be improved by *improve crossings* (22%), *improve pavements* (14%), and *improve the look and feel of the street* (13%). Figure 4.8 presents the improvements participants suggested.

Survey respondent on other improvements: *"Maintenance of trees - overhanging branches are a problem. Also not enough room on west side for wheelchairs due to trees taking up pavement. Need a safer crossing from Beattie Avenue to May Baird as common route to get to Westburn Playpark or Cornhill Library."*

Figure 4-8 - Respondents suggested improvements for moving around



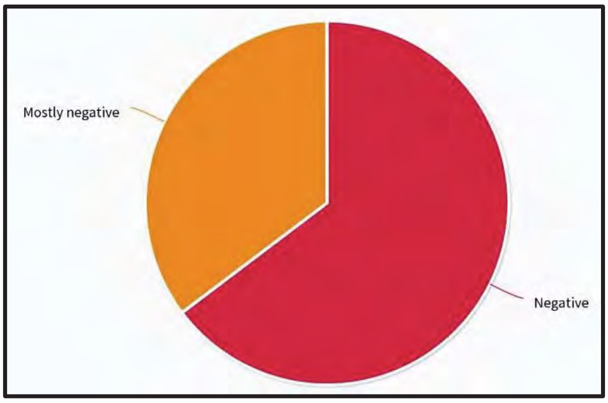
Survey respondent on any other comments: *"The Ashgrove Road all the way down from the top is not safe for cyclists, especially using the junctions because of the traffic caused by purely designed parking and lighting systems, and invisible markings and fast riding drivers. It's necessary to build a dual path for both cyclists and* *pedestrians and the width of the road is suitable enough to do that. This can encourage more people to cycle around neighbourhood and so the best solution for both traffic and air pollution."*

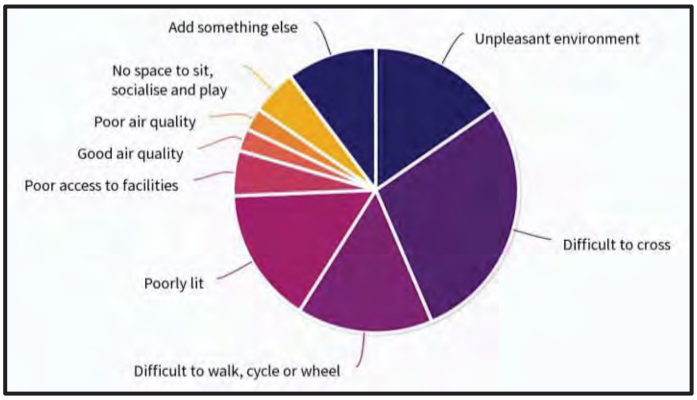
4.4. Feeling Safe

Respondents felt negatively or mostly negatively (100%) about feeling safe due to it being *difficult to cross* (28%), *difficult to walk, cycle and wheel* (15%), *unpleasant environment* (15%), and *poorly lit* (15%). Figure 4.9 presents the sentiment towards feeling safe and the reasons why respondents felt this way.

Survey respondent on other reasons: *"Traffic regularly run a red light, no filter to turn right onto Westburn Drive. Drivers with road rag speeding through junction."*

Figure 4-9 - Respondents' sentiment towards feeling safe and the reasons why

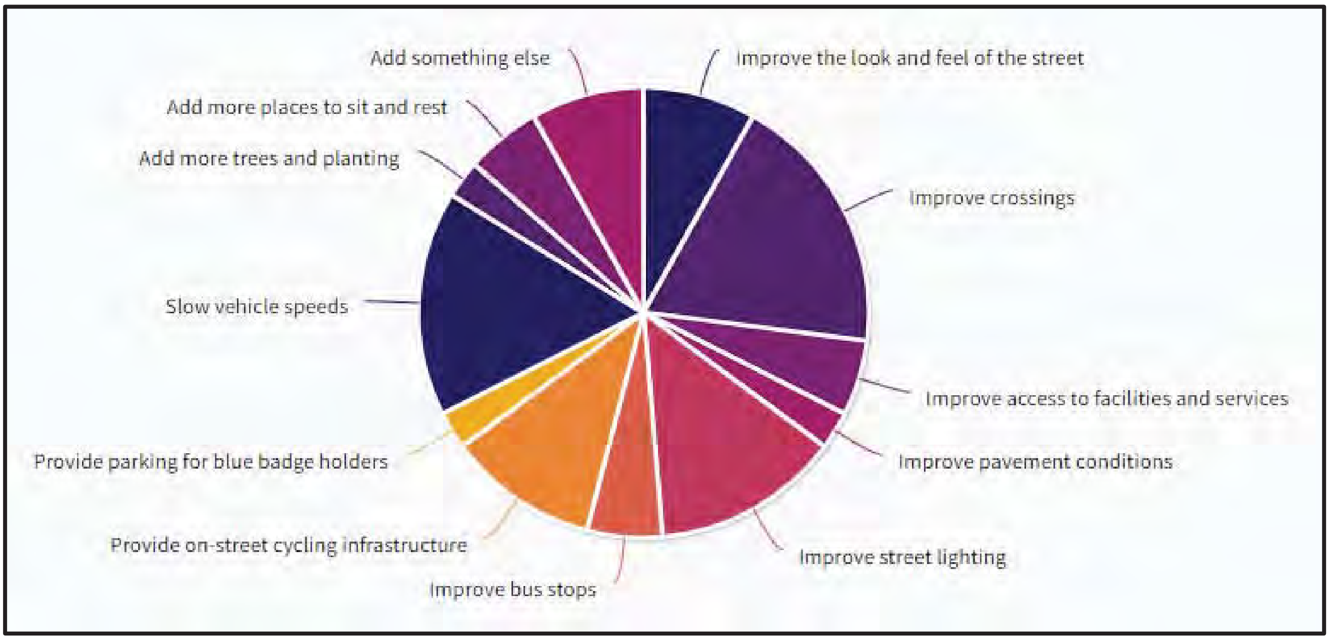




Respondents suggested this could be improved by *improve crossings* (19%), *slow vehicle speeds* (16%) and *improve street lighting* (14%). Figure 4.10 presents the improvements participants suggested.

Survey respondent on other improvements: *"No new trees should be planted outside 1 to 19 Ashgrove Road."*

Figure 4-10 - Respondents' suggested improvements for feeling safe



Survey respondent on any other comments: *"The streetlights are poor and we have a problem with cyclists on the pavement. Once I took the car alongside at 30 mph and the cyclist overtook me on the pavement."*

4.5. Other Topics

Attractiveness and maintenance of streets [n = 21]

Respondents felt negatively or mostly negatively (64%) about attractiveness and maintenance of streets due to it being *unpleasant environment* (45%), *difficult to walk, cycle or wheel* (25%) *difficult to cross* (10%), and *poorly lit* (15%). Respondents felt this could be improved by *improve pavement conditions* (21%), *add more trees and planting* (16%) and *improve the look and feel of the street* (16%). Other suggested improvements included: replace, protect, and maintain trees; and add more bins (including for dog waste).

Survey respondent on attractiveness and maintenance of streets: *"Trees add greatly to the quality of the environment, both physically and in their effect on our sense of wellbeing. Look after them well!"*

Ability to meet people, socialise and play [n = 9]

Respondents felt negatively or mostly negatively (88%) about ability to meet people, socialise and play due to it being *unpleasant environment* (25%), *poor access to facilities* (19%), and *poorly lit* (13%). Respondents felt this could be improved by *add more places to sit and rest* (25%), *add more trees and planting* (17%) and *improve access to facilities and services* (17%). Other suggested improvements included: improve access to playparks.

Survey respondent on ability to meet people, socialise and play: *"Install more charging points for electric cars somewhere along the whole street. Plant for example wildflowers on the green belt in the corner of Ashgrove Rd and Berryden Rd beside bus stop to improve biodiversity. Maybe provide some benches?"*

Bus stop and routes [n = 8]

Respondents felt negatively or mostly negatively (100%) about bus stop and routes due to it being *difficult to cross* (18%), *poor access to facilities* (18%) and difficult to walk, cycle and wheel (18%). Respondents felt this could be improved by *improve bus stops* (23%), *improve crossings* (15%), and *add more places to sit and rest* (15%).

Survey respondent on bus stops and routes: *"If the Council are committed to traffic reduction and net zero goals, then the bus service provision need to be addressed. There are no buses on Ashgrove Road West that serve the City Centre."*

Sense of identity and belonging [n = 2]

Survey respondents on sense of identity and belonging:

"This is a wonderful opportunity to reduce the width of the street. Understanding the critical nature of emergency vehicles and their need to respond to emergencies aside we could have more planting, wider pavements, and places to sit on a quiet street. Pedestrian crossings should be considered intermittently, and a sense of place can be created if the street is going to become a c class …"

"Ashgrove community seems to not have a place where local information could be provided or people from the area simply meet and get to know each other- there's no community centre. Maybe, at least there could be some sort of information board with history of this area and space provided for local adverts, queries etc."

Other [n = 12]

Respondents also commented on other topics including the lack of communal bins (including for dog waste), the amount of traffic, pavement and surface conditions on Laurelwood Avenue, the unknown impact of the Berryden Corridor Improvement Project and the safety of junctions.

Survey respondents on other topics:

"Laurelwood Avenue used as a ratrun by cars and Lorries. This makes crossing the road for pedestrians dangerous and difficult."

"Modelled effect of new Berryden corridor on traffic on Ashgrove Road and West"

ATKINS
Member of the SNC-Lavalin Group

5. Walking Audits

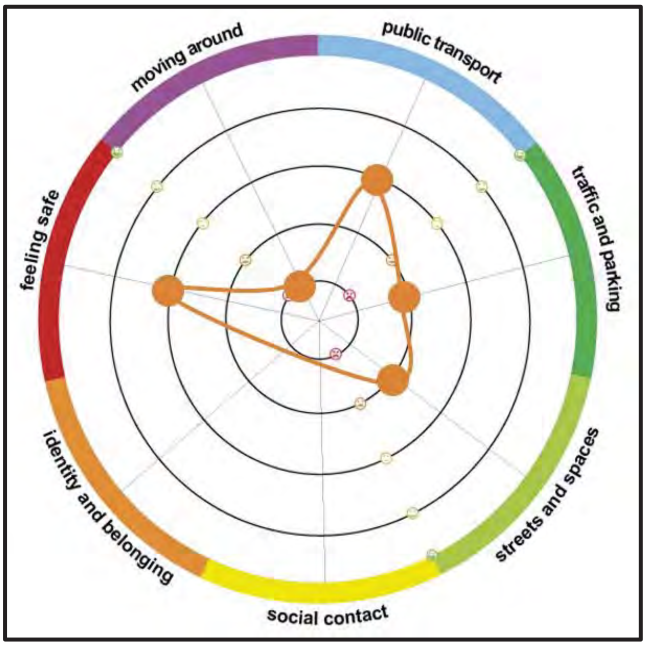
This chapter provides a summary of the priorities identified from the walking audits.

5.1. NHS Grampian

Top priorities identified for improvement by representatives of NHS Grampian were:

- **Moving around:** difficult to cross the road due to the width, and lack of formal crossings points; poor pavement conditions due to tree roots and overhanging vegetation; and poor conditions for cycling due to high speed and volume of traffic resulting in people cycling on the pavement.
- **Traffic and parking:** high traffic speeds due to lack of signage and width of road; confusing junction at Foresterhill Road due to the double traffic light system; and too much space given to parking in places where there is little demand for it.
- **Streets and spaces:** narrow pavements due to overhanging vegetation and tree routes.

Figure 5-1 - NHS Grampian Scoring Wheel



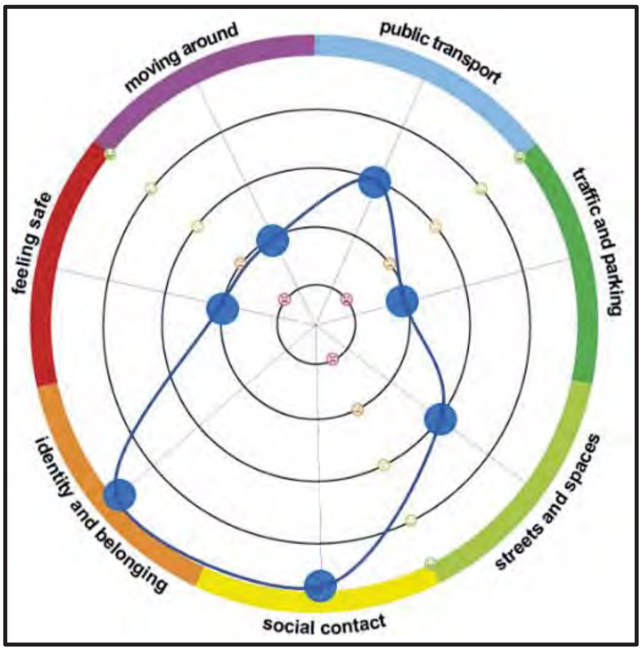
Discussions also identified good public transport provision for the high demand at the hospital, good secure cycle parking provision at the hospital and, although the speed of traffic can cause safety concerns, the area feels safe overall. No discussions or scores were recorded for social contact or identify and belonging.

5.2. Community Groups

Top priorities identified for improvement by representatives of Community Groups were:

- **Moving around:** difficult to cross the road due to its width and no priority for people at side roads; people cycling on the pavements cause issues; and junctions of Cornhill Road/Terrace and Beattie Avenue/May Baird Avenue are well used but can be difficult to cross at peak times.
- **Traffic and parking:** high traffic speeds and pollution impact on enjoyment of walking along the road; particularly poor visibility and congestion at the Ashgrove Road/Berryden Road junction a problem.
- **Feeling safe:** although the area feels safe, the high traffic speeds can make the road feel unsafe for people walking; and the high walls along Ashgrove Road can feel isolating and create a dark atmosphere.

Figure 5-2 - Community Groups Scoring Wheel



Discussions also identified the positive connection the community have to the local area and the potential for cycling demand to increase if changes are made to reduce traffic speed and narrow the road.

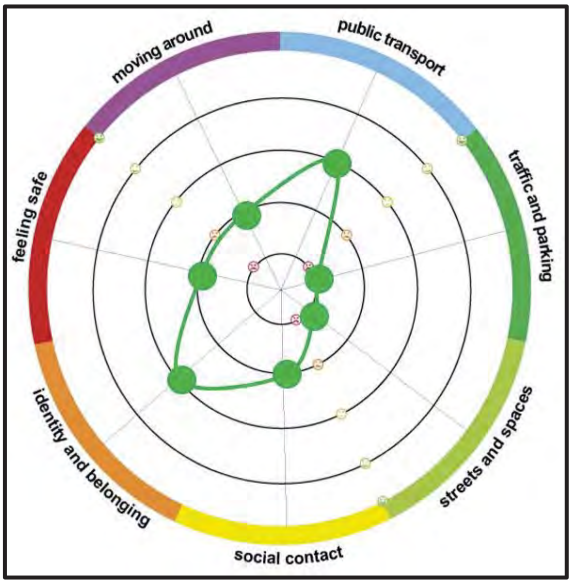
ATKINS
Member of the SNC-Lavalin Group

5.3. Residents

Top priorities identified for improvement by residents were:

- **Traffic and parking:** noisy and busy environment at peak times due to traffic congestion; environment feels unsafe due to high traffic volume and speed; poor visibility at side roads and confusion at the Foresterhill Road /Ashgrove Road West junction due to parking provision being too close to traffic lights.
- **Streets and spaces:** litter on pavements and dog waste on grassy area dues to a lack of bins; unpleasant environment on Ashgrove Road due to large communal bins; and area can look messy due to a lack of regular maintenance.
- **Moving around:** difficult to cross at junctions during peak times; narrow pavements due to communal bins on Ashgrove Road and tree roots and busy bus stops on Ashgrove Road West; difficult to cycle so people end up on the pavement; and junctions of Cornhill Road/Terrace and Beattie Avenue/May Baird Avenue are important but are too wide and don't align, making them difficult to cross.
- **Feeling safe:** poor visibility from parked cars, overhanging vegetation and bins make it feel unsafe to cross the street and junctions; when working, lights help to make a big difference to feeling safe; and grassy areas help to create a safety barrier between people and traffic, particularly on Ashgrove Road.
- **Social contact:** limited social contact between neighbours across the road due to high volume of traffic.

Figure 5-3 - Residents Scoring Wheel



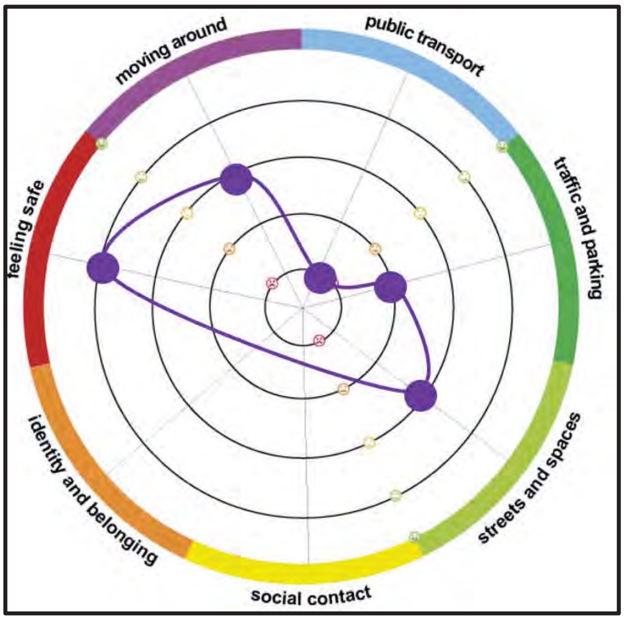
Discussions also identified the enjoyment residents get from seeing students walking to the university and the potential opportunity to have more information on the community and local history displayed on the street.

5.4. University of Aberdeen

Top priorities identified for improvement by representatives of the University of Aberdeen were:

- **Public transport:** bus stops outside the university campus can get busy at peak times and narrow pavements for people walking along the street; and, although there is university shuttle bus between campuses, there are limited alternatives heading northeast without going into the city centre.
- **Traffic and parking:** streets can feel narrow, busy and fast; people who cycle don't feel respected on the road and it can be a challenge to make themselves feel visible due to parked vehicles; signage for on-street parking can be confusing.
- **Moving around:** walking is OK but can be difficult for people to cycle due to busy road and lack of signage directing people where to go.
- **Streets and spaces:** Ashgrove Road can feel dark and isolated due to high walls; and there are limited places to sit outside for lunch.

Figure 5-4 - Aberdeen University Scoring Wheel

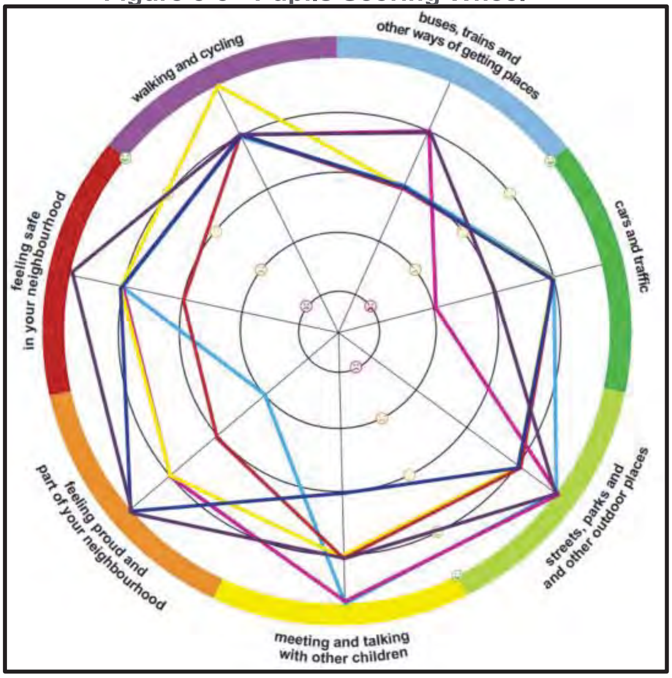


Discussions also identified the opportunity to look at creating more space at the main university bus stop on Ashgrove Road West and the future roll out of more e-bikes for use between campuses.

5.5. Cornhill Primary School

The route for the walking audit with pupils focused on the immediate streets around the primary school and the topic headings were adapted to enable better understanding.

Figure 5-5 - Pupils Scoring Wheel



- **Walking and cycling**

  Most pupils walk to school as they live close by. Not many pupils cycle although some would like to. On Ashgrove Road West, pupils noticed the tree roots causing problems for the pavements and didn't feel the painted cycle lane offered much protection from the speed of traffic.

  "It is safe to walk and cycle but sometimes the cars speed"

- **Buses, trains and other ways of getting places**

  Not many pupils use the bus services but, those who do, say they are not frequent.

  "The bus takes me where I want to go but they sometimes take a while"

- **Cars and traffic**

  Pupils think Ashgrove Road West is a nice street but they think the traffic goes too fast. Pupils don't feel they can cross Ashgrove Road West safely on their own to get to Westburn Park so they will walk to Westburn Drive to cross at the traffic lights.

  "The road is very dangerous and the tree roots are unsafe."

- **Streets, parks and other outdoor places**

  Pupils really like Cornhill playground next to the school and that's where they meet friends. Pupils felt there was potential to make more of the greenspace at the corner of Ashgrove Road West and Braefoot Road as they noticed it's popular for people walking to and from Cornhill.

  "I like the trees. On the main road, it is noisy and smelly. Add more play stuff in the area."

- **Meeting and talking with other children**

  Most of the pupils play near their houses but they also use the playground next to the school. They don't meet friends on Ashgrove Road West or Ashgrove Road.

  "We meet at my house and park then we play on the swing."

- **Feeling proud and part of your neighbourhood**

  Pupils like their neighbourhood and feel proud to be part of Cornhill Primary School.

  "I feel proud to be part of this neighbourhood."

- **Feeling safe in your neighbourhood**

  Most of the pupils feel safe in the area but suggested crossings could be improved to help them feel more confident when crossing the road.

  "More zebra crossings."

6. Summary

This chapter provides a summary of respondent's priorities, early improvements that could potentially be made and other improvements highlighted during the initial engagement period that could be considered in the future.

6.1. Priorities

Traffic and parking, moving around on foot, by bike and wheel and feeling safe are clearly the biggest priorities for respondents.

Of particular concern is the perception that traffic speed and volume is too high and not appropriate for the area. Many respondents feel exposed and vulnerable to motor traffic passing through the area which was echoed by those on the walking audits. Respondents also commented on there being too much congestion and raised concerns that future changes to Berryden Road may bring more traffic to the local area, particularly through Laurelwood Avenue which already experiences a high volume of traffic.

Another concern for respondents is visibility and confusion at junctions for people who drive as well as walk, cycle, and wheel. Respondents highlighted the angle, width, staggered signals, and parking too close to junctions as reasons why the streets feel unsafe to move about and spend time in.

A lack of formal crossing points and protection from traffic are reasons why respondents spoke negatively about moving around. This was highlighted particularly between Foresterhill Road and Westburn Drive, Beattie Avenue and Mary Baird Avenue, and the junction of Berryden Road with Ashgrove Road where there is a strong movement of people accessing local amenities. Respondents also highlighted the issue of people cycling on the pavement, mainly due to how hostile the road environment feels, as another reason why it feels unsafe to move about in. There is recognition that if conditions for cycling were improved, the potential is there for demand to increase but onward journeys should be considered.

A few respondents also noted that the pavement conditions are poor in places, especially around trees where the roots are causing issues and overhanging vegetation and busy bus stops can narrow the width of the pavements in some areas.

Trees, particularly along Ashgrove Road West, are very popular and respondents re-enforced the need to protect and maintain these while also protecting properties. A few respondents also highlighted the opportunity to make more of the pockets of greenspace that exist along the street, particularly on the corner of Beattie Avenue.

Overall, respondents felt place quality, access to greenspace and street lighting could be improved. A lack of direct bus routes into the city centre was also highlighted as a barrier to people travelling sustainably into the city centre and for students heading between campuses in the northeast.

Finally, respondents recognise the distinctiveness of Ashgrove Road West, Ashgrove Road and Laurelwood Avenue and the need to ensure future proposals enhance the individual character of each street.

6.2. Potential Early Improvements

Respondents highlighted several opportunities that could be considered for early improvements while the wider project is developing. These include:

- Providing additional waste bins throughout the area which can also take dog waste.
- Trimming of overhanging vegetation back to improve the width of pavements.
- Fixing the streetlights on the north side of Ashgrove Road West which are currently out.
- Fixing the wall that has been damaged by fallen trees on Ashgrove Road.
- Providing better signage on the controlled parking zone along Ashgrove Road West.

- More regular maintenance of the street.
- Review street signage on Belmont Gardens
- Consideration by the Scottish Ambulance Service of the use of sirens at night on residential streets.

6.3. Other Improvements

Respondents also highlighted several improvements that could be made to areas out with the scope of this project. These will be passed to the most appropriate council departments for future consideration and include:

- Attractiveness and maintenance of Belmont Gardens playpark.
- Lighting in Westburn Park and Victoria Park.
- Lighting for off-road path between Ashgrove Road and Carnie Drive.
- Condition of the surface on Elm Place.
- Condition of paths to and through Gillespie Crescent.
- Condition of path between Grove Crescent and Cornhill Road.
- Condition of paths to Beattie Avenue playground and lighting.
- Conditions for people cycling along North Anderson Drive and Bedford Road.
- Pedestrian crossings at Six Roads roundabout.
- Consideration of a coffee shop and community centre in Carnie Drive/wider Ashgrove area.
- Bus services along Berryden Road.
- Pavement conditions on Beechwood Road leading to Cornhill Primary School.

Constituent Report CR-D2

Engagement Report (Stage 2)

Ashgrove Connects

Stage 2 Engagement Report

Aberdeen City Council

09 September 2022

Notice

This document has 33 pages including the cover.

Document history

Document title: Stage 2 Engagement Report

Document reference: 004

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Internal draft	ED	AM	CJ	AM	26/07/2022
2.0	First draft client review	ED	CC	CJ	AM	12/08/2022
3.0	Second draft client review	ED	CC	RL	AM	05/09/2022
4.0	Final report	ED	CC	RL	AM	09/09/2022

Client signoff

Client	Aberdeen City Council
Project	Ashgrove Connects
Job number	5212138
Client signature/date	

Contents

Figures

1. Introduction

1.1 Purpose

This report summarises the second public engagement period for Ashgrove Connects which commenced on Tuesday 21st June and closed on Sunday 17th July 2022. The first engagement period for the project has been reported on separately within the Baseline Assessment (CR-K).

The purpose of the second engagement period was to collect feedback on the initial design ideas in order to steer the development of a concept design.

This report is intended to summarise the activities held, respondents and contributions received. The report does not seek to respond to or comment on responses. All contributions that have been verified by respondents can be viewed on the project website: https://ashgroveconnects.commonplace.is/.

This report does not include consultations with Aberdeen City Council Officers or the Stakeholder Working Group, which is reported separately within the Final Report.

1.2 Methodology

Analysis of the responses received has been undertaken by Atkins using the data obtained from the methods used during the initial engagement period. These have been summarised below.

1.2.1 Survey

A survey was made available on the project website, at Cornhill Library, and at events/activities in order to invite people to consider the different design ideas and feedback on what they liked and what they would change, combine or improve. The survey was divided into two parts: Part A on Ashgrove Road West; and Part B on Ashgrove Road and Laurelwood Avenue. The questions asked were:

- What do you like about this design idea? (Multiple choice options)
- What should we improve or change in this design idea? (Open-text response)
- What would you like to see included in the design for this public space? (Multiple choice options)
- Thinking about the overall design ideas, broadly speaking, do you think these will: (Single sentiment)
  - Create a slower, quieter, and calmer street environment?
  - Make crossing the road and using the junctions easier and a more comfortable experience?
  - Make the street feel more attractive and safer for people to spend time in?
  - Make it easier to walk?
  - Enable people of all ages and abilities to move around by bicycle?
  - Provide parking and loading within a reasonable distance of homes and businesses ensuring equitable access for all?
- Do you have any other comments on the initial design ideas? (Open-text response)

Participants could agree with comments submitted by others online. All demographic questions were optional. Participants were also able to send contributions directly to the project team by email, phone, and through the chat function during the live webinar. Where possible, comments posted on social media were also recorded. Contributions submitted through these methods were surveyed into the project website by the project team. A summary of the feedback received through the survey has been provided in Chapter 5.

1.2.2 Activities

Activities were held with residents and local groups representing those with protected characteristics under the Equalities Act. Each activity had a different purpose which is described in Chapter 2. The key findings from the activities have been summarised in Chapters 5 and 6.

1.2.3 Stakeholder notifications

Key stakeholders including disability forums, Emergency Services and Bus Operators were also invited to comment on the initial design ideas. The responses received have been summarised in Chapter 7.

2. Engagement activities

This chapter provides an overview of the activities held during the second engagement period.

2.1. Project website

The project website re-opened on Tuesday 21st June to present and enable people to feedback on the initial design ideas: http://ashgroveconnects.commonplace.is.

Visitors to the website could read more about the project and findings from Stage 1, feedback on the initial design ideas, watch a recording of the webinar and keep up to date with the latest news.

Figure 2-1 - Level of engagement during Stage 2

872 Online visitors **8 Activities** **75 Respondents** **82 Responses** **10 Agreements**

Participant said: *"The website looks great by the way, so thank you for that."*

2.2. Public display

The initial design ideas went on public display at Cornhill Library on Wednesday 22nd June to ensure those without access to the internet could view and feedback on the initial design ideas. All completed surveys were uploaded to the project website by the project team.

Participant said: *"Thanks for the opportunity to view the designs. We did so at Cornhill Library this morning. We found these well-presented and so please accept our thanks to you and your team."*

2.3. Local member briefing

An online briefing for Local Members covering Wards 5 (Hilton/Woodside/Stockethill) and 7 (Midstocket/Rosemount) was held on Monday 27th June.

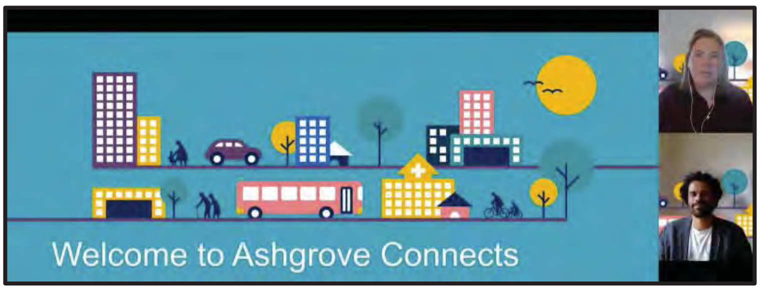
2.4. Webinar

A live webinar was held on Tuesday 28th June to present the findings from Stage 1, how this has developed and an overview of the initial design ideas. Participants were able to submit comments via the chat function.

A total of 5 people participated at the webinar which was recorded and uploaded to the project website and has been viewed over 10 times.

Figure 2-2 - Public display

Figure 2-3 - Webinar



2.5. Drop-in events

Two drop-in events were held on Tuesday 5th July, between 10am-1pm at Cornhill Community Centre and between 4-7pm at Westburn Outdoor Centre. Participants were able to drop-in to meet members of the team, view and discuss the initial design ideas in more detail and complete a survey.

A total of 44 people attended both events. All completed surveys were uploaded to the project website.

Figure 2-4 - Drop-in events

2.6. Workshops

Four workshops were held with residents and local groups representing those with protected characteristics under the Equalities Act. Each workshop had a different purpose.

The first workshop took place on Wednesday 22nd June with Primary 6 pupils from Cornhill Primary School to present, discuss and develop designs ideas with a 3D model. A total of 6 pupils attended.

The second workshop took place on Wednesday 6th July with residents and staff of Crosby House Care Home to understand their travel behaviour, identify barriers to moving around and improvements. A total of 15 people attended with 40 surveys completed by those who could not attend.

The final workshops took place on Tuesday 12th July with residents of Ashgrove Road and Laurelwood Avenue to discuss the issues they face as residents of the streets and to understand their priorities for change between movement and place. A total of 9 people attended the two workshops.

Figure 2-5 - Workshop with Cornhill Primary School and residents

3. Communication

This chapter provides an overview of the communication methods used during the second engagement period. A copy of the communication material issued can be found in Appendix 1.

3.1. Stakeholder notifications

During the week commencing 20th June, notifications were issued to all stakeholders with an interest in the project by email. The stakeholders notified included Council Officers, schools and universities, community groups, Emergency Services, Bus Operators, and disability forums.

This included an invitation to take part in the consultation on the initial design ideas and a request for support to help communicate this opportunity to the wider community. A follow up email was sent on Friday 8th July to remind stakeholders of the consultation deadline and request further communication support.

3.2. Resident notifications

On Wednesday 22nd June, leaflets were hand delivered by the project team to all residents living on Ashgrove Road West, Ashgrove Road, Laurelwood Avenue, Elm Place, Cedar Place, Belmont Gardens and Ashgrove Avenue.

A poster was placed at various locations across the wider neighbourhood.

A letter was also distributed to all residents of Ashgrove Road and Laurelwood Avenue on Wednesday 22nd June inviting them to specific workshops to discuss the ideas for traffic flow, parking and greenspace. A reminder was distributed to the same residents on Wednesday 6th July.

Figure 3-1 - Poster

3.3. Business notifications

On Wednesday 22nd June, leaflets were hand delivered by the project team to all accessible businesses along Ashgrove Road West and Ashgrove Road. A follow up letter was sent by recorded delivery on Monday 4th July.

3.4. Online blogs

Regular news blogs were posted by the project team on the project website's Latest News page. The last blog was sent to 176 people who had signed up to receive project updates.

Figure 3-2 - Stage 2 blog

3.5. Local and social media

A press release was issued to local media on Tuesday 21st June. This was covered on Aberdeen City Council's website, the Press and Journal and Aberdeen Live on Thursday 23rd June.

The consultation was also promoted on social media through local accounts including Aberdeen City Council, Nestrans, Rosemount and Mile End Community Council, Stockethill Church, Get About, NHS Grampian and Aberdeen University.

4. Respondents

This chapter provides an overview of the respondents to the second engagement period. This includes demographic data from those who submitted this information through the project website. Respondents who previously submitted this information during Stage 1 did not have to re-enter this information.

4.1. Connection and travel mode

Respondents were asked about their connection to the area to provide an understanding of their interest in the project. Figure 4-1 shows that most respondents live and work in the area. Respondents were also asked how they would normally travel through the area to provide an understanding of how people move around. Figure 4-2 shows that most respondents normally travel by active modes when combining on foot and by bike followed by car.

Figure 4-1 - Connection to the area

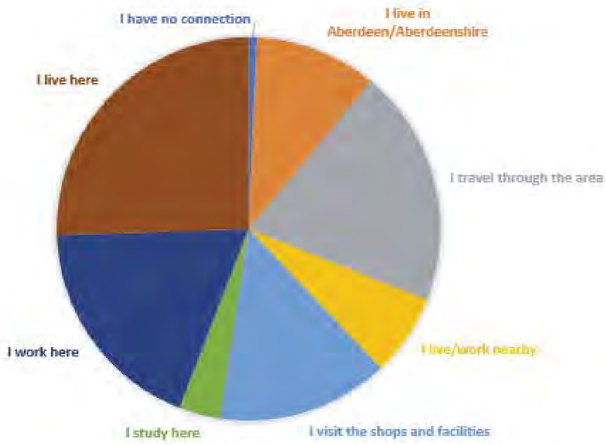
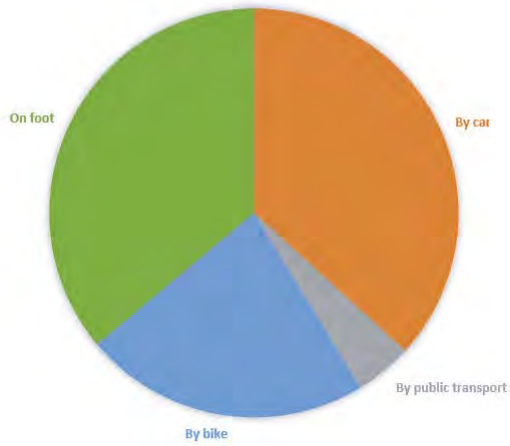


Figure 4-2 - Preferred travel mode



4.2. Gender, age, and ethnicity

Respondents were also asked about their gender, age, and ethnicity to provide an understanding of how balanced the engagement process had been. Figure 4.3 shows there were more female respondents and Figure 4-4 shows that most respondents fell within the 35-44 age category. Figure 4-5 shows most respondents were white.

Figure 4-3 – Respondents' gender

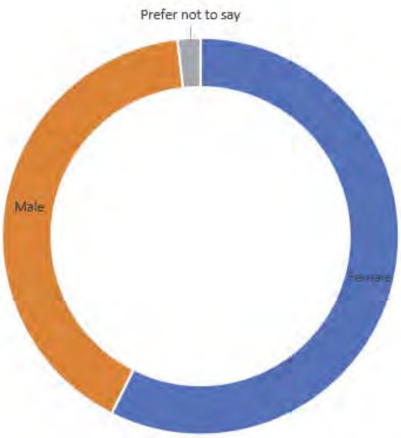


Figure 4-4 - Respondents age

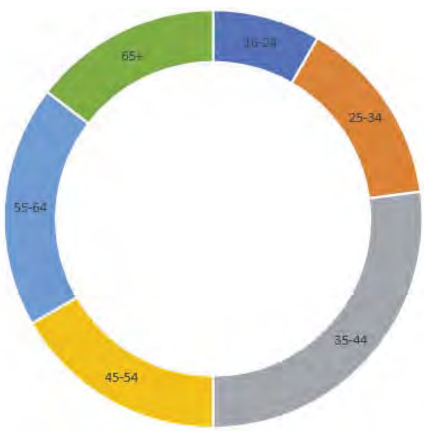
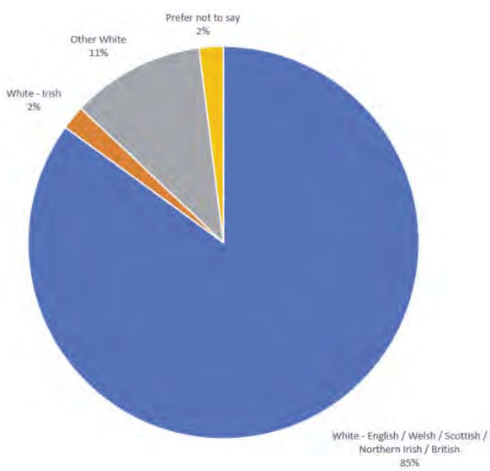


Figure 4-5 – Respondents' ethnicity

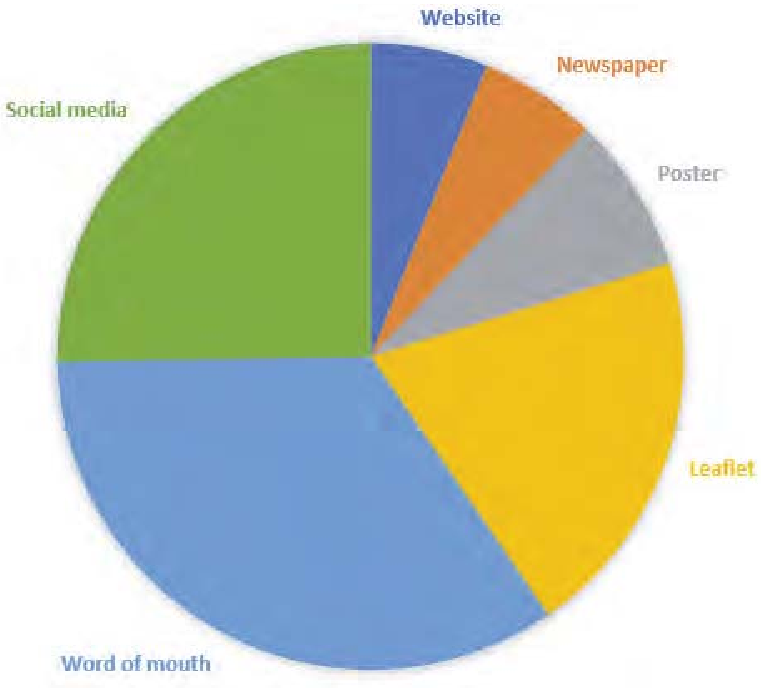


4.3. Communication methods

Respondents were asked how they had heard about the project to provide an understanding of the most successful communication methods.

Figure 4-6 shows word of mouth, social media and leaflets were the most successful.

Figure 4-6 - How respondents found out about the project



5. Responses

This chapter provides an overview of all the responses received during the second engagement period, either through the website, at events, Cornhill Library, or directly to the project team. This does not include findings from the workshops or feedback from stakeholders, which are provided separately in Chapter 6 and 7.

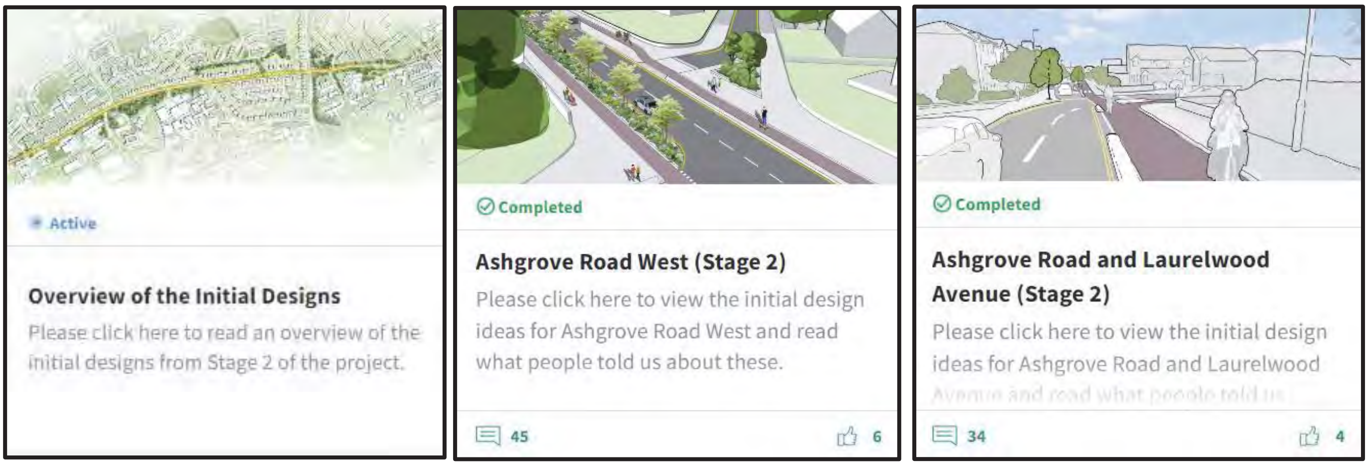
5.1. Overview

The total number of contributions received was 92, of which 82 were comments and 10 were agreements.

The initial design ideas were split into two areas: Ashgrove Road West; and Ashgrove Road and Laurelwood Avenue. Figure 5-1 shows the two areas presented on the project website.

Analysis of the feedback received on the initial design ideas has been split into two: Ashgrove Road West; and Ashgrove Road and Laurelwood Avenue.

Figure 5-1 - Presentation of initial design ideas on the website



5.2. Ashgrove Road West

5.2.1. Feedback on overall design ideas for Ashgrove Road West

Respondents were asked to feedback on the overall design ideas for this area against the design objectives:

80% of respondents **agreed or mostly agreed** about the designs "*creating a slower, quieter street environment.*"

84% of respondents **agreed or mostly agreed** about the designs "*making crossing the road and using junctions easier and a more comfortable experience.*"

89% of respondents **agreed or mostly agreed** about the designs "*making the street feel more attractive and safer for people to spend time in.*"

84% of respondents **agreed or mostly agreed** about the designs "*making it easier to walk.*"

80% of respondents **agreed or mostly agreed** about the designs "*enabling people of ages and abilities to move around by bicycle.*"

49% of respondents **agreed or mostly agreed** and **37%** were **neutral** about the designs "*providing parking and loading within a reasonable distance of homes and businesses ensuring equitable access for all.*"

Respondents made the following general feedback on the overall deigns for Ashgrove Road West:

- Support for:
  - The level of ambition shown.
  - A 20mph speed limit but concern people will not adhere to this without enforcement such as speed cameras.
  - Dissuading through traffic but scepticism about whether the design will be able to reduce levels to prevent congestion, particularly at key junctions.

  Respondent: *"Very impressed with the plans, especially the separate pedestrian, cycle, road ways."*

- Concern about:
  - Emergency service access and impact on response times if the road is narrowed.
  - Future maintenance of areas of greenspace, trees, and cycle lanes.
  - Impact on access to and visibility from driveways from trees and cycle lanes.

  Respondent: *"Not sure how drive accesses can be maintained and have safe cycle ways.*
  All this planting is good but current maintenance of green in the city is rubbish."

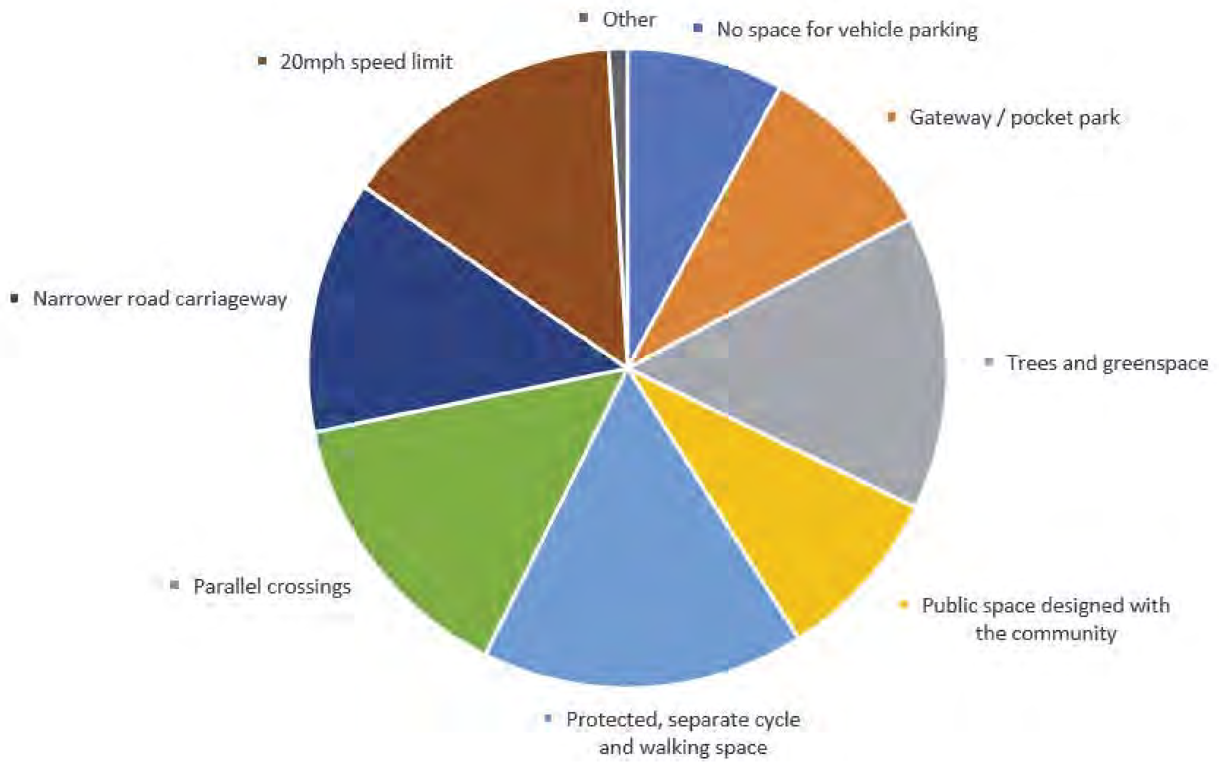
- Suggestion to:
  - Improve signage for parking at the Foresterhill Health Campus.
  - Improve bike storage for those in flats.
  - Demonstrate how the designs will integrate with wider infrastructure changes.

  Respondent: *"20mph speed limit now! We can't wait for later phases.*
  The changes clearly need to be integrated into an overall design in relation to Berryden Corridor and Anderson Drive potential revisions."

5.2.2. Feedback on North Anderson Drive Idea

Respondents were asked about what they like about the idea for North Anderson Drive. The top three responses were: protected, separate cycle and walking space (70%), trees and greenspace (64%), *parallel crossings* (62%) and *20mph speed limit* (62%).

Figure 5-2 - What do you like about the idea for North Anderson Drive?



Respondents were asked about what we should improve or change in this design idea.

- People like:

- Change of environment to encourage slower speeds
- New public space (particularly for those in high rise flats / care homes)
- Improved crossings with protected space for those cycling, walking and driving through the junction

- People have concerns about:
  - Impact of proposed McDonalds on traffic, litter, noise, and aim of Ashgrove Connects
  - Traffic congestion from removal of filter lane onto North Anderson Drive
  - Enforcement of traffic speeds
- People suggested:
  - Improve the sequencing of lights to reduce congestion
  - Provide screening to protect public space
  - Install automated vehicle speed signs / cameras
  - Install signs to direct/encourage hospital traffic to use the Westburn Road entrance

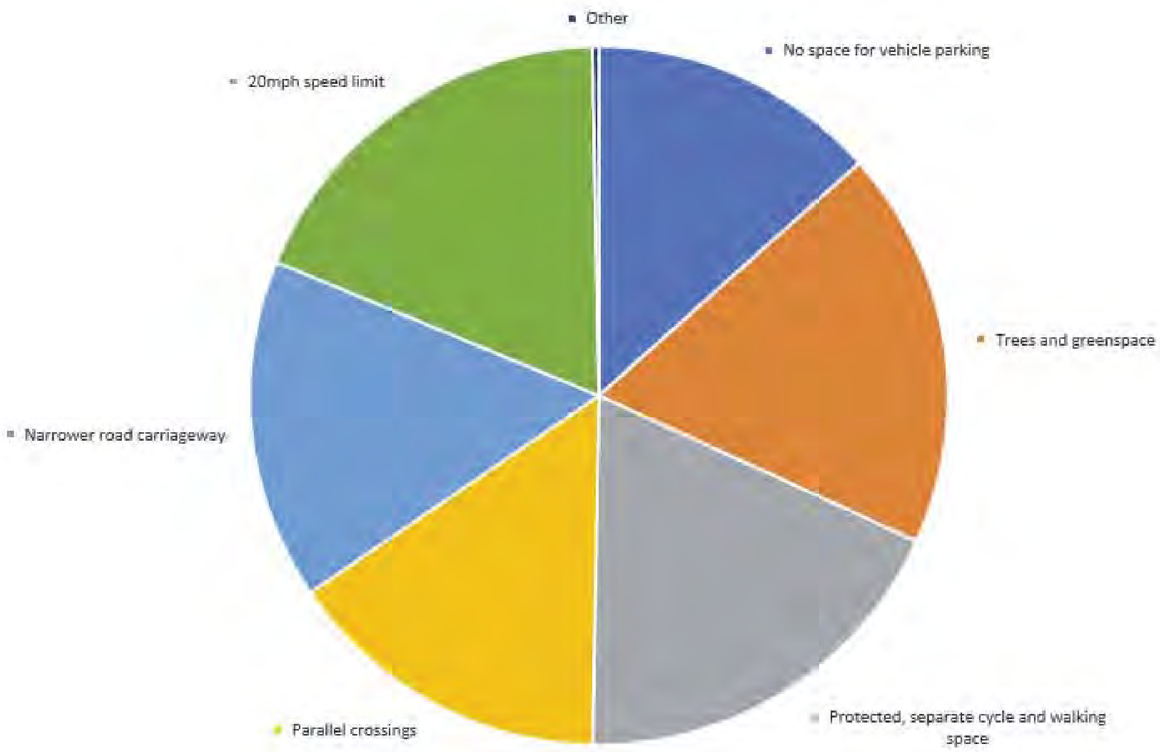
  Respondent said: "*I like that the crossings will be improved. I am not sure people will listen to the 20mph speed limit here especially as many use it to access hospital car parks.*"

Respondents were also asked what they would like to see in the public space for North Anderson Drive. The top three responses were; *planting and trees* (53%), *lighting* (47%), and *seating* (34%).

5.2.3. Feedback on Foresterhill Idea

Respondents were asked about what they like about the idea for Foresterhill. The top three responses were; protected, separate cycle and walking space (62%), trees and greenspace (62%), and *20mph speed limit* (62%).

Figure 5-3 - What do you like about the idea for Foresterhill?



Respondents were asked about what we should improve or change in this design idea.

- People like:
  - Simplified junction

- Improved crossings with emphasis on people walking and cycling
- Removal of parking spaces on approach to junction

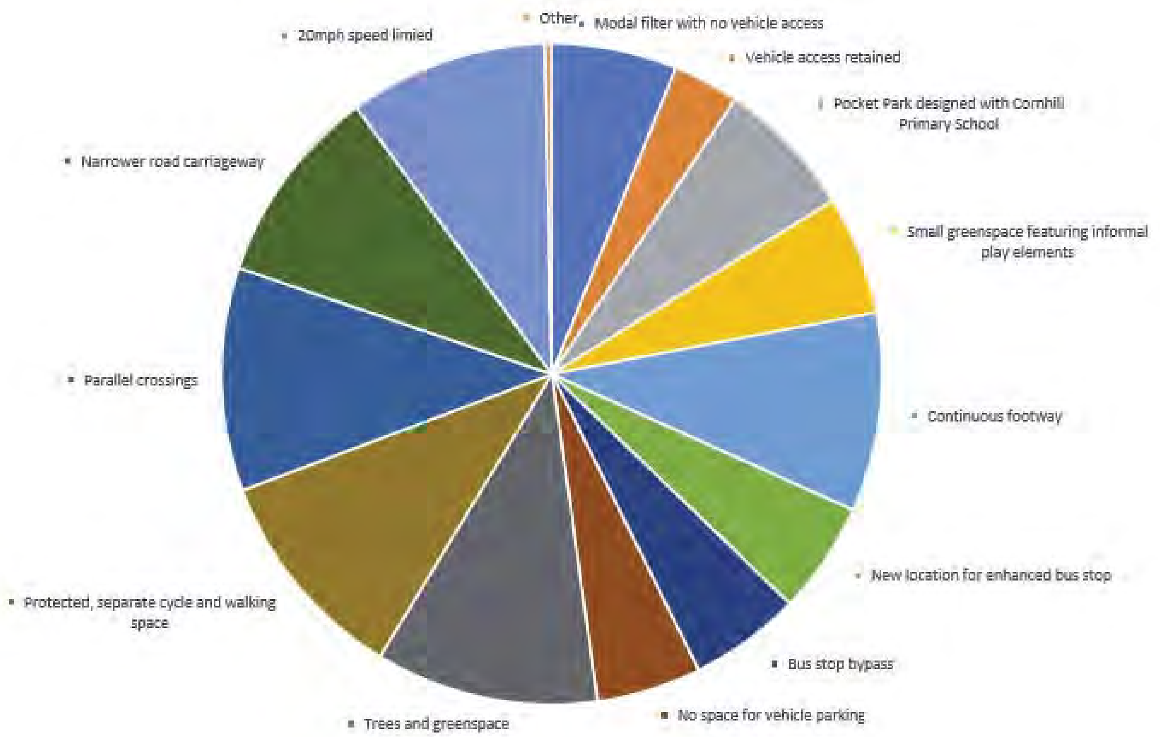
- People have concerns about:
  - The transition from the cycle lane back onto road is too close to junction
  - Traffic congestion at lights from removal of filter lanes, potentially blocking driveway access / creating pollution
  - Impact of narrowed roads on ambulance response times/access
- People suggested:
  - Improve the sequencing of lights to reduce traffic congestion
  - Bus only lane through the junction
  - Give way signage when cyclists re-join carriageway
  - Pedestrian crossings to follow desire lines (note: alignment issue on drawing for ped crossing on Foresterhill Road arm)

  Respondent said: *"Less lanes will simplify this for unfamiliar drivers, but the operation of lights also needs fixing. It would be better to remove the lights between the Foresterhill roads and make this a yellow box zone (no waiting), giving the light sequencing enough time to allow cars to fully clear the short area of road. This would also prevent this part from being obstructed when Ambulances need to get into the Hospital. Further measures should be considered to prevent non-essential traffic using Ashgrove Road West, given the importance of hospital access by ambulances and the good bus service."*

5.2.4. Feedback on Cornhill Ideas

Respondents were asked about what they like about the idea for North Anderson Drive. The top three responses were: *trees and greenspace* (64%), *parallel crossings* (64%) and *protected, separate cycle and walking space* (62%).

Figure 5-4 - What do you like about the idea for Cornhill?



Respondents were asked about what we should improve or change in this design idea.

- People like:
  - Easier to cross

- Safer junction
- More greenspace
- Improved lighting
- People have concerns about:
  - Noise impact on closest residents from potential signalised crossing
  - Reduced visibility for those exiting Cornhill Road from rain garden/greenspace
  - Increase demand for parking on Cornhill Road
  - Potential for vehicles to block the continuous footway/cycle lane in Idea B
  - Access to school if road closed to vehicles
  - Bus stop moved further away from pedestrian path into Foresterhill Health Campus
- People suggested:
  - Close Braefoot Road to vehicles instead of Cornhill Terrace
  - Install speed cameras to help with enforcement
  - Swap bus stop (closer to path to Foresterhill Health Campus) and parallel crossing (closer to Cornhill Terrace / Road) to follow desire lines
  - Larger footway at bus stop to accommodate passengers and reduce conflict

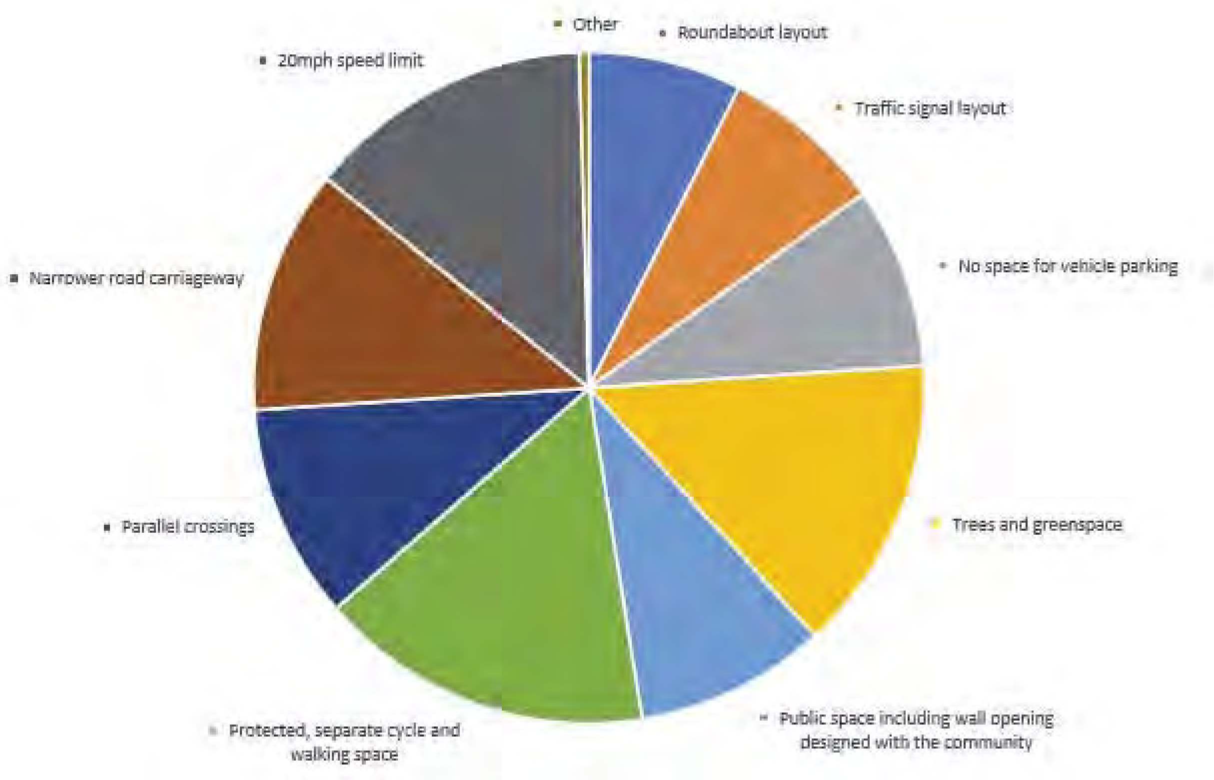
Respondents were also asked what they would like to see in the public space for North Anderson Drive. The top three responses were: *planting and trees* (51%), *seating* (32%), and *lighting* (45%).

Respondent said: "Move the bus stop to the west to allow the parallel crossing to be east of it, so nearer the junction?"

5.2.5. Feedback on Westburn Ideas

Respondents were asked about what they like about the idea for North Anderson Drive. The top three responses were: *protected, separate cycle and walking space* (70%); *trees and greenspace* (64%), and *20mph speed limit (60%).*

Figure 5-5 - What do you like about the idea for Westburn?



Respondents were asked about what we should improve or change in this design idea.

- People like:
  - Priority for those walking and cycling through junction
  - Slowing approach to Westburn Drive on Ashgrove Road West and Ashgrove Road
- People have concerns about:
  - Driver behaviour at/understanding of roundabout layout
  - Difficult turning right onto Westburn Drive from Ashgrove Road West and Ashgrove Road
  - Reduced visibility from trees/planting in middle of roundabout
  - Impact of opening the high wall on noise and safety for residents behind the wall (currently provides protected greenspace children/dogs)
- People suggested:
  - Improve the sequencing of lights to reduce congestion
  - Slow down vehicles approaching the junction on Westburn Drive too
  - Add right filter lane to Westburn Drive

Respondents were also asked what they would like to see in the public space for North Anderson Drive. The top three responses were; *planting and trees* (55%), *seating* (36%) and *lighting* (36%).

Respondent said: "I like the roundabout but worry how safe crossings would be. Concerned with the lights that turning right (south) onto Westburn Drive would be harder."

5.3. Ashgrove Road and Laurelwood Avenue

5.3.1. Feedback on overall design ideas for Ashgrove Road and Laurelwood Avenue

Respondents were asked to feedback on the overall design ideas for this area against the design objectives:

77% of respondents **agreed and or mostly agreed** about the designs "*creating a slower, quieter street environment.*"

69% of respondents **agreed and or mostly agreed** about the designs "*making crossing the road and using junctions easier and a more comfortable experience.*"

67% of respondents **agreed and or mostly agreed** about the designs "*making the street feel more attractive and safer for people to spend time in.*"

69% of respondents **agreed and or mostly agreed** about the designs "*making it easier to walk.*"

69% of respondents **agreed and or mostly agreed** about the designs "*enabling people of ages and abilities to move around by bicycle.*"

50% of respondents **agreed and or mostly agreed** about the designs "*providing parking and loading within a reasonable distance of homes and businesses ensuring equitable access for all.*"

Respondents made the following general feedback on the overall deigns for Ashgrove Road and Laurelwood Avenue:

- Support for:
  - A 20mph speed limit.
  - Improved visibility and crossings.
  - Aesthetic improvements.

  Respondent: *"Really hope that some combination of these ideas actually comes to fruition!"*

- Concern about:
  - Location of parking bays
  - Emergency service access and impact on response times if the road is narrowed.
  - Moving traffic volume and parking problem onto other residential streets.

  Respondent: *"Reducing parking spaces will shift the cars to other streets - not necessarily solving any issues in the larger sense."*

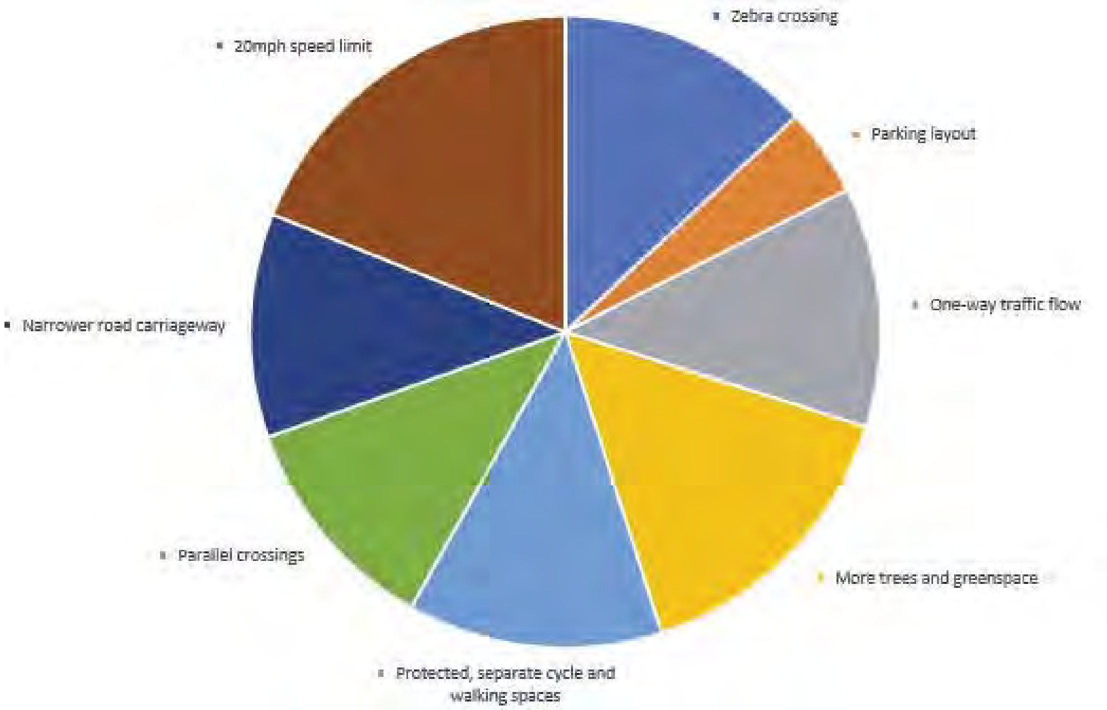
- Suggestion to:
    - Focus on reducing traffic volume further.
    - Extend 20mph zone to Elm Place.
    - Encourage businesses to promote their off-street customer car parks.

  Respondent: *"More greenery should be planted, not just trees, and Ashgrove Road is wide enough to accommodate this along with a cycle path."*

5.3.2. Feedback on Idea A

Respondents were asked what they like about Idea A. The top three responses were: *20mph speed limit (71%), more trees and greenspace (57%), protected, separate cycle and walking spaces (49%,) and zebra crossing (49%).*

Figure 5-6 - What do you like about Idea A?



Respondents were asked about what we should improve or change in this design idea.

- People like:
    - Improved visibility from removal of parking to east of Laurelwood Avenue on Ashgrove Road
    - Reduced traffic conflict on Ashgrove Road and Laurelwood Avenue
    - Space to improve aesthetics/greenspace to east side of Ashgrove Road
- People have concerns about:
    - Increased risk of vandalism to residents' vehicles parked further away from houses, nearer high walls between May Baird and Laurelwood Avenue
    - Increased traffic volume on Laurelwood Avenue from one-way system on Ashgrove Road
    - Increased journey time for residents from one-way system
    - Location of crossing on Ashgrove Road being too close to junction with Berryden Road
    - Reduced visibility from additional tall trees
    - Increased traffic speeds from one-way system
    - Two-way cycle lane not as comfortable as one-way
- People suggested:
    - Move parking bays on Ashgrove Road (west) to south side of road, closer to houses
    - Remove the speed bumps on Laurelwood Avenue
    - Locate parking bays between cycle lane and footway to reduce conflict
    - Focus on reducing traffic volume rather than proposing cycle lanes on Laurelwood Avenue

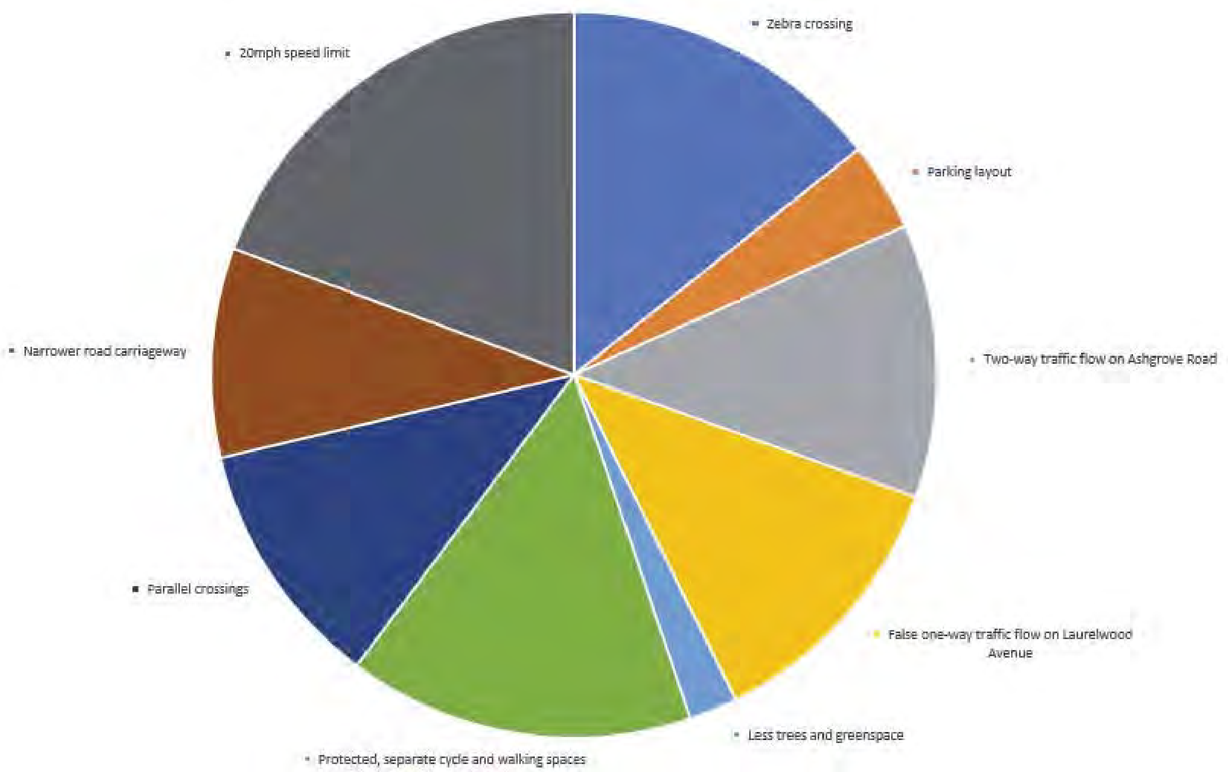
- Contra-flow cycle lane in one-way system
- Replace larger trees with smaller trees (e.g. Siberian/Silver birches)
- Encourage business customers to park in off-street car parks to reduce displacement

Respondent said: *"It would be good to keep a good amount of on-street parking to make the roads useful to residents and their visitors. The narrower carriageway here isn't so important. To me, the priority is to reduce traffic on Laurelwood Avenue."*

5.3.3. Feedback on Idea B

Respondents were asked what they like about Idea A. The top three responses were: *20mph speed limit (54%), protected, separate cycle and walking spaces (43%), and zebra crossing (40%).*

Figure 5-7 - What do you like about Idea B?



Respondents were asked about what we should improve or change in this design idea.

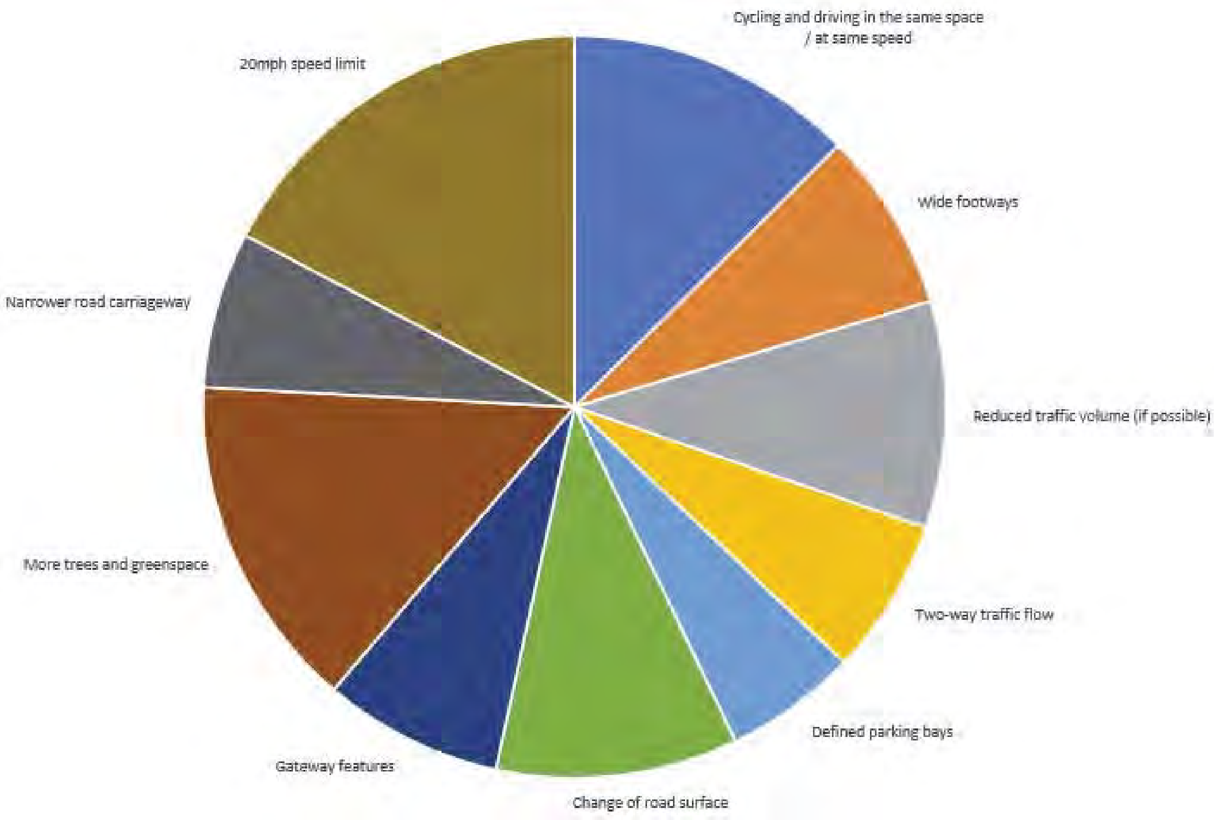
- People like:
  - Increased visibility from removal of parking from east side of Ashgrove Road
  - Two-way on Ashgrove Road won't force easterly traffic down Laurelwood Avenue
  - Allows for resident's access and helps slow vehicles
- People have concerns about:
  - Increased risk of vandalism to residents' vehicles parked further away from houses, nearer high walls between May Baird and Laurelwood Avenue
  - Two-way on Ashgrove Road not as environmentally pleasing (less green)
  - Location of crossings on Ashgrove Road and Laurelwood Avenue too close to Berryden Road
  - Two-way cycle lane not as comfortable
  - Increased journey time for residents on Laurelwood Avenue and smaller residential streets
- People suggested:
  - Move parking bays on Ashgrove Road (west) to south side of road, closer to houses
  - Encourage business customers to park in off-street car parks to reduce displacement
  - Resident only entry/exit egress to Laurelwood Avenue
  - Move cycle lane on northeast side of Laurelwood Avenue, away from 'door zone'

Respondent said: *"Plan B is a better option than Plan A as long as there is two way traffic on Ashgrove Road to the junction with Berryden Road. The junction must not direct traffic travelling east on Ashgrove Road on to Laurelwood Avenue. It has to be borne in mind that Laurelwood Avenue, Cedar Place and Elm Place are residential streets, they should not be seen as a short cut between Ashgrove Road and Berryden Road."*

5.3.4. Feedback on Idea C

Respondents were asked what they like about Idea A. The top three responses were; *20mph speed limit (51%), more trees and greenspace (43%), and cycling and driving in the same space / at the same speed (37%).*

Figure 5-8 - What do you like about Idea C?



Respondents were asked about what we should improve or change in this design idea.

- People like:
  - Gives the streets back to residents
  - Transforms character of the road from through routes to residential streets
  - Reduces noise and traffic pollution
- People have concerns about:
  - Unsure if a 'quiet street' is achievable
  - Unknown impact and integration with future changes to Berryden Corridor
- People suggested:
  - Remove speeds bumps on Laurelwood Avenue
  - Close Laurelwood Avenue (or residents only access)

  Respondent said: *"If the Berryden Corridor work were to go ahead, would it be more possible for Laurelwood Avenue to be a quiet street? Or having a dead end for cars at Ashgrove Road (but still allowing bicycles to pass through)"*

5.4. Findings from Stage 2

A report summarising these findings has been communicated to the community through the project website.

6. Workshop Responses

This Chapter provides a summary of the key findings from the workshops with residents and local groups representing those with protected characteristics under the Equalities Act.

6.1. Cairncry Primary School

Key findings included:

- Pupils responded positively to many of the key design features, particularly more crossings, gateway features, secure cycle parking, modal filters, pocket parks and informal play areas. Pupils re-iterated the need for secure cycle parking to enable more people to cycle, particularly for those living in high rise flats.
- Ideas for the Ashgrove Road West/Cornhill junction included planting low level bushes on grass verges to further protect people walking and cycling from the road and signalising crossings to ensure drivers stop for people crossing. The pupils designed two layouts showing the difference between a one-way and two-way cycle lane on Ashgrove Road West. Opinion was split on the preference.
- Having considered Idea B (modal filter) in more detail, pupils suggested trialling this design could allow people to weigh up the benefits before making a final decision.
- Ideas for the Ashgrove Road West/Cornhill pocket park/small greenspace included adding picnic benches, wooden blocks (as play features), art and bins. Artwork could be designed by pupils and the community to provide greater ownership of the space.
- Pupils suggested the Primary School could develop poems to encourage people to use waste bins rather than drop litter.

Figure 6-1 - Idea A with one-way cycle lane

Figure 6-2 - Idea B with two-way cycle lane

6.2. Crosby House Care Home

Key findings included:

- Many of the residents and their families travel by foot, wheelchair, and car/taxi to access the care home. Residents tend to travel along Ashgrove Road West, Ashgrove Road, and Laurelwood Avenue to visit the hospital/GP, shop, meet family/friends, and visit the park.
- Many of the staff use the bus, drive, or walk to get to work.

- Some of the issues identified included high traffic speed and volume, high kerbs, no resting places, poor pavement conditions, and bad visibility at junctions, particularly at the Ashgrove Road entrance to May Baird Avenue.
- Although out of the scope of Ashgrove Connects, the issue of through traffic on May Baird Avenue was also raised as an issue near to the care home.
- Some of the suggested improvements included dropped kerbs, gaps in the high walls to provide better access to areas of greenspace, cutting back overhanging vegetation, adding colour and seating, improving access to bus routes and better signage. Creating information boards for local history or community activities could also provide areas of interest outside the care home.
- Many residents stated their desire to be able to get out into the local area more.
- There was agreement from residents on many of the key design features, particularly more crossings, 20mph speed limit, gateway features, continuous footways, and enhanced greenspace.

6.3. Ashgrove Road and Laurelwood Avenue Residents

The workshops with residents included representatives from the westerly section of Ashgrove Road (between May Baird Avenue and Laurelwood Avenue), easterly section of Ashgrove Road (between Laurelwood Avenue and Berryden Road) and Laurelwood Avenue.

- Summary of local issues raised:
  - High traffic speeds cause accidents and safety concerns.
  - High traffic volume, particularly on Laurelwood Avenue, is a concern for quality of life.
  - Business customers park on Ashgrove Road, blocking driveways and pavements, rather than using the off-street car parks provided.
  - Junction of Ashgrove Road with Berryden Road congested, resulting in accidents, noise, and safety concerns.
  - Restricted visibility, particularly exiting Laurelwood Avenue onto Ashgrove Road and exiting Berryden Road via Elm Place onto Laurelwood Avenue, causes accidents and safety concerns.
  - Trees enhance quality of street but create issues for pavements and properties.
- Summary of feedback on initial design ideas:
  - Support for one-way system on east section of Ashgrove Road but concerned about increased traffic volume on Laurelwood Avenue as a result.
  - Support for one-way system on Laurelwood Avenue but concerned about residential access.
  - Support for quiet streets, particularly on Laurelwood Avenue, but unsure whether this is achievable.
  - Support for improved greenspace but need to consider smaller trees/pockets rather than tall trees which create visibility and maintenance issues.
  - Concern at displacing parking to other streets and locating spaces near high walls, increasing risk of vandalism. Opportunity for businesses to encourage customers to park within off-street car parks.
  - Concern about narrowing street for ambulance response times/access.
- Summary of priorities highlighted:
  - Reduce traffic speed and volume
  - Improve crossings
  - Enhance place quality, particularly to the east section on Ashgrove Road
  - Meet parking demand where possible, particularly to the west section of Ashgrove Road and Laurelwood Avenue
  - Improve cycling connections, particularly for families and students
- Additional concerns were raised around future improvements to Berryden Corridor, particularly attracting more traffic and noise pollution, and how this would work with changes implemented through Ashgrove Connects.

7. Stakeholder Responses

This Chapter provides a summary of the responses received from key stakeholders.

7.1. Scottish Ambulance Service

Feedback received from the Scottish Ambulance Service:

- North Anderson Drive junction: dropping to a single lane on the approach to North Anderson Drive from Ashgrove Road West would restrict ability to emerge from the junction. Can consideration be given to retaining two lane, even over a shorter distance, to minimise risk of ambulances being stuck behind general traffic?
- Construction phase: will routes remain open during construction?

7.2. First Bus

Feedback received from First Bus:

- As you will be aware we have limited service on Ashgrove Road/West but do cross over at key junctions. In this respect we would, to assist with the overall smooth operation of our services ask that signalised junction give some considerations to the traffic flows where public transport operate with priority if possible.
- No issues with the proposed active travel options being put forward.

7.3. No response

To date, no response has been received from the following key stakeholders:

- Police Scotland (invited to join Stakeholder Working Group)
- Scottish Fire and Rescue
- Stagecoach
- Aberdeen City Council and Shopmobility were engaged to provide contact details for Disability Equity Partnership (DEP). This was to invite members of the DEP to walking audits, to join the Stakeholder Working Group and to provide feedback on the Initial Design Ideas. Although there has been no response so far, engagement has taken place with residents, staff and families of Crosby House Care Home through a meeting, survey and workshop. The purpose of this was to ensure the project has identified and taken account of accessibility considerations at an early stage in lieu of feedback from disability forums.

8. Next steps

This Chapter provides an overview of the next steps for design development and recommendations for Stage 3.

8.1. Design Development

The Atkins team will take the key messages from the engagement process into the finalisation of concept design proposals as part of RIBA Stage 2. The Stage 2 Handover file will include recommendations for Stage 3 development.

8.2. Stage 3 Engagement

Throughout the project, meaningful engagement has taken place to ensure those with a potential interest have been informed and have had opportunities to be involved early on.

The project has demonstrated that there is strong support for change and, in general, the initial design ideas were positively received. However, the number of respondents to the second consultation was lower than the first. There could be a number of reasons for this including the overlap with the school holiday period, high level of response to the live planning application for the former Rosehill House building, and Covid-19 continuing to be a barrier to people attending events and community facilities. These factors should be taken into consideration as the project moves into Stage 3.

Recommendations for Stage 3 include:

- Continue to review and update the Engagement and Communications Plan to ensure this responds to lessons learned and supports the Behaviour Change Activation Plan.
- Continue to communicate and meet with the Stakeholder Working Group, made up of key stakeholder and community representatives, to discuss progress and validate future outputs.
- Continue to update the project website with regular news blogs to keep people informed of progress.
- Continue to engage people through online webinars (recorded and uploaded to the website), in-person drop-ins/workshops and at the gates of Cornhill Primary School. Consideration should be given for pop up displays outside community facilities such as the SPAR and Foresterhill Health Campus to catch people who may not engage in the project through the organised activities.
- Continue to engage with local groups through workshops/meetings. Consideration should be given for how to involve ACC’s Community Development Officers where there is capacity to support further engagement with these groups.
- Continue to try and engage representatives of Disability Equity Partnership. Engagement should continue with Crosby House Care Home to ensure the project continues to identify and take account of accessibility considerations in lieu of responses from disability forums.
- Continue to engage businesses through drop-ins and recorded delivery of leaflets/letters.
- Continue to communicate through leaflets, posters, stakeholder notifications, social media schedules, mailing lists. Consideration should be given to wider a leaflet drop covering the engagement area and the use of on-street display boards, particularly around key junctions, to raise awareness in situ.
- Consideration should also be given to the value of Commonplace’s Social Media Outreach Campaign which could boost communication through targeted social media promotion.

Appendices

Appendix A: Communication Material

Stakeholder Notification Letter

Dear Stakeholder,

Welcome to the Design Stage of Ashgrove Connects where you can view and feedback on the initial designs which have been developed from what you told us is important to you.

About Ashgrove Connects
Ashgrove Connects is an exciting new project to get local people involved in making Ashgrove Road, Ashgrove Road West and Laurelwood Avenue work better for those who live, work, study and visit here. A key part of the project is to work directly with people who use the streets through a series of activities to identify and develop what improvements should and could be made to the local area.

The project is being progressed by Aberdeen City Council as part of a programme of improvements across the city that will help provide everyone with more sustainable transport and lifestyle options, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor. The project is being funded by Nestrans.

Stage 1: Define
During the first stage of the project, we asked the community to share their experiences of using the streets through a series of engagement activities. We also investigated current activity levels and constraints along the streets through surveys. These activities have helped us to build up an understanding of how the streets and public spaces are perceived and used locally to inform the development of initial designs. A summary of the first stage of the project and a recording of the first live webinar is available on the project website: https://ashgroveconnects.commonplace.is/

Upcoming public engagement on Stage 2: Develop
The second public engagement phase for the project started this week and will run until Sunday 17th July. During this period, we will be asking local people to view and feedback on initial designs, presenting ideas of what could be achieved in the space for discussion between members of the community. A copy of the initial designs can be downloaded here.

People will have the opportunity to view and feedback through the following activities:

- Visit the project website or public display in Cornhill Library until Sunday 17th June.
- Join the live webinar on Tuesday 28th June between 7-8pm.
- Drop-in to Cairncry Community Centre, anytime between 10-1pm, or Westburn Outdoor Centre, anytime between 4-7pm, on Tuesday 5th July.

There will also be a series of activities planned with specific stakeholder groups and discussions with those living and working directly along Ashgrove Road, Ashgrove Road West and Laurelwood Avenue. The feedback we receive will help us to steer the development of a concept design during the next stage of the project.

Support with wider communication
The project would really benefit from any support you can provide to raise awareness of this second period of engagement through your communication channels and local networks. The more people involved at this early stage, the more aligned the project will be to the needs of those with an interest in the area. To support with this, please find attached the newsletter that was distributed locally this week and can be shared on social media. We'd love to hear from you should you be able to support further with this.

Contact

We have contacted you today as you have been identified as a key stakeholder with a potential interest in Ashgrove Connects. If you do not want to receive further emails about this project, please let me know. Alternatively, please don't hesitate to contact me using the details below if you have any questions or wish to find out more.

We look forward to hearing from you over the coming weeks.

Kind regards,

Emily.

Emily Davie
Engagement Lead - Scotland, Transportation
UK and Europe
Engineering, Design & Project Management

+44 131 221 5770

Atkins, member of the SNC-Lavalin Group
Canning Exchange, 10 Canning Street, Edinburgh, EH3 8EG

Resident Notification Letter

Dear Ashgrove Road / Laurelwood Avenue Resident,

We are writing to invite you to a workshop for residents of Ashgrove Road and Laurelwood Avenue in relation to the Ashgrove Connects Project.

About Ashgrove Connects

Ashgrove Connects is an exciting new project to get local people involved in making Ashgrove Road, Ashgrove Road West and Laurelwood Avenue work better for those who live, work, study and visit here.

A key part of the project is to work directly with people who use the streets through a series of activities to identify and develop what improvements should and could be made to the local area.

The project is being progressed by Aberdeen City Council as part of a programme of improvements across the city that will help provide everyone with more sustainable transport and lifestyle options, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor. The project is being funded by Nestrans.

Stage 1: Define

During the first stage of the project, we asked the community to share their experiences of using the streets through a series of engagement activities. We also investigated current activity levels and constraints along the streets through surveys.

These activities have helped us to build up an understanding of how the streets and public spaces are perceived and used locally to inform the development of initial designs. A summary of the first stage of the project is available on the project website: https://ashgroveconnects.commonplace.is/

Stage 2: Develop

The second stage of the project starts today until Sunday 17th July. During this period, we will be asking local people to view and feedback on the initial designs, presenting ideas which have been developed from what you told us is important to you. The enclosed newsletter outlines more about the upcoming engagement period.

Workshop: Tuesday 12th July

In addition to the activities outlined in the newsletter, we'd like to invite residents of Ashgrove Road and Laurelwood Avenue to a workshop to discuss the design ideas for both streets in more detail. We are presenting initial design ideas for discussion but need to understand your priorities for change before these are developed further. We will be holding two workshops on **Tuesday 12th July between 4-5.30pm and 7-8.30pm at Westburn Outdoor Centre, Westburn Park AB25 3DE.** To register attendance, please contact me using the details below with your preferred time slot.

If you have any questions or wish to find out more, please do get in touch. We look forward to hearing from you over the coming weeks.

Yours faithfully,

Emily Davie

Email: Emily.Davie@atkinsglobal.com

Telephone: 0131 221 5770

Leaflet

Welcome to this newsletter that will update you on the Ashgrove Connects Project as we now invite you to view and feedback on the initial designs

ABERDEEN CITY COUNCIL

What is Ashgrove Connects?

This is an exciting new project to get local people involved in making Ashgrove Road West, Ashgrove Road and Laurelwood Avenue work better for those who live, work, study and visit here.

A key part of the project is to work directly with people who use the streets to identify and develop what improvements should and could be made to the streets and public spaces.

The project is being progressed by Aberdeen City Council as part of a programme of improvements across the city that will help provide everyone with more sustainable transport and lifestyle options, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor. The project is being funded by Nestrans.

What's happened so far?

During the first stage of the project, we asked you to share your experiences of using the streets.

We also investigated current activity levels and constraints along the streets through surveys.

These activities have helped to build up an understanding of how the streets and public spaces are perceived and used locally to inform the design development process.

What did we find out?

The image below presents the topics respondents chose to comment on during the first stage, with the most popular appearing the largest.

You can read more about the findings from the first stage on the project website or contact us for a paper copy.

Moving Around
Attractiveness & Maintenance
Bus Stop & Routes
Traffic & Parking
Ability To Socialise
Feeling Safe

How has this been developed?

From the information gathered so far, the following themes have emerged:

- **Traffic:** create a slower, quieter street environment.
- **Crossings and junctions:** more crossings and improved junctions that feel safer to use.
- **Place quality and greenspace:** improved place quality and better access to greenspace.
- **Walking:** more enjoyable and accessible for people walking.
- **Cycling:** improved conditions for people cycling.
- **Parking:** improved layout to reduce the impact on people moving around.

These themes have guided the development of **design objectives**, setting out what the project should achieve, and **initial designs**, presenting ideas of how this could be achieved for further discussion between members of the community.

How can you get involved?

We now invite you to view, discuss and feedback on the initial designs through the following activities:

- **Visit** the project website: **ashgroveconnects.commonplace.is**
- **Visit** the display in Cornhill Library*
- **Join** the live webinar on Tuesday 28th June between 7-8pm to find out more.
- **Drop-in** to Cairncry Community Centre, anytime between 10-1pm, or Westburn Outdoor Centre, anytime between 4-7pm, on Tuesday 5th July to meet the team. Refreshments will be provided.

*Opening hours: Tuesday/Wednesday/Thursday/Saturday: 10-1pm and Tuesday/Wednesday/Thursday: 2-5pm

Please feedback before Sunday 17th July. Your feedback will steer the development of a concept design during the next stage of the project.

Contact Us

If you require support to view and feedback on the initial designs or have any questions, please contact us:

0131 221 5770
emily.davie@atkinsglobal.com
ashgroveconnects.commonplace.is

ABERDEEN CITY COUNCIL

Poster


Tell us what you think about the initial designs for Ashgrove Connects
Ashgrove Connects is an exciting new project to get local people involved in making Ashgrove Road, Ashgrove Road West and Laurelwood Avenue work better for those who live, work, study and visit here.
A key part of the project is to work directly with residents, businesses, pupils, students, and stakeholders to identify and develop improvements to the streets and public spaces.
We need your input to ensure that any proposals developed will do their best to work for everyone in the community.
Get involved: Develop Stage
Following the experiences you shared of using the streets during March, we now invite you to shape the initial designs for Ashgrove Connects.
Please view, discuss and feedback on the initial designs through the following activities by Sunday 17th July:
Visit the project website or display in Cornhill Library* from today
Join the webinar on Tuesday 28th June, 7-8pm
Drop in to Cairncry Community Centre between 10-1pm or Westburn Outdoor Centre 4-7pm on Tuesday 5th July
*Opening hours: Tuesday/Wednesday/Thursday/Saturday: 10-1pm and Tuesday/Wednesday/Thursday: 2-5pm
Contact Us
emily.davie@atkinsglobal.com
ashgroveconnects.commonplace.is
Please visit the project website or contact us for more information.
ABERDEEN CITY COUNCIL

Business Notification Letter

Dear Owner/Manager,

We are writing to follow up on previous correspondence on the Ashgrove Connects Project to invite your feedback on the initial designs which have been developed from what the community told us is important to them.

About Ashgrove Connects

Ashgrove Connects is an exciting new project to get local people involved in making Ashgrove Road, Ashgrove Road West and Laurelwood Avenue work better for those who live, work, study and visit here. A key part of the project is to work directly with people who use the streets through a series of activities to identify and develop what improvements should and could be made to the local area.

The project is being progressed by Aberdeen City Council as part of a programme of improvements across the city that will help provide everyone with more sustainable transport and lifestyle options, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor. The project is being funded by Nestrans.

During the first stage of the project, we asked the community to share their experiences of using the streets through a series of engagement activities. We also investigated current activity levels and constraints along the streets through surveys. These activities have helped us to build up an understanding of how the streets and public spaces are perceived and used locally to inform the development of initial designs.

Feedback on initial designs

The second public engagement phase for the project will run until Sunday 17th July. During this period, we are asking the local community and stakeholders to feedback on the initial designs which have been developed from what people told us is important to them. The initial designs aim to reduce traffic speed, dissuade unnecessary through traffic and provide better opportunities for people to travel sustainably and access local facilities.

We are seeking your feedback on the initial designs by Sunday 17th July which will help steer the developed of a concept design during the next stage of the project. You can view and feedback on the initial designs through the project website: https://ashgroveconnects.commonplace.is/ or by contacting me directly.

Contact

Please don't hesitate to contact me using the details below if you have any questions. If interested, I'd also be happy to arrange a telephone call at a time convenient to you to discuss the project in more detail.

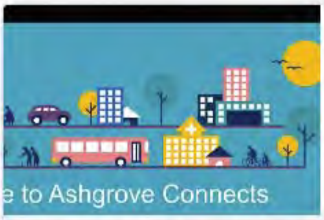
Kind regards,

Emily

emily.davie@atkinsglobal.com | 0131 221 5770

Online blogs

From the [Ashgrove Connects website]



Missed the second webinar? Catch up here

We hosted a live webinar on Tuesday as part of the second stage of Ashgrove Connects. This was a great opportunity to present an overview of what we've done so far on the project, how this has developed and the initial designs....

Posted on 1st July 2022
by Emily Davie

Sent to: 168 Edit

Developing designs with Cornhill Primary School

We were delighted to spend Wednesday morning with P6 pupils of Cornhill Primary School to present, develop and collect their feedback on the initial designs for Ashgrove Connects. What did pupils tell us? During March, the pupils...

Posted on 24th June 2022
by Emily Davie

Sent to: 160 Edit

Tell us what you think of the initial designs for Ashgrove Connects

Welcome to the Design Stage of Ashgrove Connects where you can view and feedback on the initial designs which have been developed from what you told us is important to you. Idea for Ashgrove Road West at the junction with...

Posted on 21st June 2022
by Emily Davie

Sent to: 155 Edit

Feedback on the initial designs by Sunday

Thank you to everyone who has taken part in the consultation on the initial designs for Ashgrove Connects so far. We've spent time with residents, businesses, pupils and other users of the street to understand what you like about...

Posted on 13th July 2022
by Emily Davie

Sent to: 176 Edit

Exploring the designs

Drop in events Thanks to everyone who took the time to come along to the drop-in events this week at Cairncry Community Centre and Westburn Outdoor Centre to explore the initial designs. It was great to see so many of you a...

Posted on 7th July 2022
by Emily Davie

Sent to: 171 Edit

Drop in events today

We've spent the morning at Cairncry Community Centre speaking to members of the community about the initial designs for Ashgrove Connects. We're heading over to Westburn Outdoor Centre for the second drop-in between 4-...

Posted on 5th July 2022
by Emily Davie

Sent to: 170 Edit

Local Media

Aberdeen Live (24 June 2022)

Aberdeen council chiefs launch consultation over Ashgrove Road proposals

A council spokeswoman said the project aims at helping people get more healthy

Ashgrove Road (Image: Google)

Aberdeen council chiefs have launched a consultation for street improvements near Ashgrove Road.

The next stage of Ashgrove Connects project, being delivered by Aberdeen City Council and paid by the north-east transport organisation Nestrans, includes a consultation at Cornhill Library and online as well as a webinar and local drop-in sessions, which will shape how the project develops.

A council spokeswoman said the project aims at helping people get more healthy.

She said: "The Ashgrove Connects project is initially investigating what improvements could and should be made to the streets and is aimed at enabling people to choose a more active and sustainable lifestyle, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor.

Aberdeen City Council (9 March 2022)

Consultation starts for street improvements to Ashgrove Road

Wednesday 9 March 2022

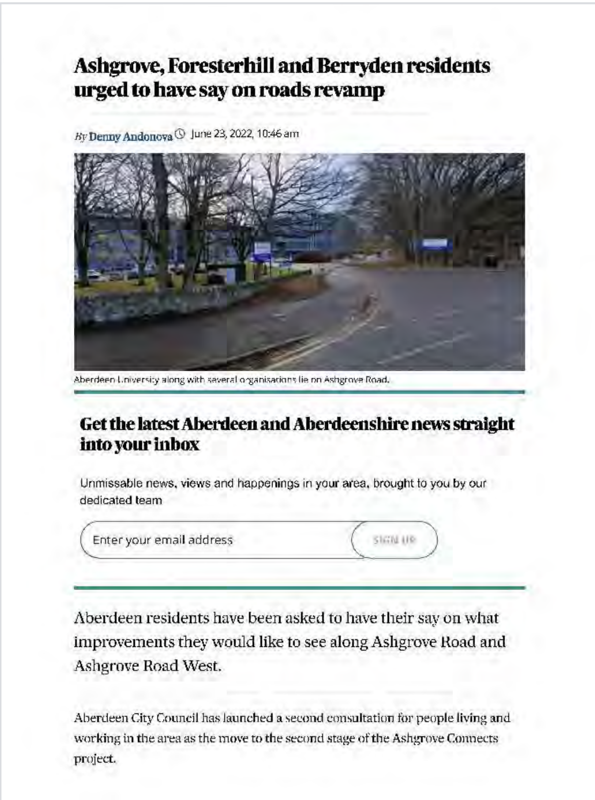
People living or working near Ashgrove Road and Ashgrove Road West are being asked to take part in a consultation which could lead to street improvements for the area.

The Ashgrove Connections project, being delivered by Aberdeen City Council and paid by the North-east transport organisation Nestrans, comprises stakeholder engagement and a public survey which will help define priorities and shape how the project develops.

It will initially investigate what improvements could and should be made to the streets and is aimed at enabling people to choose a more active and sustainable lifestyle, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor.

Depending on input from the community, plans could include changes to Ashgrove Road and Ashgrove Road West which give greater priority to people, enhance public space, improve access to shops and facilities, and improve active travel.

Press & Journal (24 June 2022)



Ashgrove, Foresterhill and Berryden residents urged to have say on roads revamp

By Denny Andonova June 23, 2022, 10:46 am

Aberdeen University along with several organisations lie on Ashgrove Road.

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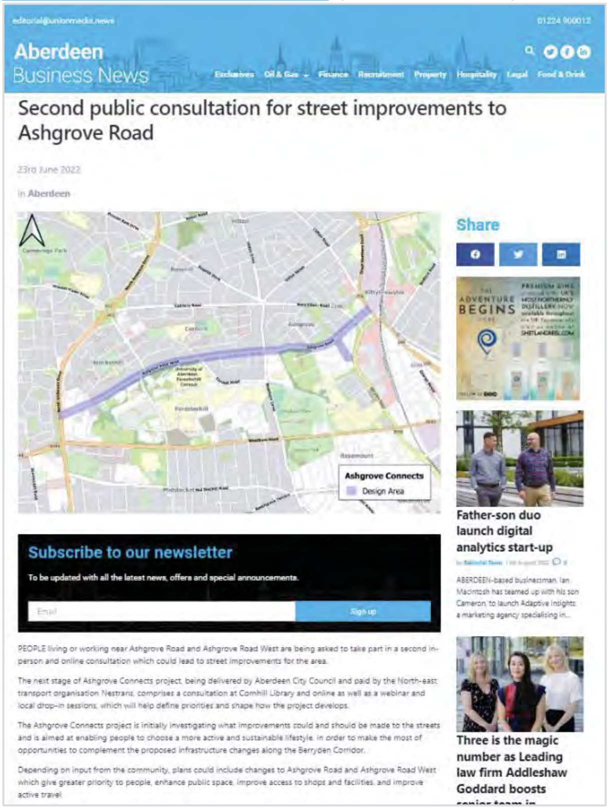
Enter your email address

Aberdeen residents have been asked to have their say on what improvements they would like to see along Ashgrove Road and Ashgrove Road West.

Aberdeen City Council has launched a second consultation for people living and working in the area as the move to the second stage of the Ashgrove Connects project.

Aberdeen Business News (23 June 2022)



Second public consultation for street improvements to Ashgrove Road

23rd June 2022

In Aberdeen

Subscribe to our newsletter

To be updated with all the latest news, offers and special announcements.

PEOPLE living or working near Ashgrove Road and Ashgrove Road West are being asked to take part in a second in-person and online consultation which could lead to street improvements for the area.

The next stage of Ashgrove Connects project, being delivered by Aberdeen City Council and paid by the North-east transport organisation Nestrans, comprises a consultation at Cornhill Library and online as well as a webinar and local drop-in sessions, which will help define priorities and shape how the project develops.

The Ashgrove Connects project is initially investigating what improvements could and should be made to the streets and is aimed at enabling people to choose a more active and sustainable lifestyle, in order to make the most of opportunities to complement the proposed infrastructure changes along the Berryden Corridor.

Depending on input from the community, plans could include changes to Ashgrove Road and Ashgrove Road West which give greater priority to people, enhance public space, improve access to shops and facilities, and improve active travel.

ATKINS
Member of the SNC-Lavalin Group

Social Media

Aberdeen City Council (23 June 2022)

Aberdeen City Council
23 June at 10:03

People living or working near Ashgrove Road and Ashgrove Road West are being asked to take part in a second in-person and online consultation which could lead to street improvements for the area.

The next stage of Ashgrove Connects project, being delivered by Aberdeen City Council and paid by the North-east transport organisation Nestrans, comprises a consultation at Cornhill Library and online as well as a webinar and local drop-in sessions, which will help define prioritie... **See more**

Nestrans (5 July 2022)

Nestrans
5 July at 13:45

There is a public drop-in for Aberdeen City Council's #AshgroveConnects project between 4pm and 7pm TODAY at the Westburn Outdoor Centre, Westburn Park.

Do you live in, work on or visit the corridor? However we travel, how can we improve how we all get around it?

Pop along, see the initial proposals, make sure to have your say.... **See more**

Stockethill Church (8 July 2022)

Stockethill Church
38m

A consultation is taking place about changes to the Ashgrove Road/Ashgrove Road West layout. The consultation will close on Sunday 17th July. People can feedback either on the project website https://ashgroveconnects.commonplace.is/ or at Cornhill Library where there is a small public display

ASHGROVECONNECTS.COMMONPLACE.IS
Tell us what you would like to see improved along Ashgrove Road and Ashgrove Road West

GetAbout (27 June 2022)

Getabout
27 June at 09:27

Ashgrove Connects is looking for community feedback during stage 2 of the project. You can read about the findings from the first stage of the project, how the initial designs were created, and then share your views:

Aberdeen City Council
23 June at 10:03

People living or working near Ashgrove Road and Ashgrove Road West are being asked to take part in a second in-person and online consultation which could lead t... **See more**

Constituent Report CR-J

Network Assessment

ATKINS
Member of the SNC-Lavalin Group

Technical Note

Project:	Ashgrove Connects		
Subject:	Walking and Cycling Network Assessment		
Author:	Atkins		
Date:	09/09/2022	Project No.:	5212138
Distribution:	Project Team	Representing:	Atkins

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	Draft for discussion	DL	AM	VK	FA	Mar 22
2.0	Final version	DL	JL	AM	AM	Sep 22
2.2	Final version rev1	DL	JL	AM	AM	09/09/22

Client signoff

Client	Aberdeen City Council
Client ref	BCI + Ashgrove Road / Ashgrove Road West
Project No.	5212138

1. Introduction

1.1. Project Background: Ashgrove Connects

Aberdeen City Council (ACC) is seeking to improve the opportunities for all people (regardless of age or ability) living and working adjacent to Ashgrove Road/ Ashgrove Road West to travel by active and sustainable modes and to engage in community activities, by developing proposals for the built environment.

1.2. Purpose & Scope

The purpose of this assessment is to review existing conditions for walking and cycling in the area around the Ashgrove Connects Project and to recommend network improvement opportunities that will allow walking and cycling to be accessible as an everyday choice for all ages and abilities.

This technical note reports on the following key elements:

- **Context** existing travel patterns in the city
- **Demand** for walking and cycling (existing & potential movement patterns)
- **Existing conditions:** What the current network looks like and existing road conditions
- **Barriers** to walking and cycling and the existing level of service for cycling
- **Opportunities** to complement the Ashgrove Road scheme and provide additional value for money
- **Strategic Connections** covering wider destinations in this part of the city

This assessment is a desktop exercise. While site visits have been undertaken by the Atkins wider project team, with information shared, the Active Travel Network auditor has not visited site. Similarly, the timescales have not permitted direct engagement with stakeholder interest groups around wider barriers and network development. It is recommended that these elements are considered as part of any future active travel work.

The methodology for this assessment is primarily drawn from:

- **Cycling by Design, Transport for Scotland,** 2021 (Section 2.0),
- **Design Manual for Road and Bridges GG 142** - Walking, cycling and horse-riding assessment and review

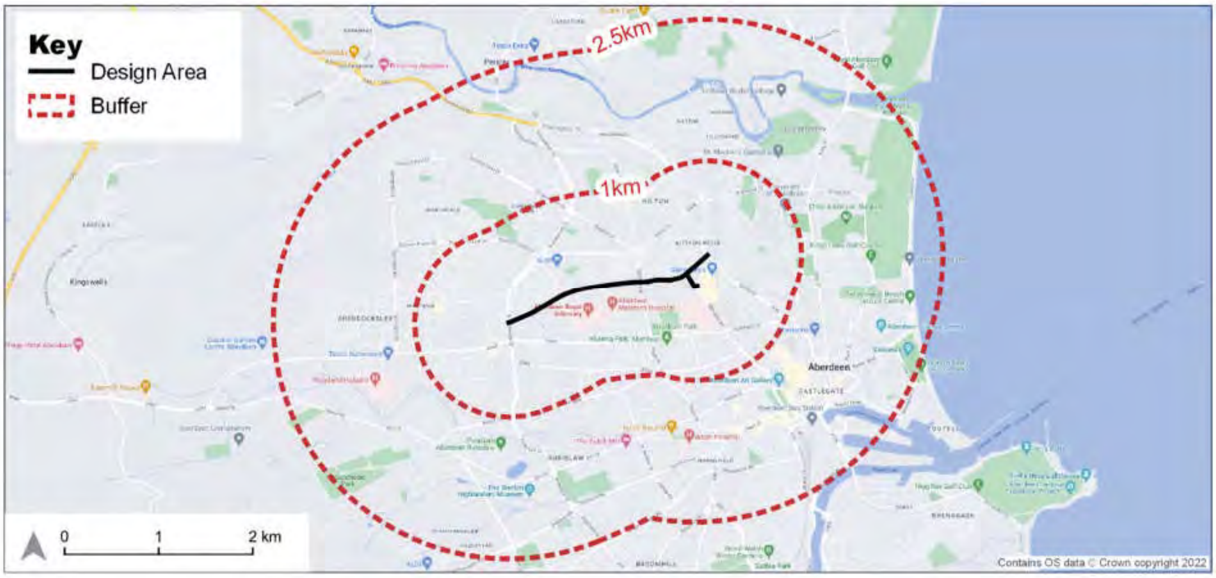
It also draws on good practice from Department for Transport's LTN1-20 Cycle Infrastructure Design, the Active Travel Act Guidance 2021 for Wales and Healthy Streets[1].

[1] Healthy Streets | Making streets healthy places for everyone

1.3. The Assessment Area

The Design Area incorporates Ashgrove Road / Ashgrove Road West between North Anderson Drive and A96 Powis Terrace, and Laurelwood Avenue. The assessment of existing conditions and local desire lines has been undertaken focusing in detail on the 1km area around the Design Area as shown in figure 1.3. Consideration of the wider context and onward city destinations within a 2.5km buffer has also been considered and is discussed in more detail in section 7.

Figure 1.3: Assessment Area



1.4. Definitions:

For the purposes of this report, the following definitions are used:

The Design Area

The Design Area for Ashgrove Connects covers the full length of Ashgrove Road West and Ashgrove Road between North Anderson Drive to the west and the A96 Powis Terrace to the east, and also includes Laurelwood Avenue & Elm Place.

Walking

In the context of this report 'people walking' refers to

"all pedestrians using the public realm including wheelchair users and people with buggies. Walking activities can be subdivided as utility walking, including walking to and accessing daily services as part of a regular routine as well as recreational walking.

People do not just move from A to B but are likely to undertake a range of other activities as part of a walked trip including resting, standing and sitting so these activities also need to be considered as part of the planning process. Most journeys involve walking at some point and so the public realm needs to be designed to enable walking, by making it a convenient part of an integrated transport system."[2]

Cycling

In the context of this report 'people cycling' refers to any person using a cycle to travel using the public realm. Cycling includes the use of any form of pedal-powered vehicle, including those that also include an electric-assist function, and all modes legally permitted to use facilities designated for cycles. There are a range of cycle vehicles that people cycling choose to use and examples include hand cycles, cargo cycles and cycle trailers.

[2] The Planning for Walking Toolkit, Transport for London, March 2020

Assessment Area

The assessment area refers to the street environment within a 1km buffer of the Ashgrove Connects design area. Conditions along Ashgrove Road/Ashgrove Road West and Laurelwood Avenue have been considered as part of the assessment however due to project objectives it has been assumed that good quality provision will be provided as part of the design of this scheme therefore recommendations for the design area itself have been excluded from section 6.

Design User

The Design User refers to a person walking, or a person cycling.

For people cycling there are three key elements to Design User needs, these elements define the infrastructure needs of the specific Design User. They include the type of user, their journey purpose and the type of cycle vehicle they use for the trip. Type of user refers to whether the user is new to cycling and less confident, or confident and an existing user.

Designs that meet the needs of only confident cycle users will not be suitable for new cyclists or cyclists that are less confident. The needs of the Design User are reflected in the 'Level of Service'.

Level of Service

This refers to

"an evaluation framework for assessment of the performance of cycling infrastructure from a 'rideability' perspective. Its purpose is to frame the discussion of design options so that schemes are attractive both for existing cyclists and potential new cyclists."[3] Furthermore, *"it is a critical requirement of Cycling by Design that all new or improved cycling infrastructure, road improvements, new developments and public realm improvements are designed to meet the needs of all cycle users. The level of service (LOS) indicators will help designers to identify the strengths and weaknesses of their design and identify aspects to be improved to achieve a high LOS."*[4]

1.5. User Needs

Understanding user needs and outlining a design user that covers a wide range of pedestrians and cyclists is critical to the provision of infrastructure and networks suitable for all types of people with varying requirements. It is important that, regardless of user type, cycling is recognised as a distinct mode of travel, operating at a significantly higher speed than walking and therefore with different requirements even though in some instances the needs of pedestrians and cyclists overlap. Table 1.5A outlines some typical characteristics and differences between walking and cycling that should be considered in the design process.

Table 1.5A: Example characteristics and needs associated with walking and cycling

	Walking	Cycling
Common Characteristics	• Commonly a sociable activity with many walked journeys accompanied • Also includes a wide range of other activities such as resting, standing and sitting • The speed of movement is significantly slower than other modes and varies with age and ability	• Cycling is a physical activity requiring both balance and a minimum speed to maintain stability (commonly 10kph) • Cycling can also be a social activity • Cycle traffic is capable of speed and can travel significantly faster than the mean walked speed. • Speed can vary significantly amongst users ranging from 5 to 40kph[5]
User Need	• Space to walk both alone and with others • Ability to cross the street easily • Places to stop and rest	• Conditions that feel safe and are safe • Direct and safe routes[6] • Continuity and legibility of provision

[3] London Cycle Design Standards, Transport for London, October 2016
[4] Cycling by Design, Transport for Scotland, 2021
5 Designing For Cycle Traffic, Chapter 3 Principles of design for cycle traffic, J Parkin, 2018
6 Annual Cycling Monitoring Report, Cycling Scotland, 2022

1.6. Level of Service

As outlined in Cycling by Design level of service is a critical consideration in cycle network design. Table 1.6A shows how user ability translates to level of service scores and table 1.6B shows what a high level of service looks like in terms of the core principles for cycle design.

Table 1.6A: Level of service classification

Level of Service	Description
High	Suitable for most cyclists, including new and less confident users.
Medium	May not be suitable for some cyclists, particularly novice users.
Low	Will not be suitable for a range of cyclists including novice and intermediate users

Table 1.6B: High Level of Service against the core design principles

Design Principle	Description
Safety	Cycle users are always protected from motor traffic when required.
Coherence	Cycle routes are continuous and fully joined-up. They allow cycle users to maintain consistent speed, are well-signed and intuitive
Directness	Cycle route is at least as direct as the equivalent motor traffic journey, with minimal need to stop or give-way. Delay for cycle users at junctions is less than for motor traffic.
Comfort	Cycle route surfaces are machine laid, smooth and well-maintained (at least as regularly as the road network). Desirable minimum widths and gradients are fully achieved
Attractiveness	Cycle route and parking areas are well lit, overlooked and do not create any personal security issues for users. The cycle route adds to the sense of place in the area, encouraging people to spend time there
Adaptability	Cycle route and parking areas have the flexibility to expand, evolve or adapt to changing demands.

2. Context

Aberdeen is a city of approximately 200,000 people (Council area 280,000). The outer extent of the urban area is no greater than 6km from the centre in any direction, with the majority of the urban population resident less than 5km from Union Street. Most trips could be walked or cycled. The national travel survey (2020) provides a representative sample for all trips within Aberdeen and indicates that 73% of all daily journeys are under 5km. Despite this potential for a high sustainable transport mode share, current levels, for cycling especially are relatively moderate with 3.9% cycling to work and 6% of primary school students cycling in 2020.[7]

Table 2.1: Top 5 Local Authorities ranked by percentage of journeys under 5km[8]

Local Authority	Rank	%
Dundee City	1	83
Aberdeen City	**2**	**73**
City of Edinburgh	3	72
Glasgow City	4	71
Argyll and Bute	5	68

Low levels of walking and cycling are normally an indicator of suppressed demand commonly caused by city-wide barriers that stop people walking and cycling more often for more journeys. These barriers need to be addressed before such suppressed demand can be unlocked. For Aberdeen, as with many UK cities, perception of safety as well as actual safety ranks highly as a common barrier. This is illustrated by the national travel survey that showed that 20.9%[9] of respondents nationally listed safety as the main reason for not cycling more often.

For Aberdeen it's likely that low levels of active travel and issues around safety and comfort can be attributed to the following common features highlighted by recent research from the Active Travel Academy:

- **High speed** and **volume** roads that lack safe crossings and protected provision[10]
- The **absence** of a **cohesive joined up network** that provides safe walking and cycling links serving the many daily journeys for work, education and leisure[11]

It should be noted that existing road conditions in Aberdeen are not well suited to safe all ability access with an existing layout that includes many wide, straight roads that create a motor traffic dominated environment that allows high speeds through residential areas. Roads also tend to create a barrier to the continuity of off-road routes that are more accessible for all ages. This reduces the quality and appeal of the active travel environment and helps lock in car dependence for everyday journeys as well as reducing choice which can have a social exclusionary impact on the community. Wider roads do however present an opportunity to reallocate space to protected infrastructure, wider footways and more accessible crossings.

[7] Annual Cycling Monitoring Report, Cycling Scotland, 2022
[8] Annual Cycling Monitoring Report, Cycling Scotland, 2022
[9] https://www.transport.gov.scot/publication/transport-and-travel-in-scotland-2019-results-from-the-scottish-household-survey/
[10] https://www.sciencedirect.com/science/article/pii/S0001457521000944
[11] https://www.sciencedirect.com/science/article/pii/S0965856417314866

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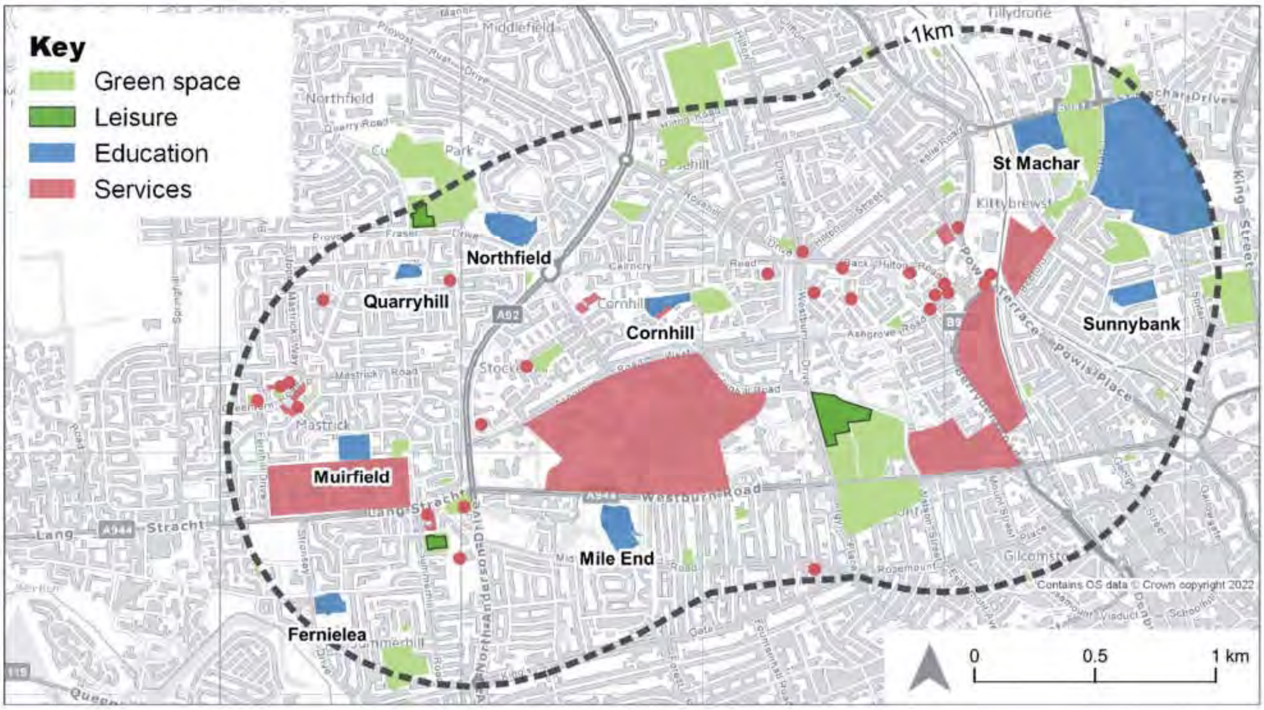
3. Demand

3.1. Origin, Destinations and Trip Generators

The main trip generators within the assessment area are mapped out in Figure 3.1. As shown the key destinations around Ashgrove Connects include the city centre, the University of Aberdeen, Berryden & Kittybrewster Retail Park and the collection of destinations around the Aberdeen Royal Infirmary which will generate a strong demand for east/west movement and links to the south of the study area. There are a range of secondary destinations within 1km including primary and secondary schools, green space and a number of smaller shopping centres. Housing across the assessment area is mostly semi-detached or terraced with a moderate level of density. The streets in the immediate vicinity of Ashgrove Connects are mostly residential or associated with the Aberdeen Royal Infirmary with few active frontages

Schools are found throughout the study area with a concentration at the east and west edges. School travel survey data, detailed in **appendix A** shows existing high levels of active travel mode share however only 4.5% of these journeys are currently cycled with 65% of journeys made by foot.[12] This 4.5% is in line with the national average but represents a significant opportunity with low levels likely to be the result of the barrier effect of the busy roads that divide up the assessment area. It is worth noting that schools across the UK that achieve high mode share for cycling such as Cherwell School in Oxford (58% cycle[13]) often have good quality safe all ability cycle connections linking the school to the local area. Future cycle routes should provide a high Level of Service to ensure such user needs are met.

Figure 3.1: Trip Generators



[12] Hands Up Scotland Survey - Sustrans.org.uk
[13] Propensity to Cycle Tool - Oxfordshire (pct.bike)

3.2. Potential Demand

To better understand walking and cycling potential several census datasets have been combined and scored to give an indication of potential demand within the 1km buffer. The following method was used to produce this score:

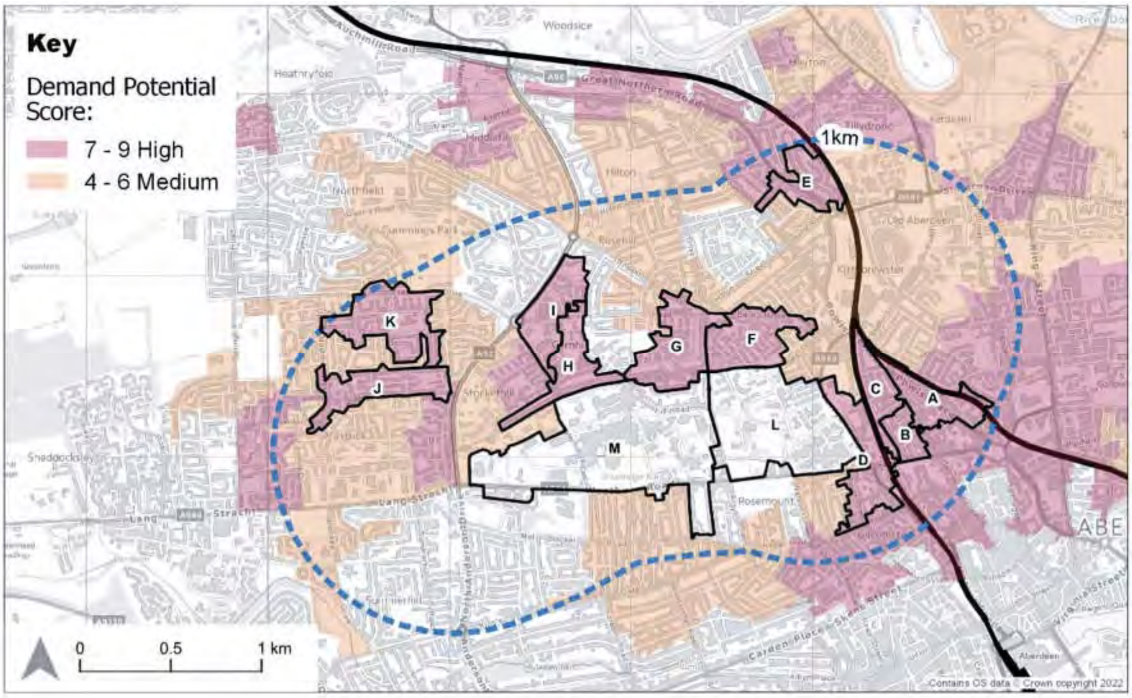
1. Census areas were given a score for each criteria
2. If they fall within the top 30% across Scotland then they were scored according to Table 3.2
3. If they fall outside the top 30% then a 0 score was given
4. Areas were then given a total score out of 9 representing a combination of the criteria

Table 3.2: Census scoring

Criteria	Score
High Population Density	3
High % of homes with no access to a car	3
High % who walk to work	1
High % who cycle to work	1
High % who get the bus to work	1

As shown in figure 3.2 there is strong potential demand for areas close to the city centre (Areas A to D) due to both high sustainable transport mode share for travel to work, low car ownership and a high population density. This supports the common principle of network design to focus on unlocking safe access to the city centre then building the network outward. The scores also show strong potential north of Ashgrove Road West and over the A92 in Mastrick (Areas F to K). The current scoring covers origin-based demand only and returns low scores for areas M and L which have significant destination-based demand such as the Foresterhill Campus

Figure 3.2: Census 2011 output areas scored for walking and cycling potential



3.3. Desire Lines

Mapping of desire lines is based on methods outlined in recent English[14] and Welsh[15] national guidance. Given the spread of origins and destinations as well as the spatial layout of this part of the city demand for east/west movement is most likely for employment, to access the city centre or the University of Aberdeen. This is supported by cycle percentages shown in **appendix A** table A3 that highlight an existing demand for east/west movements along Westburn Drive, Ashgrove Road West and Mid Stocket Road as well as north/south movements along Hilton Road. As shown in figure and table 3.3 there will need to be several strategic connections running east/west and north/south across the assessment area to provide for the movement patterns outlined.

Figure 3.3: Desire line Mapping

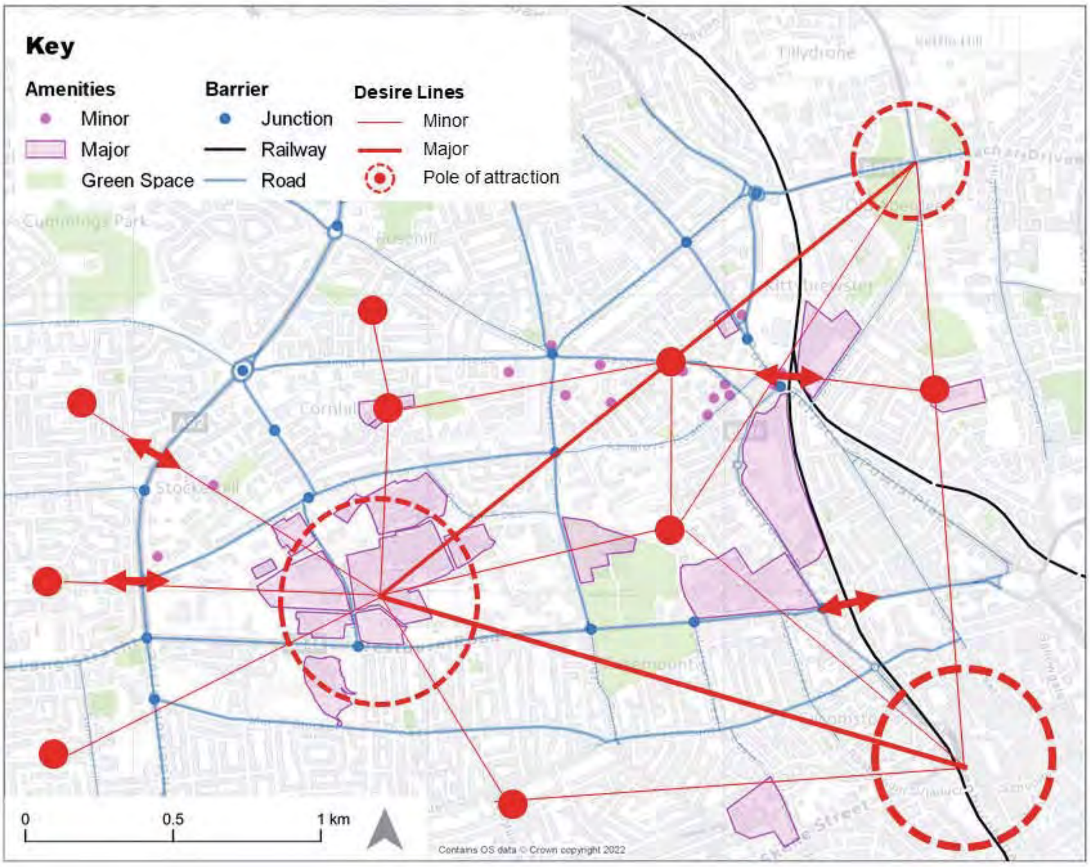


Table 3.3: Key desire lines:

Type	Description
The City Centre	The city centre is approximately 2.5km from the edge of the assessment area and access is likely to occur via the Westburn Road, Berryden Road or further south via the quiet streets north of Union Street.
Education	Access to and from the University of Aberdeen (Old Aberdeen) and Foresterhill Campus to areas of student housing will likely be a significant movement in the area. Travel to the schools within the 1km buffer will likely generate many journeys in all directions across the study area but particularly across some key main roads.
Employment	The Royal Infirmary and Berryden & Kittybrewster Retail Parks will be a significant source of journeys.

There is significant scope to develop an active travel demand data set[16] and complement the desire line mapping through data gathering and stakeholder validation. Creating such as resource at a city level would help inform and guide future network development and provide a more robust evidence, engagement and data driven scheme selection process.

[14] Local cycling and walking infrastructure plans technical guidance (publishing.service.gov.uk)
[15] Active Travel Act guidance (gov.wales)
[16] https://content.tfl.gov.uk/strategic-cycling-analysis.pdf

4. Existing conditions

4.1. Network

Walking

Footway widths across the assessment area are generally of reasonable width (on average 2+ metres) although conditions vary widely with uneven surfaces present in some places. Along the main streets most of the existing crossings away from the major junctions are uncontrolled with limited or no provision at most of the side roads limiting movement along the main routes. There is some street tree planting although seating is limited and there is good potential to improve the place function of both Ashgrove Connects and the surrounding streets.

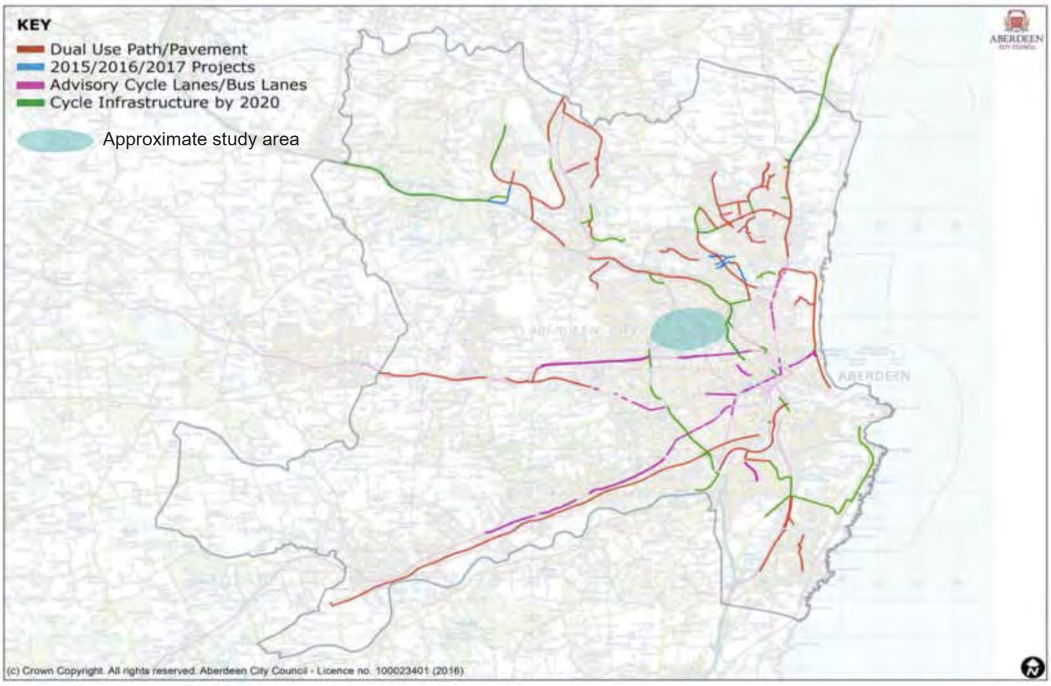
Cycling

The existing and proposed cycle network in this part of the city is very limited in coverage and quality as shown in figure 4.1. Existing infrastructure does not reflect the current Level of Service recommended by Cycling by Design Scotland to meet the needs of most people, meaning this part of Aberdeen represents a significant gap in the network despite making up a large proportion of the residential population of the city. Although the

National Cycle Network (NCN) routes 1 & 195 join Aberdeen to the wider network although the two routes broadly skirt the south and eastern edges of the city limiting access and utility. For route 1 access is further limited by the barrier effect of the railway but it does provide an important north/south link between the city centre and the University main campus. Approximately 70% of this network is on-road with sections that are unlikely to be all ability in terms of volume (likely in excess of 2000 vehicles per day) and speed. Access through the Mounthooly Roundabout is a good example of older lower standard provision consisting of narrow shared use facilities and poor transitions that link to on-road provision that would no longer meet minimum requirements set out in Cycling by Design.

There is some local network consisting of a mix of cycle lanes and shared use provision although this has significant issues in terms of safety, cohesion and comfort and would therefore not provide for all types of user. A good example of this is Westburn Road that has sub-standard width cycle lanes (less than 2m and 1.1m in parts) that drop in and out along the link and are not suitable given the volume of traffic (10,000+ vehicles per day).

Figure 4.1: Current and Proposed Cycle Network, Aberdeen City[17]



[17] Aberdeen Active Travel Action Plan 2017-2021 Aberdeen City

4.2. Traffic Flow

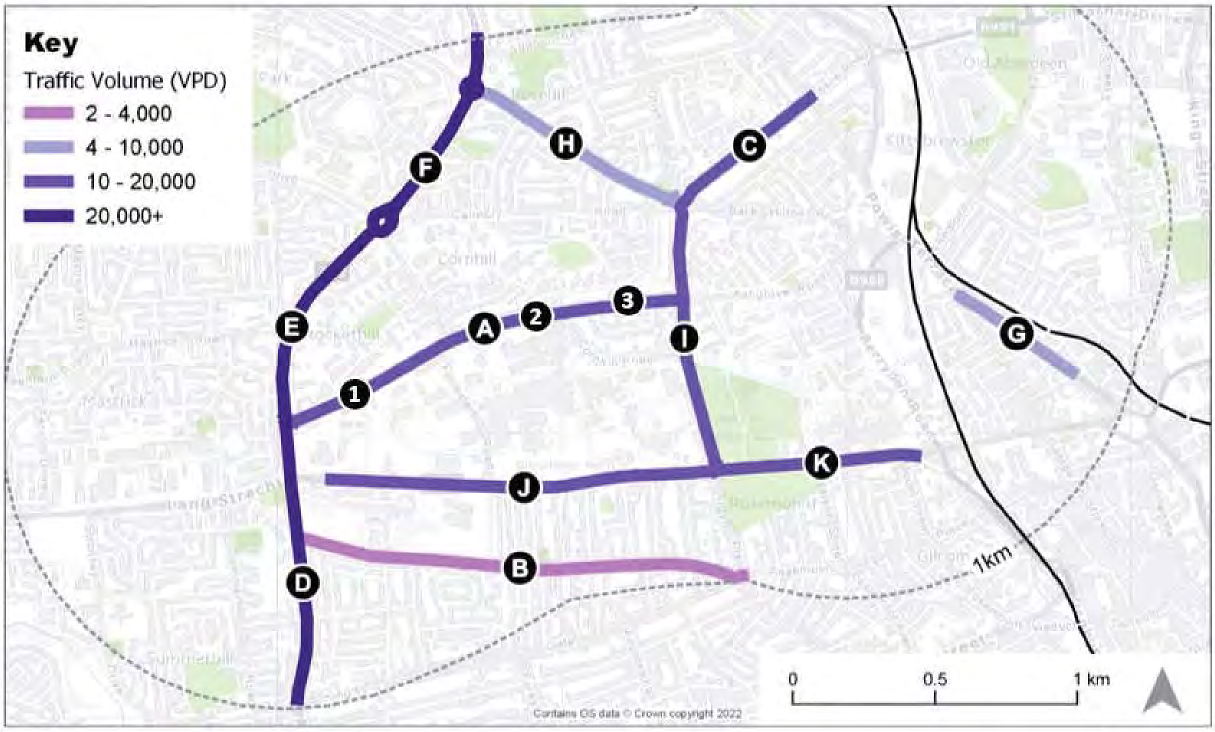
Motor traffic speed and volume is a key barrier to cycling as well one of the primary measures of level of service. For the broad range of users being considered within this study daily traffic volumes less than 2000 vehicles per day (VPD) at 20mph is considered the upper limit for on-road cycling. Streets with higher volumes will either require protected facilities or significant traffic management to reduce flows and speeds. As shown in table and figure 4.1 many of the main routes through the area have volumes well above this threshold with the following common issues:

- Heavily trafficked routes with high volumes, high speeds and a high percentage of HGVs creating unappealing routes for walking and cycling both moving along and across these main roads.
- Traffic volumes over 10,000 vehicles a day and HGV percentages greater than 5% that create difficult conditions for active travel users and would be flagged as critical issues against common assessment tools such as the cycle level of service (LTN1/20) and Healthy Streets indicators.
- The main road network consists of wide roads, wide corner radii and long straight sections that all help create a motor vehicle dominated environment that facilitates higher speeds by design.

Links worth highlighting include:

- **North Anderson Drive:** High volume and percentage HGVs with a 40mph speed limit with many uncontrolled crossings on pedestrian desire lines a few safe all ability crossing points.
- **Ashgrove Road West**: High volume with a lack of safe crossing points away from the three signal-controlled junctions.
- **Westburn Drive**: High volume, 30mph speed limit with large numbers of turning vehicles at key junctions and a very wide carriageway profile of 9m which encourages high speeds inappropriate for a street of this type.

Figure 4.1: Traffic Data (VPD)



Transport Scotland Traffic Data 2019 [18]

ID	Road	Total	% HGV
A	Ashgrove Road West	12,563	1
B	Mid Stocket Road	3,773	-
C	Hilton Street	12,609	2
D	North Anderson Drive	26,677	4
E	North Anderson Drive	27,908	4
F	North Anderson Drive	28,719	3
G	Powis Place	6,613	5
H	Rosehill Drive	9,434	2
I	Westburn Drive	15,441	2
J	Westburn Road	10,781	3
K	Westburn Road	15,451	1

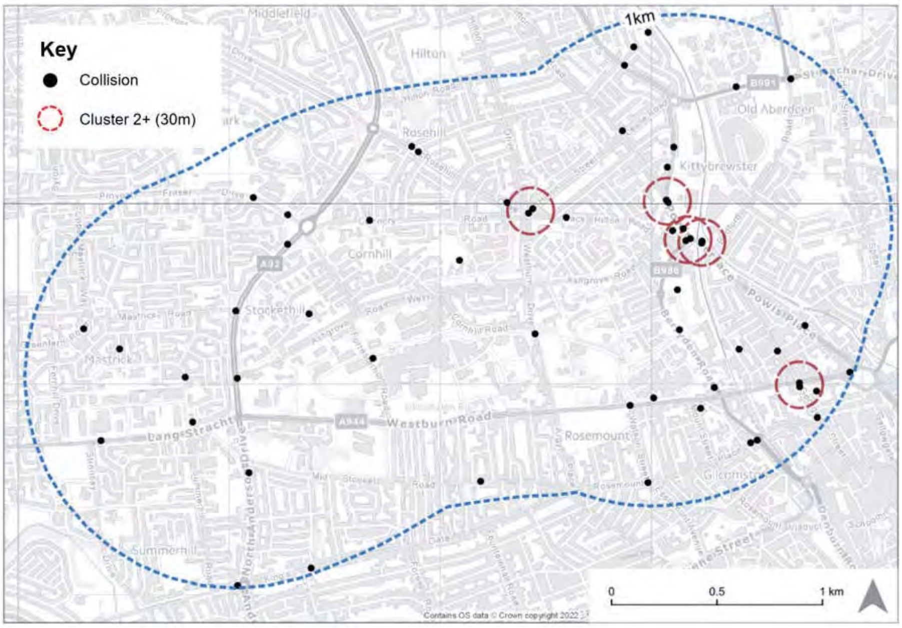
ATC Data (March 2022)

ID	Road	Total	% HGV
1	Ashgrove Road West	6,919	8.7
2	Ashgrove Road West	10,636	8.3
3	Ashgrove Road	6,196	5.8

[18] Map Road traffic statistics - Road traffic statistics (dft.gov.uk)

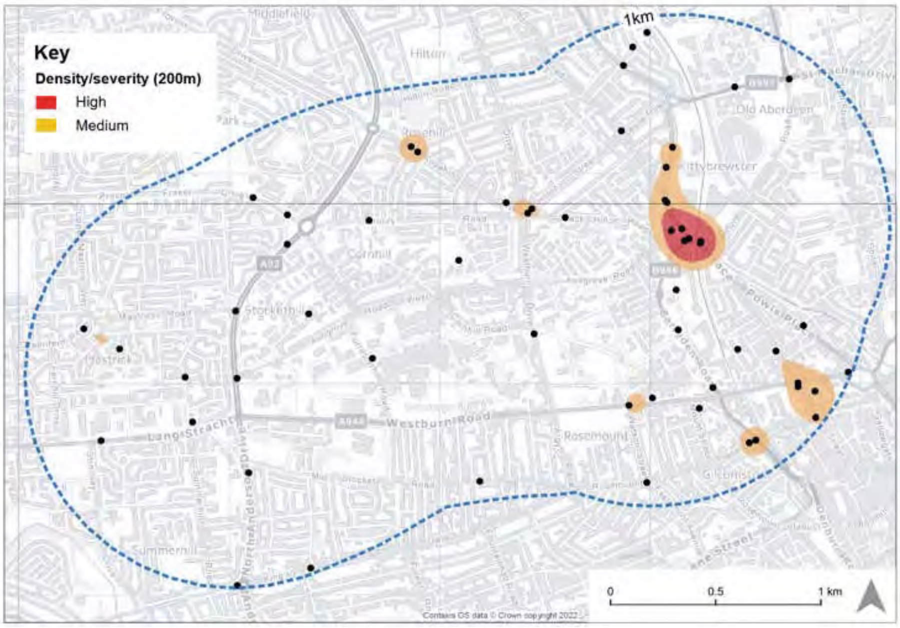
4.3. Safety

Table 4.3: Walking and Cycling Collision Data 5 years (2016-20)



Clusters (30m)

There are five collision clusters within the study area involving two or more active travel collisions, the majority occur at busy intersections such as the Powis Terrace junction with Berryden Road or the Six Roads roundabout.



Severity weighted hotspots (200m)

When factoring in severity this highlights some additional locations such as the junction of Rowan Road and Hilton Avenue as well as further highlighting the safety issues along Powis terrace

5. Barriers

There are various common issues across the street environment surrounding Ashgrove Connects scheme that limit access and therefore the number of journeys made on foot and by bike. Details of barriers to walking and cycling are summarised below and listed in more detail in **appendix A** sections A5 and A6.

5.1. Barriers to Walking

Crossings

For walking the limited crossing points of main roads creates a significant amount of severance. This is most relevant for Ashgrove Road, North Anderson Drive and Western Road where this deficiency causes significant north/south and east/west severance limiting safe all ability walked access to key destinations. In addition, the lack of safe crossing points makes it harder to access bus stops further reducing the potential for sustainable multi-mode journeys.

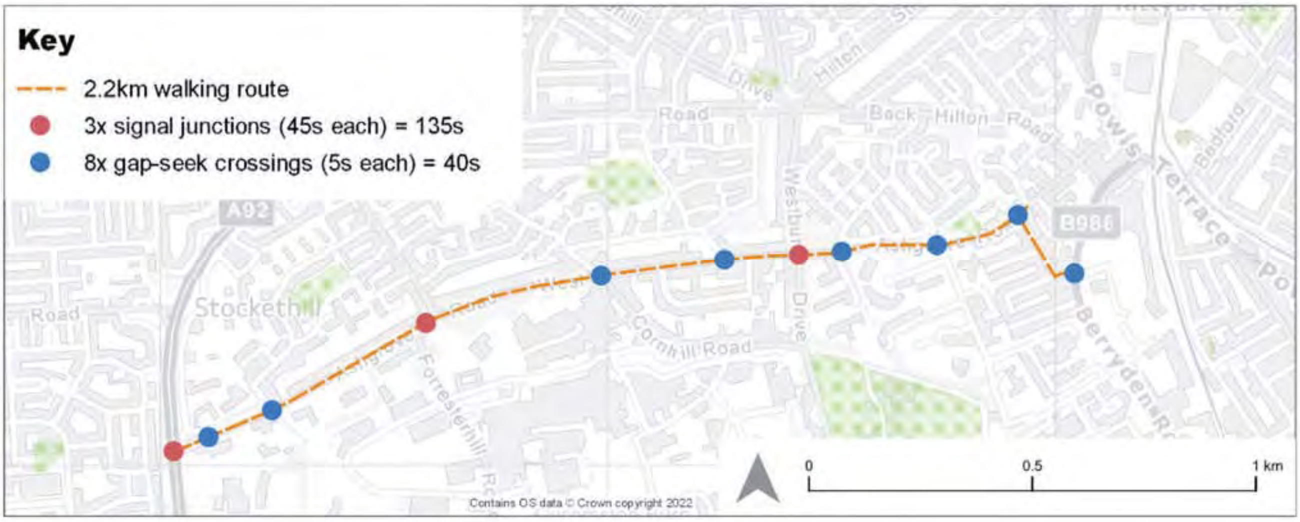
Junctions, side roads & vehicle crossovers

The 34 major side roads and 14 large junctions that exist within 500m of the scheme pose a significant barrier to movement on foot. Features such as multi-stage crossings, small traffic islands and long crossing distances at controlled crossings return a poor level of service. Equally at side roads a lack of clear priority, lack of tactile paving and large crossing distances are a barrier. It is also worth noting that many vehicle cross overs fail to give priority to pedestrians, are often treated like side roads and commonly cause the footway to dropped to carriageway level reducing comfort and access.

Walked journey time and link conditions

Walked time along main routes is often impacted by delay caused by stopping for side roads and signal junctions. For example, figure 5.1 shows a typical walking route to the shops from the west end of Ashgrove Road. This journey measures 2.2km and is shown to take 25 minutes however once you factor in the delay journey time increases to 28 minutes therefore reducing the walked catchment of the scheme. In addition, this is a long, exposed streets with no benches or other places for older people to stop and rest.

Figure 5.1: Walked journey time



5.2. Barriers to Cycling

Crossings

Orbital east/west movements for cyclists are limited by a lack of safe crossing points of both the Aberdeen/Inverness railway line (limited to the A96 and A978 crossings) and moving west by few safe crossings of the A92. This limits access to the University of Aberdeen, the seafront and the National Cycle Network moving east as well as access to the residential areas of Northfield, Mastrick and Summerhill moving west.

Junctions & side roads

For cycle traffic the junctions and side roads pose the most significant safety risk in the area as well as causing issues in terms of accessibility both along the Ashgrove Road route and in close proximity to the scheme. Features including multiple-lane approaches, wide crossing distances, a wide geometry and a lack of provision for right turners creates challenging conditions. Primary examples include the three-lane northern approach at the junction of Westburn Drive / Argyll Place and Westburn Road that exposes users to merging and diverging movements by motor traffic and lacks clear access to the advanced stop line (ASL). The two consecutive roundabouts on Foresterhill Road and North Anderson Drive both have a wide geometry encouraging vehicles to negotiate the layouts at speed causing issues for cyclists.

Links

Existing on-road conditions are particularly challenging with Westburn Drive, Ashgrove Road, Hilton Street and Westburn Road being particularly problematic. Traffic volumes and likely high speeds will mean that protected cycle tracks are likely to be the only option to provide safe all ability provision noting that 20.9% of respondents in the national travel survey listed concerns about ‘cycling in traffic’ as a key barrier. It is also worth noting the 40.4% of respondents mentioned distance as a key issue which supports the need for direct routes across the city.

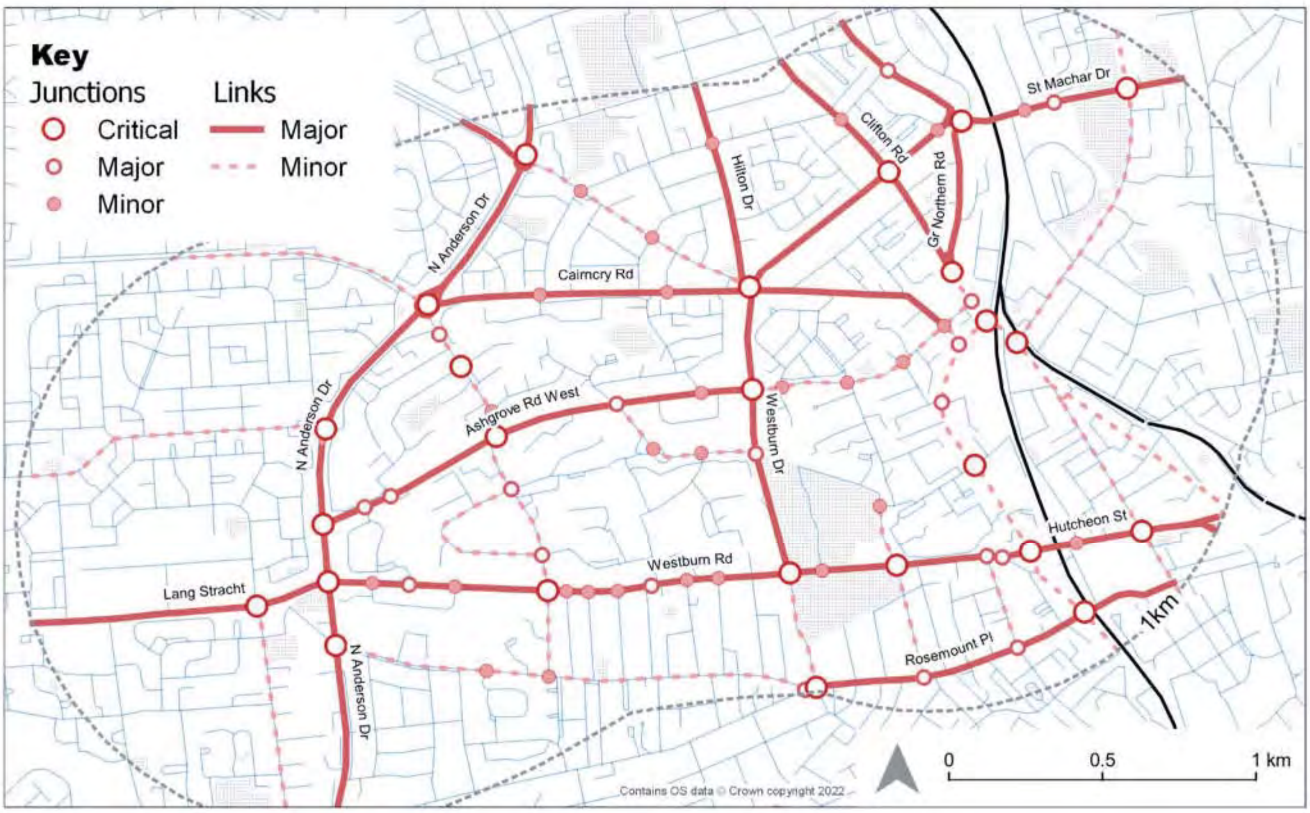
5.3. Barrier Assessment

A barrier assessment for cycling was carried out using the classification shown in Table 5.3 drawing on the critical thresholds and critical features outlined in LTN1/20 and the Healthy Streets design check. Figure 5.3 shows the most significant barriers within 1km of Ashgrove Road, this includes 25 junctions and 29 links where conditions are considered challenging even for experienced cyclists.

Table 5.3: Barrier classification

Barrier	Type	Description
Junction	Critical	Complex layout with significant safety issues such as multiple lanes, high speed geometry, large volumes of traffic and wide crossings
	Major	Less complex junction layout but with high volumes of traffic
	Minor	Side road or crossroad with significant amounts of turning traffic and geometric issues
Link	Major	High volume (10,000+), high speed and/or high % of HGVs (5%)
	Minor	Moderate traffic volumes that would be a challenge for less experienced cyclists

Figure 5.3: Barrier assessment (cycling)



5.4. Level of Service Assessment

The level of service assessment is based on section 2.4 of Cycling by Design. The key indicators that influence the score for most links across the assessment area are shown below (these are taken from table 2.3 & 3.2 in the guidance):

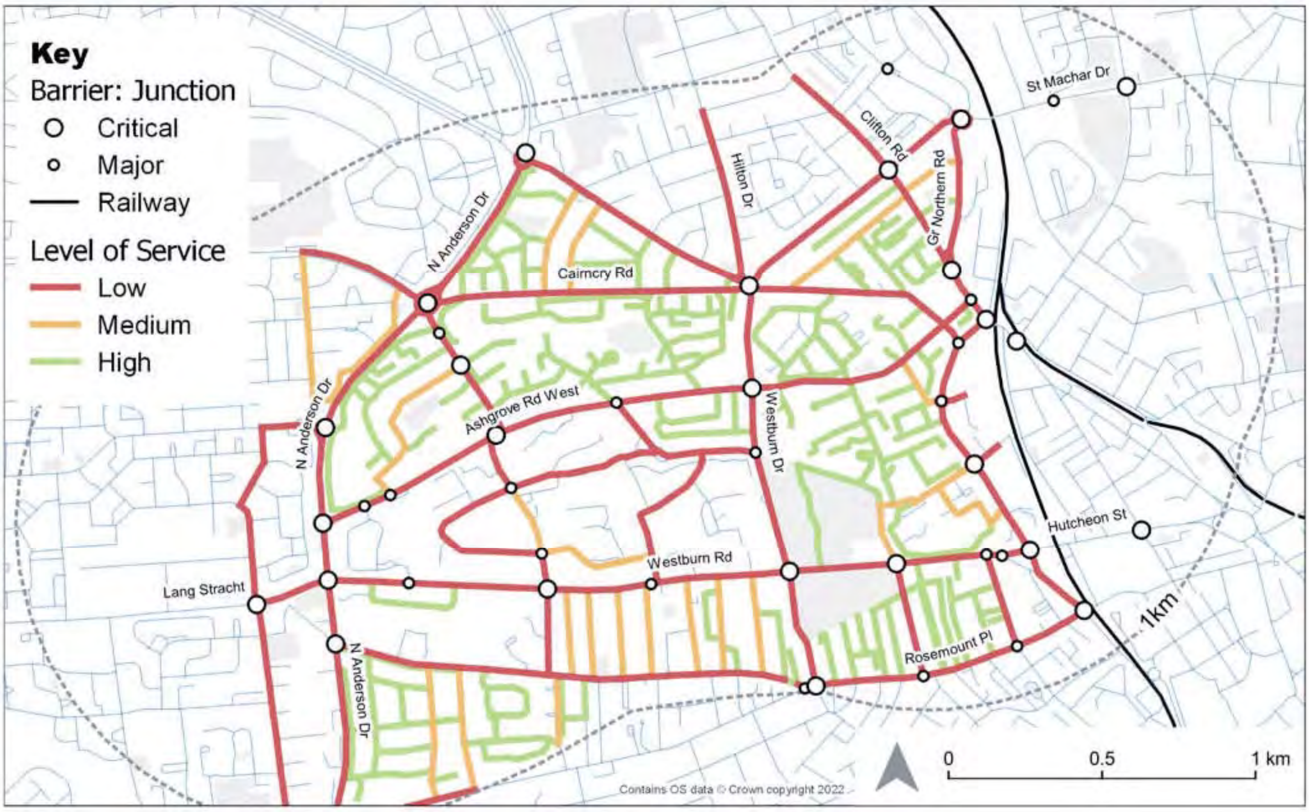
Table 5.4a: Level of service classification

Level of Service	Description
High	Suitable for most cyclists, including new and less confident users.
Medium	May not be suitable for some cyclists, particularly novice users.
Low	Will not be suitable for a range of cyclists including novice and intermediate users

Table 5.4b: Key indicators influencing classification

Indicator	High	Medium	Low
Volume/(20mph)	<2000	2 - 4000	4000+
Volume/(30mph)	<1000	1 - 2000	2000+
Side Road geometry	Treated	Standard	Wide

Figure 5.4: Cycle Level of Service



As shown the residential area north of Ashgrove Road returns good level of service scores for most streets due to existing filtering and traffic calming with a few exceptions for through routes. South of Ashgrove Road the streets connecting employment and retail locations have large car parks that reduce scores due to peak hour traffic volumes being above acceptable thresholds. Further south the residential streets either side of Mid Stocket Road have reasonable conditions although cut through traffic is an issue especially on some streets. Mid Stocket Road itself scores poorly due to the 30mph limit, geometry issues at side roads combined with a daily traffic volume of 3,773 vehicles a day returning a low level of service score for existing conditions.

5.5. Network Permeability Test

This is a method to "measure how easy it is for cyclists to enter, pass through and leave an area – usually via a safe all ability crossing at a junction or along a link."[19] The methodology is as follows:

1. Create areas bounded by primary roads
2. Identify comfortable 'amber' and 'green' access points (gateways)
3. Colour the bounded areas based on the number of safe points of access

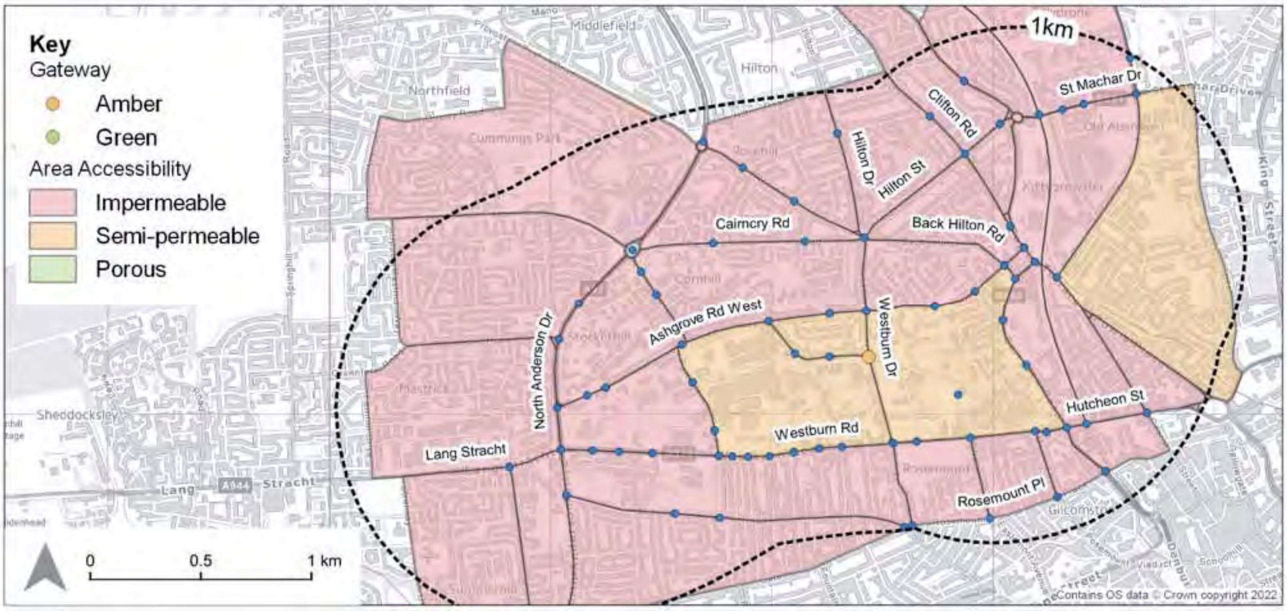
Table 5.5A: Gateway classification

Rating	Description
Amber	A junction or crossing that opens an area to less confident cyclists[20]
Green	A junction or crossing that provides protected direct movements separate from pedestrians[21]

Table 5.5B: Permeability classification

Rating	Description
Impermeable	An area bounded by busy roads with no safe crossing points
Semi-permeable	An area with one or two safe crossing points
Porous	An area with multiple (3 or more) safe access points

Figure 5.5: Existing Network Permeability



[19] London Cycle Design Standards, Chapter 2, section 2.3.5
[20] Manchester Interim Active Travel Design Guide, Appendix B
[21] LTN1/20, Junction Assessment Tool, Appendix B

5.6. Assessment conclusions

As shown in figures 5.3, 5.4 and 5.5 the assessment area is divided up into small blocks of local streets surrounded by busy roads with limited safe crossings that limit active movement. This results in significant severance across the area and means door to door journeys are not attractive for most trips beyond people's immediate residential neighbourhood. While much of the residential network is traffic calmed or modal filtered, getting from one neighbourhood to the next or to local destinations is not viable because of the network of barriers shown in figure 5.3. This is well illustrated by the permeability test which shows the isolating impact the lack of crossings has on safe movement between areas. In terms of actual safety risk analysis strongly supports addressing issues along the 350m section of the A96 between Clifton Road and Bedford Road.

Note: The assessment elements in this section are based on a desktop review and limited openly available data therefore accuracy should be viewed as high level with the potential for further refinement based on site observations, community engagement and further data collection.

6. Opportunities

A set of recommendations and opportunities have been included for consideration with section 6.1 outlining measures that complement the Ashgrove Connects scheme focused on:

1. Overcoming barriers outlined in this report
2. Building on safe walking and cycling options unlocked by the Ashgrove Connects scheme
3. Ordered in terms of improved access to the Ashgrove Road link and/or improved ability to use this as part of a broader range of local journeys by foot and by bike

In addition, section 6.2 provides an illustrative comprehensive cycle network covering the 1km assessment area that would meet mesh density requirements set out in Cycling by Design.

Note: Where provided, suggestions for improvement are not necessarily prescriptive design solutions but serve as ideas to be discussed in the wider context of the scheme.

6.1. Packages of Measures

Recommendations to complement Ashgrove Connects have been grouped into point (crossing/junction), link and area-based interventions that broadly increase on a sliding scale in terms of level of effort and complexity of delivery as you move from point to area-based solution. Three packages of measures have been proposed that could be carried forward. It should be noted that most of the crossing and junction interventions could be delivered stand alone and some links could be delivered separately although most of the links will require crossing points to be delivered in tandem to unlock these routes. For a more detailed description of these interventions see **appendix A** section A7.

Figure 6.1: Proposed Package of Complementary Measures within the assessment area

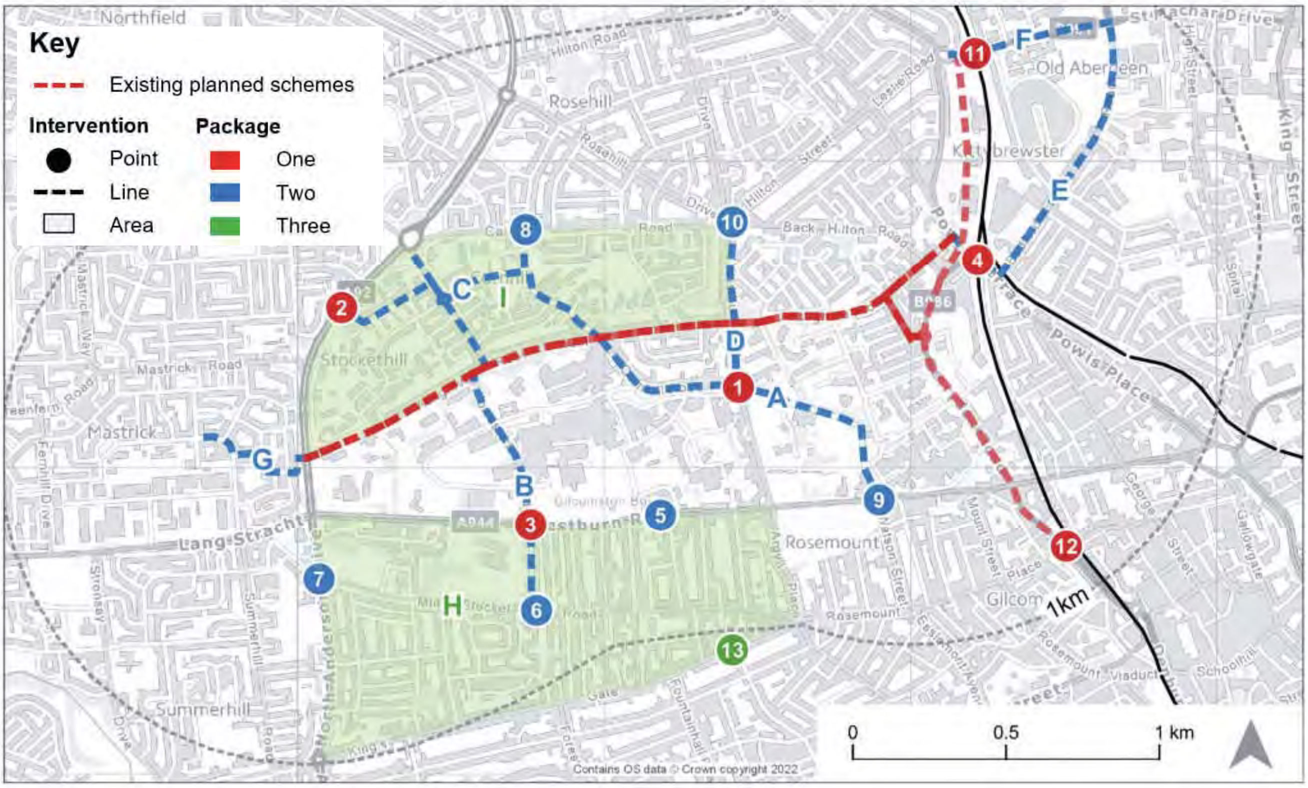


Table 6.1: Description of Complementary Measures Packages within the assessment area

Package	Description	Benefits
One: Point **Crossing/ junction improvement**	Upgrade/install crossings **1, 2 & 3** with modern parallel pedestrian and cycle facilities allowing safe direct crossing movements. Upgrade railway line crossings and junctions at **4, 11 & 12**	Unlocks Ashgrove Road route and reduces barriers to local schools and improves access to the city centre and the University of Aberdeen
Two: Link **Additional access routes**	In addition to package 1 add crossings at **5,6,7,8, 9 & 10** combined with improved provision along links **A, B, C, D, E, F & G**	Provides safe all ability access to schools and Westburn Park as well as joining up Mastrick, Cornhill, the Aberdeen Royal Infirmary and the University of Aberdeen
Three: Area **Liveable Neighbourhood**	In addition to **crossing** and **link** packages complementary area wide measures across **H & I** that reassigns through traffic from Mid Stocket Road and Foresterhill Road	Significant reduction in traffic across the two areas creating many quieter residential streets and significantly improving the environment for walking and cycling

6.2. Permeability Test

When considering different interventions, the before and after situation is a useful means to assess what impact different packages will have. In this case figure 6.2A illustrates the impact Ashgrove Connects and the BCI planned schemes have and how they create a good degree of access both along and across Ashgrove Road compared to the baseline situation shown in figure 5.5.

Figure 6.2A: Proposed Planned links (Ashgrove Connects & BCI)

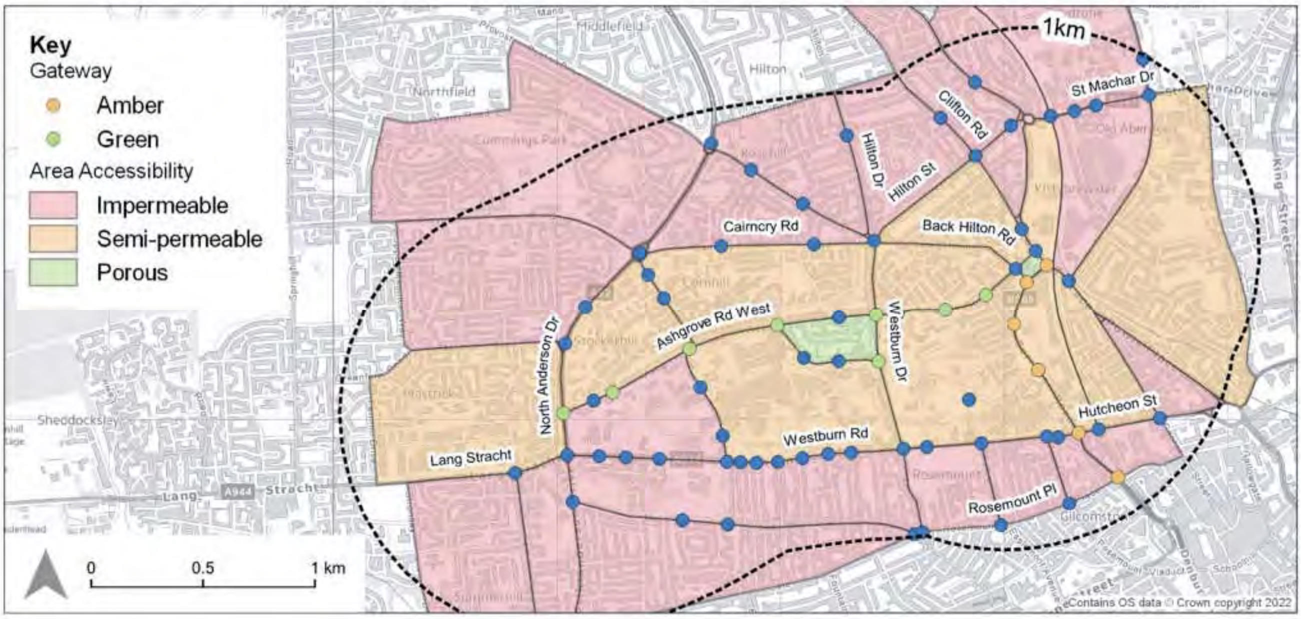


Figure 6.2B illustrates the added permeability and access achieved if packages 1 and 2 were delivered. Benefits include linking of residential areas either side of Ashgrove Road but also improved access across North Anderson Drive and towards the city centre. Such improved active travel accessibility would likely be transformative for this part of Aberdeen, supporting a wide variety of journeys. This would likely trigger a significant increase in walking and cycling and a reduction in car ownership as has been seen elsewhere.[22]

[22] Impacts of an active travel intervention with a cycling focus in a suburban context: One-year findings from an evaluation of London's in-progress mini-Hollands programme - ScienceDirect

Figure 6.2B: Proposed Planned links as well as Packages 1 & 2 (complimentary measures)*

*NOTE: The 'proposed' permeability analysis plan shown does not include the impact of routes F,D,G and crossing 10. These are likely to show further permeability improvement.

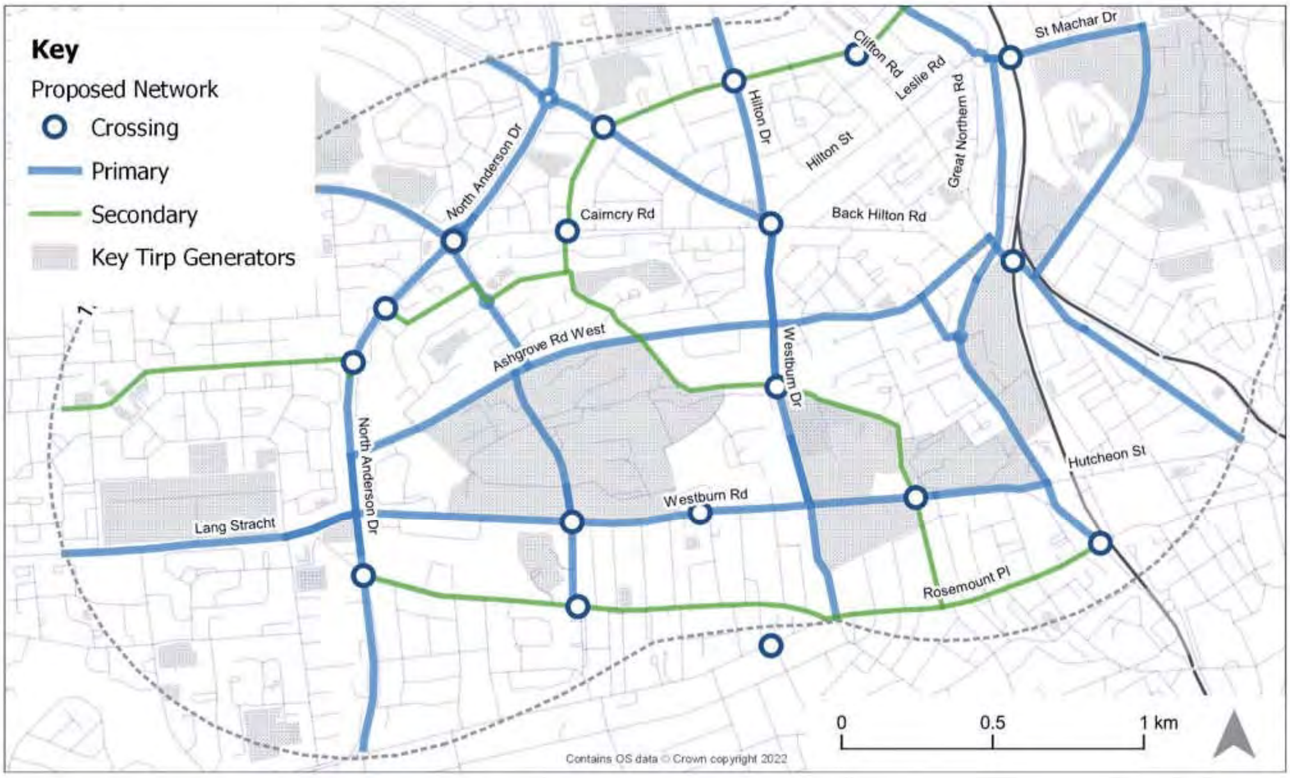
6.3. Proposed Network

Longer term, to maximise walking and cycling levels a continuous joined up network across the assessment area is required in line with Cycling by Design section 2.6. This will involve delivery of several strategic primary and secondary routes. A suggested layout for this has been shown in figure 6.3 which aims to provide for the desire lines and high potential demand areas outlined in section 3. This basic structure provides a mesh density between 300 and 600m and would support both local journeys and onward connections to the city centre.

Table 6.3: Cycle Network Components

Type	Description
Primary	Links to key trip attractors, able to carry high volumes of cycle users on the most direct routes between key destinations, maintaining an average speed of 15 kph. Typical mesh density of 400 to 800 metre
Secondary	Connections to all residential and local centres. Typical mesh density of 200 to 400 metres.
Local Access	Local access routes – all other streets

Figure 6.3: Proposed Network of Primary and Secondary Routes



Type	Description	Benefits
Primary	Protected cycle provision combined with high quality treatment of junctions & side roads to provide safe crossing movements in all directions	Provides for the major East/West and North/South movements as well as returning a mesh density average of 400m between high quality routes
Secondary	Traffic restricted streets (local access only) linking to improved crossings of main roads	Links up key local trip destinations and provides for movements away from the primary route network

7. Strategic Connections

Widening the focus and looking at trip attractors and demand across a 2.5km area highlights wider strategic connections linking education, services and residential centres that could be considered.

Figure 7.1: Trip Generators 2.5km

Figure 7.2: Census 2011 output areas scored for walking and cycling potential 2.5km

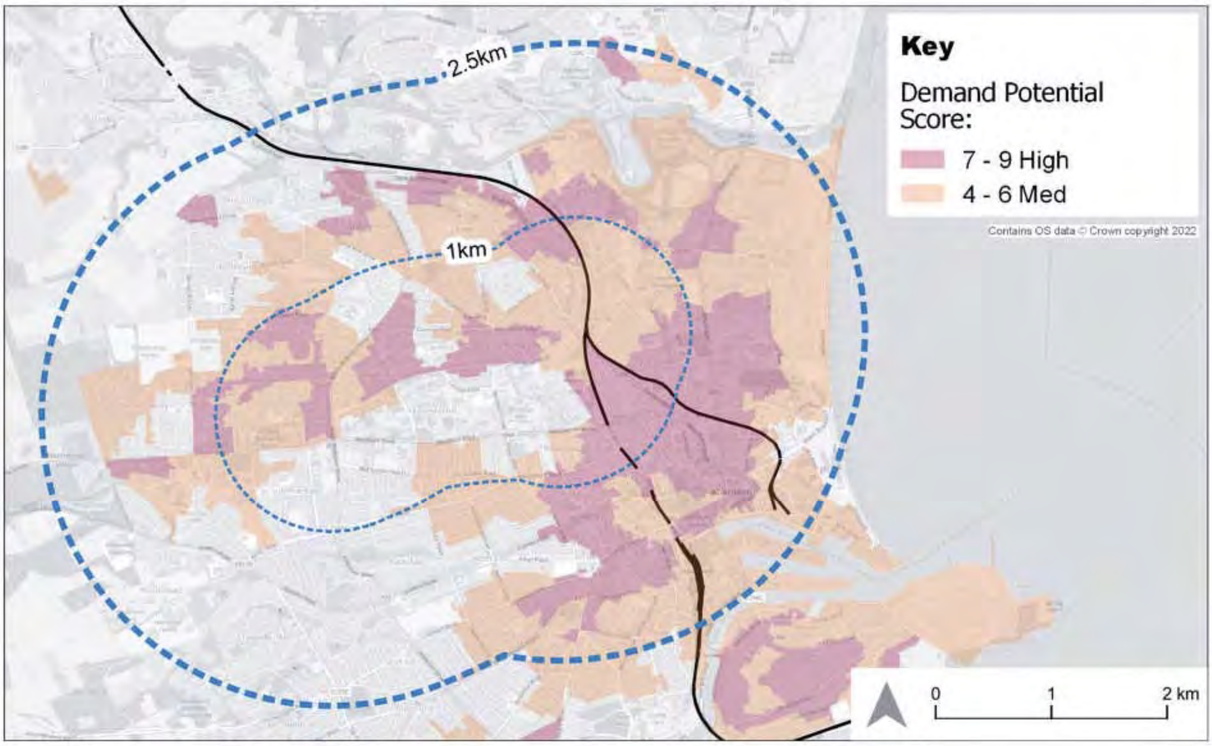
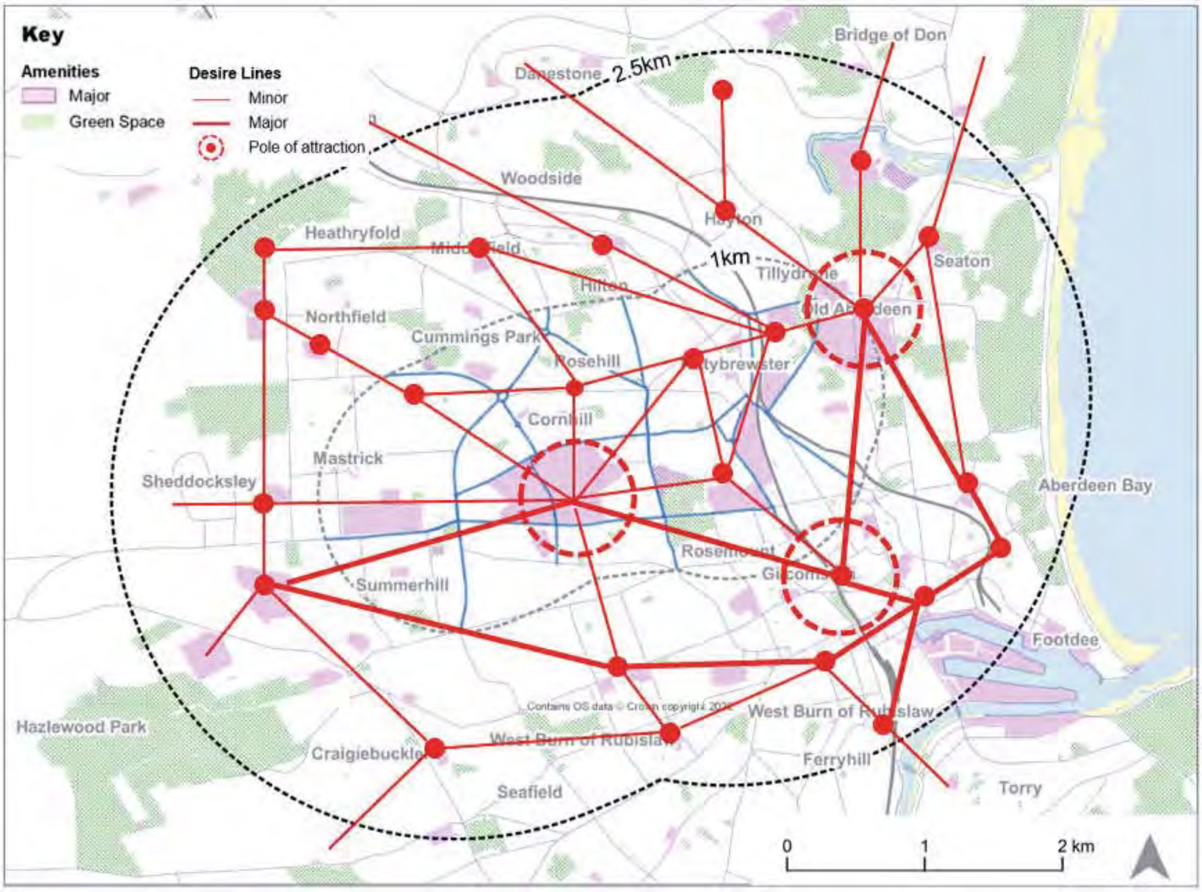


Figure 7.3 identifies desire lines between the trip attractors and potential demand shown in figures 7.1 and 7.2. In the wider 2.5km area routes to the following destinations should be prioritised for further development based on the current level of cycle flows to and from these destinations.

1. University of Aberdeen
2. Aberdeen Rail Station
3. George Street
4. Hilton ward
5. Woodend Hospital

Figure 7.3: Desire line Mapping 2.5km



8. Recommendations and next steps

The following next steps are recommended within the Ashgrove Connects project:

1. In future stages of the project, this assessment is revisited based on further data collection, auditing and engagement;
2. The opportunities detailed in section 6 are developed further based on improved inputs supporting the creation of a more refined package of interventions to complement the Ashgrove Connects scheme
3. A walking and cycling review of proposals occurs based on level of service and user need at each development stage, potentially by a third party, to ensure quality is maintained through to delivery.

Further to these project next steps, there are opportunities identified below that would help support wider network development within Aberdeen. It is suggested that these are considered for inclusion in the Council's emerging Active Travel Action Plan and Local Transport Strategy.

8.1. Strategic Network Study

This assessment has illustrated all the key components of network planning including:

- **Data and background information** stitched together to build a picture of movement patterns
- **Origins and destinations** mapped out that will generate demand for walking and cycling
- **Assessment of barriers** and the exploration of active travel issues faced by users
- **Network improvements** formulated to meet desire lines, potential demand and tackle the barriers
- **Testing** of proposals against network and level of service assessment tools

It should be noted however that with more time and resource there are significant improvements that can be made to expand each step. Many of these cover improvements to methodology and data however these should be considered secondary to public input and engagement. Engagement built into the process from the outset has been one of the big developments in recent years both as a starting point and to help steer and enrich plans as they develop. A good example of this is the Bee network in Greater Manchester.[23]

In addition, it is recommended that a comprehensive strategic network study is undertaken city wide to produce a network development plan to guide future route development. For example, there are currently other corridor improvements happening in proximity to the Ashgrove Connects scheme such as the A944/A9119[24], A96 and A92 which, if guided by an overarching strategy would help align proposals as they developed. Such a holistic approach will ensure the development of a cohesive network throughout the city and reduce the risk of routes being developed in isolation. Such development can lead to a fragmented network with indirect and incoherent infrastructure which can discourage active travel uptake and supress demand. The routes proposed within the network development plan should be prioritised based on the potential for modal shift and follow the hierarchy set out in the updated Highway Code that prioritises walking and cycling over other transport modes.

[23] The Bee Network | TfGM Bee Active
[24] A944/A9119 Multi-Modal Transport Study (arcgis.com)

Appendix A. Detailed Information

A.1. School Travel

Figure A1: Mode Share and % Active Travel (Sustrans School Survey 2020)

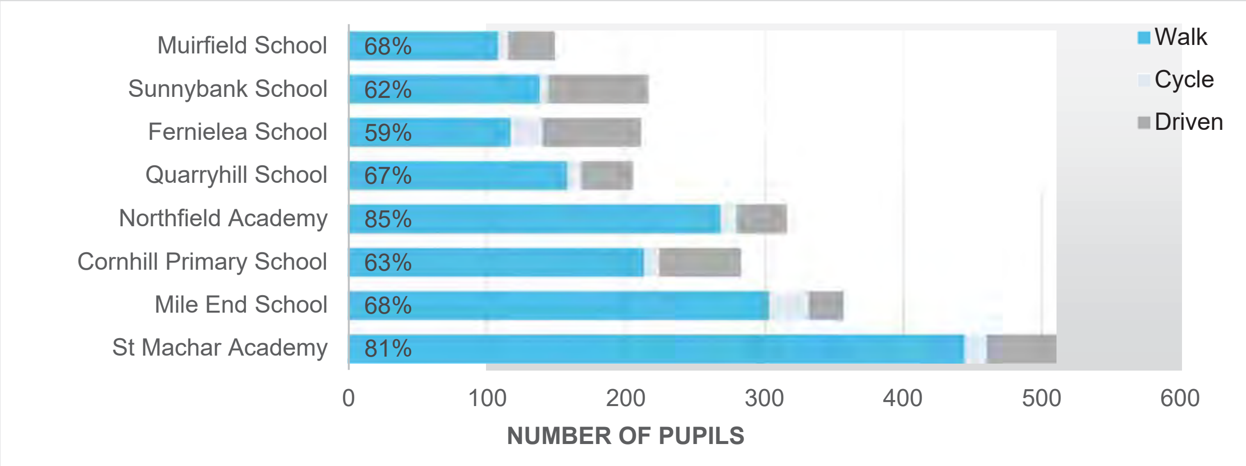


Table A1: School Travel Data

School Name	Walk	Cycle	Scoot / Skate	Park & Stride	Driven	Bus	Taxi	Other	Pupils
Northfield Academy	81.2%	3.6%		2.1%	10.9%		0.0%		330
St Machar Academy	78.4%	2.8%		3.0%	8.8%	6.0%			566
Cornhill Primary School	60.0%	3.1%	3.7%	15.8%	16.6%		0.0%		355
Fernielea School	49.2%	9.7%		10.5%	29.8%	0.0%	0.0%		238
Mile End School	61.8%	5.9%	5.9%	9.8%	5.1%	0.0%	11.4%	0.0%	490
Muirfield School	64.3%	4.2%	3.0%	8.3%	20.2%	0.0%	0.0%	0.0%	168
Quarryhill School	62.7%	4.0%	6.7%	9.1%	14.7%		0.0%		252
Sunnybank School	59.0%	2.6%		6.0%	30.8%		0.0%	0.0%	234

A.2. Demand Mapping

Table A2: Data for top scoring areas

ID	Census Area	Score	Total Population	Density (per ha)	% Homes with no car	Total Commuters	% Walk	% Cycle	% Bus
A	George Street - 07	9	635	58	62	380	19	1	12
B	George Street - 05	8	961	210	46	671	33	2	6
C	George Street - 06	8	859	104	52	579	25	2	8
D	Ashgrove - 04	8	967	67	42	650	35	3	6
E	Woodside - 03	8	872	94	46	507	13	3	8
F	Ashgrove - 02	8	914	64	47	508	20	2	8
G	Stockethill - 07	8	830	52	39	449	16	1	9
H	Stockethill - 04	8	926	82	42	495	17	1	7
I	Stockethill - 03	8	849	71	51	436	15	1	9
J	Mastrick - 05	8	739	58	42	373	9	2	10
K	Cummings Park - 04	8	975	55	38	515	12	1	7

A.3. Traffic Flow Data

Table A3: Transport Scotland AADF 2019

ID	Road	Cycle	M Bike	Car	bus	HGVs	Total	% HGV	% Cycles
A	Ashgrove Road West	76	29	10905	506	132	12,563	1	1
B	Mid Stocket Road	109	14	3203	156	10	3,773	-	3
C	Hilton Street	65	64	10255	166	234	12,609	2	1
D	North Anderson Drive	5	147	21368	75	1107	26,677	4	0
E	North Anderson Drive	16	131	22991	79	1175	27,908	4	0
F	North Anderson Drive	10	118	23421	120	992	28,719	3	0
G	Powis Place	54	72	5008	215	347	6,613	5	1
H	Rosehill Drive	17	57	7931	13	184	9,434	2	0
I	Westburn Drive	61	149	12694	77	303	15,441	2	0
J	Westburn Road	59	53	8918	280	275	10,781	3	1
K	Westburn Road	134	71	12988	311	199	15,451	1	1

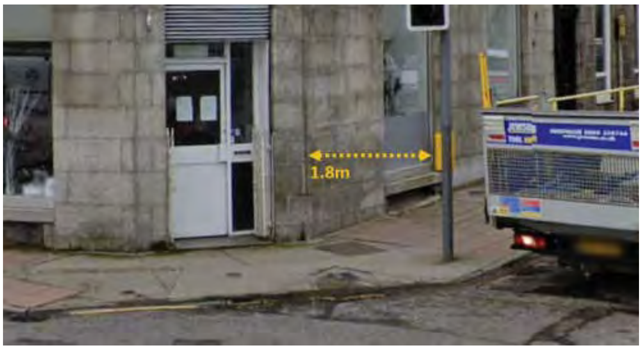
A.4. Safety Data

Table A4: Walking and Cycling Collision Data (5 years, 2016-20) within 1km Study Area

Severity	Pedestrian	Cyclist	Total
Fatal		1	1
Serious	10	12	22
Slight	16	21	37
Total	26	34	**60**

Figure A4: Walking and Cycling Collision Data 5 years (2016-20) showing type, severity & clusters (30m)

A.5. Barriers to walking[25]



Location: **Powis Terrace & Belmont Road**

Barrier: Substandard footway widths below the inclusive 2m of effective width reduce inclusive access in some locations

Location: **Junction of Westburn Road and Argyll Place and Westburn Drive**

Barrier: Wide multi-stage pedestrian crossings, wide crossing distances and a small traffic island means the east/west crossing through this junction would return a low pedestrian comfort level at peak times.

Location: **Cornhill Terrace**

Barrier: Large side road crossing widths & geometry that allows vehicles to turn at speed such as this example near Cornhill Primary school reduce the quality of the walked environment and limit access by unaccompanied minors.

Location: **North Anderson Drive**

Barrier: Desire lines across this busy main road lack all ability crossing provision with pedestrians required to look for gaps in traffic. High volumes mean this is a significant source of severance to the residential areas either side of this road.

Location: **Eastern Foresterhill Medical Campus**

Barrier: Example shows a difficult to access bus stop requiring users to cross two wide roads.

Location: **Foresterhill**

Barrier: Lack of a main road crossing point limits access to bus services and Cornhill

[25] Image source: Map data ©2022 Google

A.6. Barriers to Cycling[26]

Location: **Junction of Ashgrove Road & Foresterhill Road**

Barrier: Many junctions across this part of the network have features highlighted that increase collision risk and limit access for less experienced cyclists.

Location: **Ashgrove Road**

Safety: The road layout along many of the major routes creates safety issues for cyclists such as the general traffic lanes being within the critical width range (3.2-3.9m) that increases the risk of side on collisions.

Location: **Back Hilton Road**

Barrier/safety: Existing provision such as the cycle lane shown are both substandard and often intermittent dropping in and out along a street. In some instances, nearside positioning of cycle lanes increases collision risk at the point of narrowing as shown above.

Location: **Westburn Road**

Barrier/safety: At many side roads the existing road layout allows vehicles to turn in and out at speed facilitated by features such as wide corner radii, wide junction mouths and wide general traffic lanes.

Location: **A92 junction with Mid Stocket Road**

Constraint: Lack of quality crossings of main roads such as this example from the A92 limits access to the quieter residential streets either side and represents a key source of severance.

[26] Image source: Map data ©2022 Google

A.7. Opportunities Long List

Point based intervention

Ref	Description	Priority
1	Improve existing crossing. Options could include (re-alignment and upgrade)	High
2	Consider new crossing of the A92 to connect Mastrick to Cornhill and Ashgrove Road to facilitate orbital and radial movements	High
3	Improve junction to provide safer cycle access over Westburn Road. Options could include reduction of north arm to single lane approach and cycle tracks on approach and separate cycle stage or early release	High
5/9	Improved crossing of Westburn Road for better access south towards the city centre	Medium
6/7/10/13	Improved crossing of Mid Stocket Road for access to Mile End School as well as improved access to Summerhill and the West End	Medium
8	Upgrade and re-align existing controlled crossing for improved access to Rosehill	Low
4/11/12	Improved access to and from the University of Aberdeen Old Aberdeen Campus, this is key for east/west movement as the Aberdeen to Inverness railway line limits access therefore providing good quality all ability access will significantly improve the connectivity of the Ashgrove Road scheme	High

Route based intervention

Ref	Description	Priority
A	Improved connection for movement between Cornhill, Aberdeen Royal Infirmary and the city centre	High
B	Improved all ability access between Cornhill, Aberdeen Royal Infirmary and Mile End School. Options for improvement on Foresterhill Road could include switching priority at junctions and further limiting through traffic (substantial peak hour vehicle access to the car park needs careful consideration). School Streets on Raeden Park Road coupled with improved crossing of Mid Stocket Road for movements south.	Medium
C,D&G	Improvement of safe all ability access between Mastrick, Cornhill, Ashgrove Road and Ashgrove Road West	Medium
E&F	Provision of safe all ability access between the University of Aberdeen and Ashgrove Connects and Berryden	Medium

Area based interventions (Ref H & I)

The table below shows what an area-based treatment might look like for the residential streets around Mid Stocket Road. A similar set of interventions could be applied to any of the other areas within this part of the city. The key interventions to be considered include the following based on table 2.4 in Cycling by Design:

Type	Description
Reduction of through traffic	Options include modal filter, turning restrictions, bus gate and other filtering options that reduce through traffic and reassign it to the main surrounding roads. For Mid Stocket Road this could include a bus gate east of Raeden Park Road, a school street treatment on Raeden Park Road and access restrictions at the side roads along Westburn Road.
Boundary treatments	Options include continuous side roads, traffic management and improved side road designs to slow turning vehicles, provide priority by design for active travel along the main road and mark the boundary of the residential area. For the Mid Stocket area this could include reduction of side road geometry along the road itself and continuous side road treatments along Westburn Road coupled with access restrictions.
Main road crossings	Options include controlled parallel crossings and improved junction options that allow safe all ability movement across the main roads for people on foot and by bike.

Constituent Report CR-K

Baseline Assessment

Member of the SNC-Lavalin Group

Ashgrove Connects

Baseline Assessment Report

Aberdeen City Council

August 2022

Baseline Assessment

Notice

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2.1	Baseline Assessment	CJ	ED	AM	AM	08/08/22
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Client signoff

Client	Aberdeen City Council
Project	
Job number	5212138
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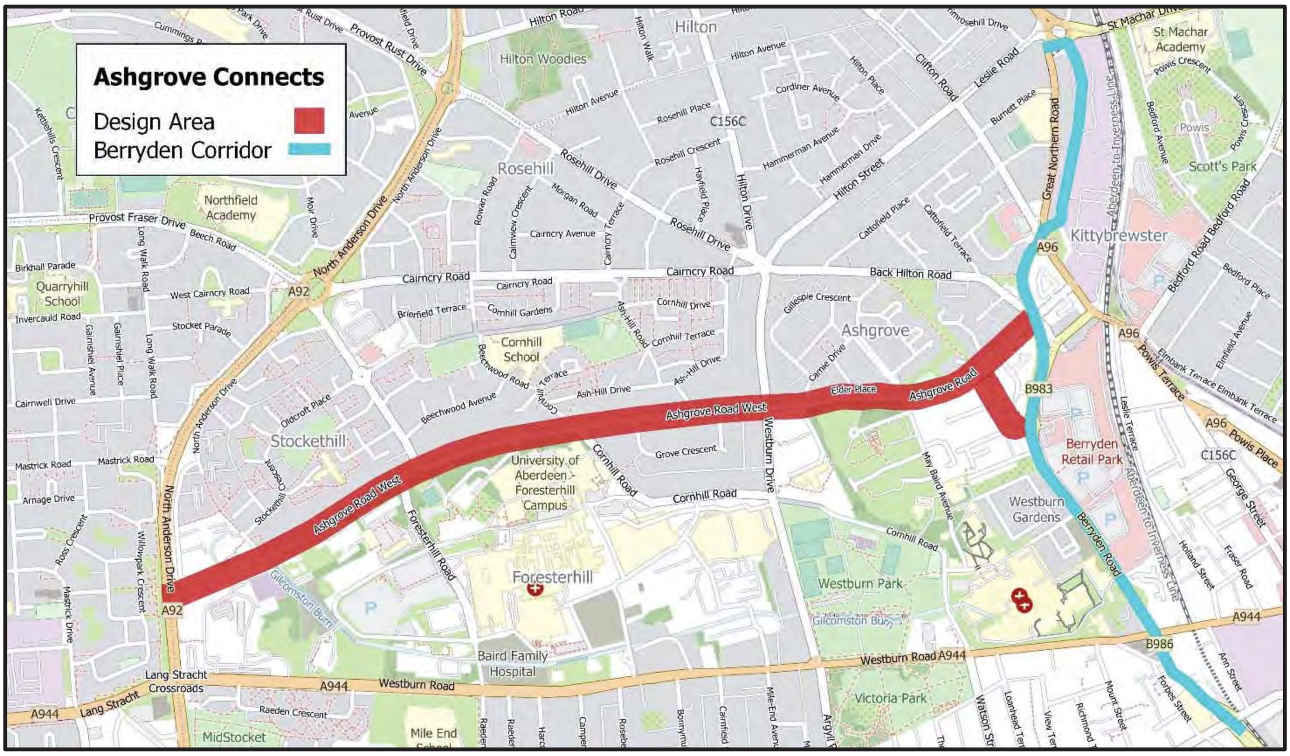
Introduction

Atkins has been commissioned by Aberdeen City Council (ACC) to develop the case for improvements to Ashgrove Road and Ashgrove Road West (hereafter referred to jointly as 'the street') in Aberdeen that are in line with ACC policy and community priorities. The intended outcome is to develop a concept infrastructure design and associated interventions that has demonstrable community support, with a view to seek Committee approval to apply for downstream funding for future design stages to take place from 2023 onwards.

The purpose of this Baseline Assessment Report is to summarise the fact-finding exercise and context within which scheme objectives will be developed.

Ashgrove Connects Design Area



Policy Context

The adopted policy framework in Aberdeen, through approved ACC commitments such as its Climate Change Plan, the North-East Scotland Roads Hierarchy Study, the Local Outcome Improvement Plan, Aberdeen City Central Locality Plan and the Regional Transport Strategy, set a clear direction towards:

- More active travel, public transportation, and improved multi-modal accessibility;
- Locking in the benefits of strategic network changes by reducing traffic volumes and speed; and
- Greater prioritisation of space for people and community activities.

Specifically, the adopted Roads Hierarchy downgraded Ashgrove West to a tertiary or local route, that ”*No longer functions as a priority route. Does not provide connection with the strategic road network. Much of its place function is residential”*. A tertiary route is further defined as one where traffic speed should generally be 20mph and formal bus or cycle priority infrastructure is only necessary should the volume and composition of traffic require it.

Community and Stakeholder priorities

A key element of this phase of the work was to understand community and stakeholder priorities. Extensive public engagement resulted in 958 online visitors to the project website, with 677 contributions. There were a further 61 direct engagements via walking audits and meetings, and 90 viewings of the online webinar.

A Stakeholder Working group was established of Council officers, local businesses, community groups, and statutory stakeholders. The purpose of this group is to provide stakeholder and community representation to help the project remain in line with community priorities as it develops.

- This work established a broad support, with the top three topics for improvements being: traffic and parking, moving around on foot, by bike and wheelchair, and feeling safe. Residents' perception of street safety focus on traffic speeds, volumes, and vehicle size
- Key reported issue was difficulty in crossing the road, poor environment for walking and cycling, and unpleasant environment
- Suggested improvements included more crossings, slowing vehicle speeds, and improvements to the look and feel of the street.
- People are advocating for a slower, quieter street environment that feels safer to move through and spend time in.
- People are advocating for more crossing provision, particularly where crossing demands are high.
- People are advocating for improved place quality and greenspace.
- People feel the streets could be improved for walking, particularly for those with disabilities.
- People recognise the street environment is not suitable for most people to cycle on but, if this was improved the potential is there for demand to increase.
- People feel the rules around the Controlled Parking Zone can be confusing and parts of the street are constrained by parking, and the parked vehicles can also impeding visibility.
- Overall high level of engagement from community, but lower from businesses
- Engagement period has been extended primarily at request of community; full analysis to follow
- Engagement extension will allow for improved efforts to contact businesses and Shopmobility / Disability Equity Partnership
- Findings from the Phase 1 consultation to be made available on the project website ahead of Phase 2 engagement.

Demographic and Travel Behaviour Context

The review of population and transport network information identified the following elements of note:

- There is a range of ages and ethnicities in the nearby area; with the western section of the design area hosting in general an older population than the eastern section, and the area to the north experiencing greater ethnic and economic diversity;
- Traffic speed and volume are high for a tertiary street, incompatible in many cases with on-street cycling, residential place quality and direct crossing movements;
- Walking levels in the area represent a high proportion of local trips however many destinations desire lines are unmet;

– Levels of cycling are low – potentially suppressed by a poor perception of safety;
– Bus use is low, despite presence of multiple high frequency routes, all of which connect to city centre. Direct cross-city bus connections are poor;
– A high proportion of car trips are for short distance travel that could be undertaken more sustainably; and
– Despite low on-street residential parking demand, capacity is extensive.

Infrastructure Context

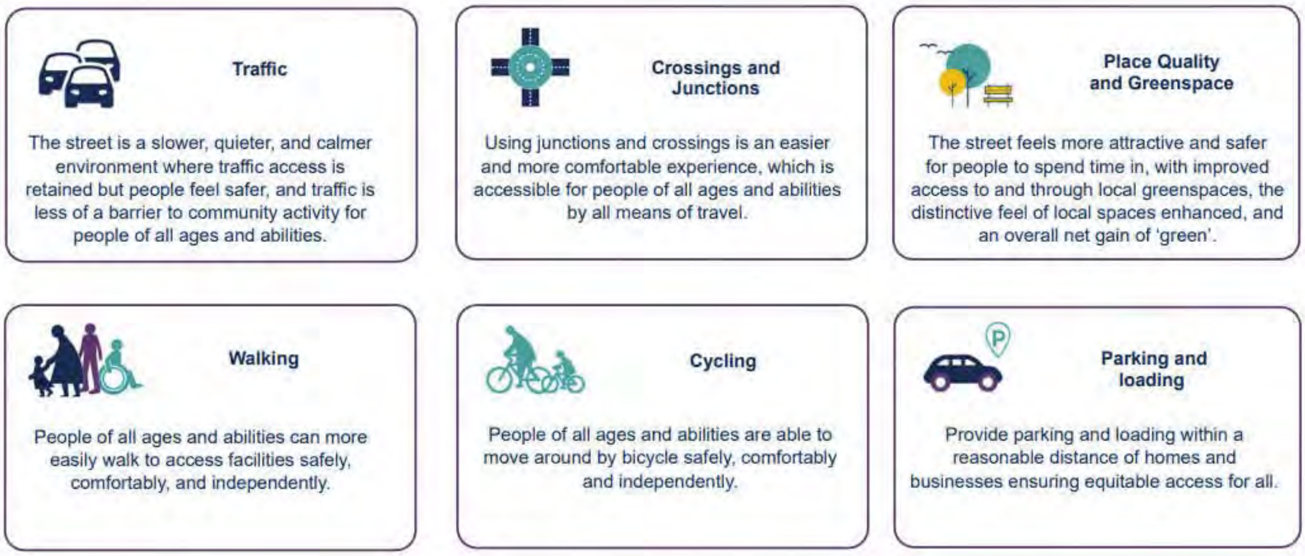
A review was conducted of the heritage, streetscape, and landscape values of the design area and of the transport infrastructure to highlight opportunities. Key findings were:

– There is a clear difference in built environment context between Ashgrove Road West and the east end of study area (Ashgrove Road and Laurelwood Avenue);
– Greater permeability between the street and the surrounding areas would create a greater sense of place;
– There are numerous underused or underutilised greenspace areas in the vicinity of the street;
– Cycling provision for all ages and abilities is poor or non-existent, backing up the poor community perception of safety of this mode;
– The geometries of the main corridor and side streets are not consistent with modern guidance and encourage motor vehicle priority over people walking, cycling and wheeling;
– Crossing desire lines are often not met, for example it is over 800m between formal crossing opportunities at Foresterhill and Westburn Drive despite the close proximity of schools, hospitals, parks and bus stops;
– Footways are in poor condition in many places, primarily due to tree routes;
– The primary local design constraints include street trees, street furniture and private driveways; and
– ACC's Net Zero Vision identifies opportunities that could be incorporated within the scheme, such as mobility hubs, EV infrastructure in partnership with large businesses, and the tactical use of greenspace to deal with water management and urban heating.

Design Objectives

In response to the policy and technical analysis of opportunities and constraints, and the themes emerging from the engagement process, A set of Design Objectives were validated in discussion with the ACC project team and the Stakeholder Working Group.

The purpose of these Design Objectives is to ensure that the developed proposals remain in line with the stated priorities and are illustrated below.



1. Introduction

1.1. Background to this scheme assessment

1.1.1. Aberdeen City Council (ACC) is seeking to improve the opportunities for all people (regardless of age or ability) living and working adjacent to Ashgrove Road / Ashgrove Road West to travel by active and sustainable modes and to engage in community activities, by developing proposals for the built environment.

1.1.2. ACC recognises the importance of ensuring that the needs of stakeholders, businesses, residents, and other users of the spaces are at the heart of scheme assessment and that any proposals are both broadly understood and supported.

1.1.3. Atkins was commissioned to conduct an initial Baseline Assessment based on community priorities and technical analysis. The intended outcome of the commission is to maximise progress towards the development of a concept design with a view to applying for design funding later in 2022.

1.2. This Report

1.2.1. This Baseline Assessment was summarises the Aberdeen Ashgrove Road/ Ashgrove Road West project, branded as Ashgrove Connects.

1.2.2. The Baseline Assessment provides the context within which the improvements will be developed through data-gathering and fact-finding. It will identify the potential constraints and opportunities for the provision of improved pedestrian and cycling connections.

1.2.3. This report is structured in line with DMRB TD 37/93 Stage 1 Scheme Assessment Reporting.

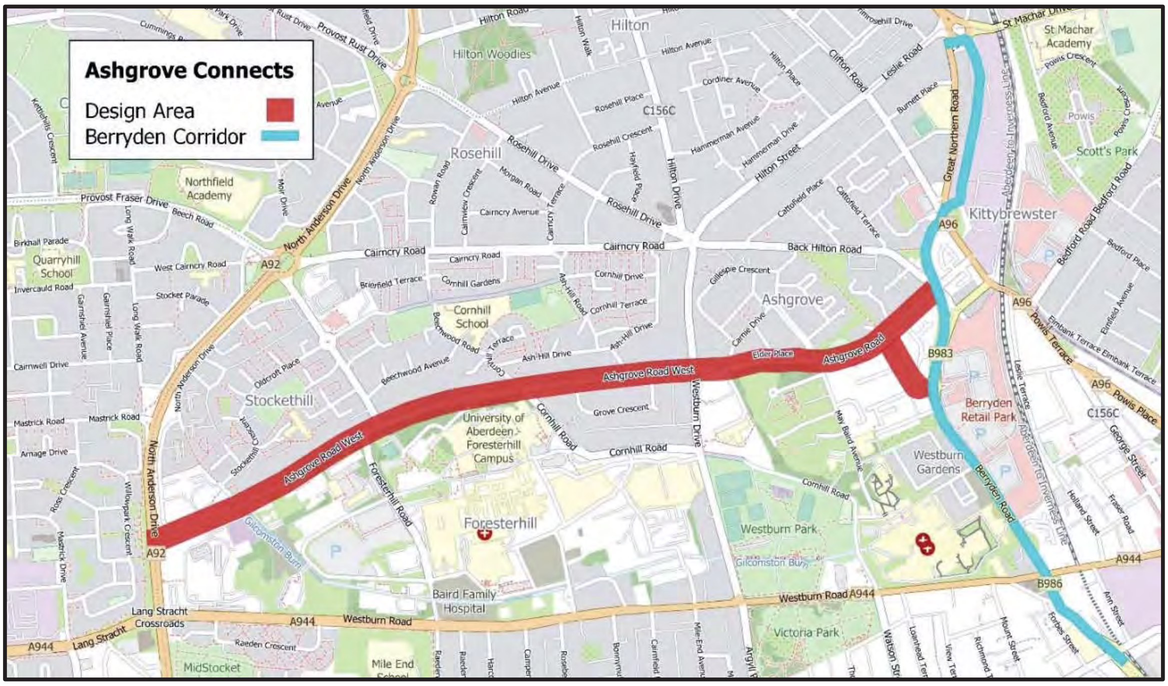
1.2.4. The study area of this project is defined below in two forms:

- Design Area; and
- Engagement Area.

1.3. Design Area

1.3.1. The Design Area for Ashgrove Connects is presented in Figure 1.1. It covers the full length of Ashgrove Road West and Ashgrove Road (jointly referred to in this report as 'the street'), between North Anderson Drive to the west and the Berryden Corridor scheme to the east, and also includes Laurelwood Avenue and part of Elm Place.

Figure 1.1 – Ashgrove Connects Design Area



1.4. Adjacent Schemes

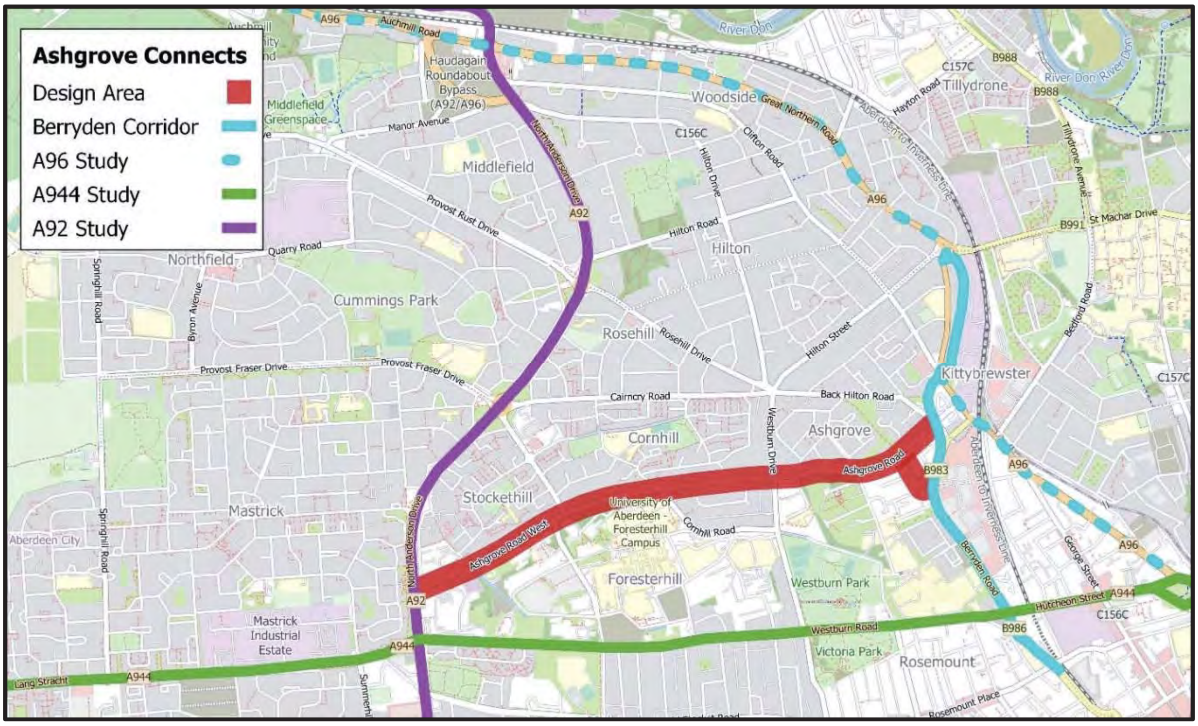
1.4.1. Along with the Berryden Corridor there are two other major schemes in the area with implications concerning improvements to active travel connections within Aberdeen. A brief description of each scheme, as well as the Berryden Corridor Improvement Project, is provided below:

- Berryden Corridor: The existing corridor formed by Great Northern Road and Berryden Road is identified as operating beyond its capacity, which has led to significant congestion and delays, both for public transport and general traffic. The project aims to improve the efficiency of the public network by relieving congestion to improve journey time reliability, as well as improving infrastructure for cycling and walking.
- A92 Corridor: Jacobs have been commissioned by ACC to undertake a transport study of the A92 corridor between Bridge of Don and Bridge of Dee. The study places a focus on improving bus connections and conditions for people walking, wheeling, and cycling. Its main aim is to 'lock in' the local benefits arising from the opening of the Aberdeen Western Peripheral Route by seeking to encourage more people to travel sustainably.
- A944 Corridor: Stantec have been commissioned by ACC to undertake a STAG-based appraisal of the A944 (and A9119) corridors between Westhill and Aberdeen city centre. The study builds on previous work and aims to further develop identified options to improve transport connections along the corridor, with a focus on active travel and public transport.
- A96 Multi-Modal Study: Stantec have been commissioned by ACC to undertake a STAG-based appraisal of the A96 corridor between Aberdeen City Centre and Inverurie. It shares a similar

aim to the A944 Study; to improve transport connections along the corridor, particularly active travel and public transport connections.

1.4.2. The locations of the three schemes in relation to the Ashgrove Connects Design Area is presented in Figure 1.2.

Figure 1.2 – Adjacent Schemes



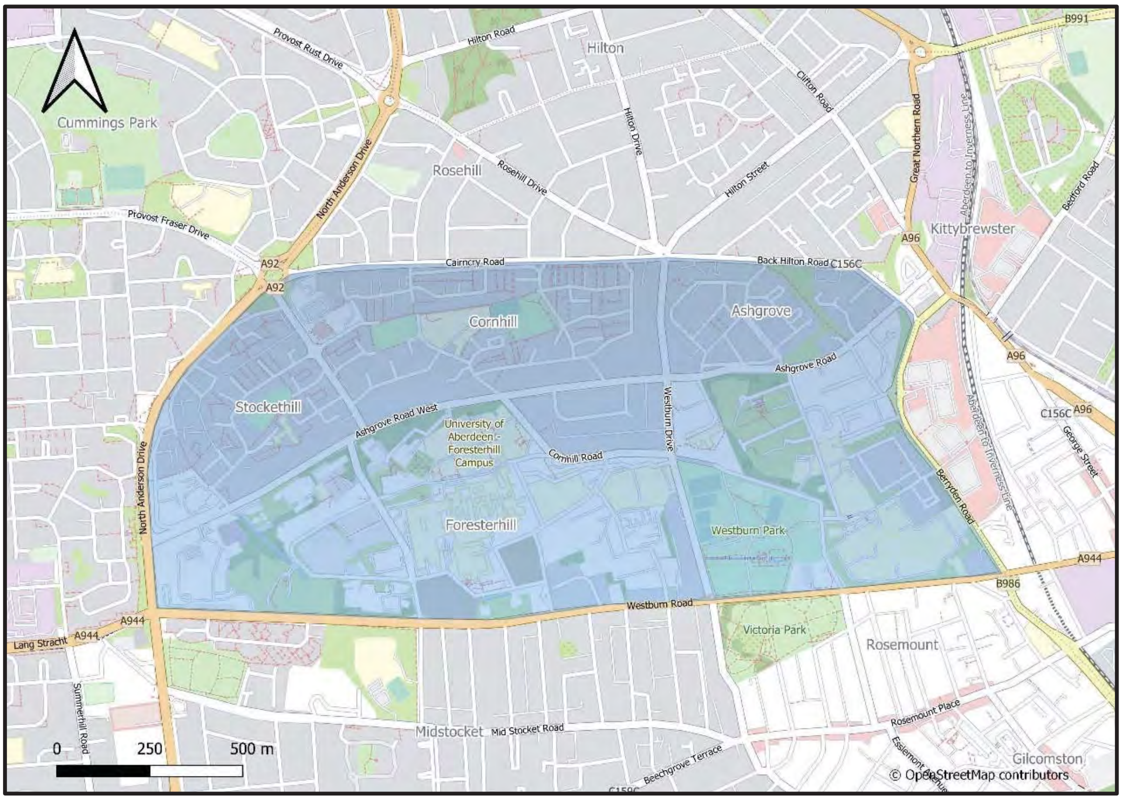
1.5. Engagement Area

1.5.1. The Engagement Area sets out the area within which key stakeholders of relevance to the project are located. It is bounded to the south by Westburn Road, to the north by Cairncry Road and Back Hilton Road, to the west by North Anderson Drive, and to the east by Berryden Road.

1.5.2. The area encompasses a range of development uses. To the north of the Ashgrove Connects Design Area it is primarily residential, and includes educational sites such as Cornhill Primary School, as well as community facilities like Cornhill Library, parks, and a range of retail offerings. The retail sites range from smaller local convenience stores to the Aldi foodstore located on the east side of Foresterhill Road. The area to the south is largely non-residential, with large areas occupied by the University of Aberdeen and the Royal Infirmary.

1.5.3. The Engagement Area is presented in Figure 1.3 overleaf.

Figure 1.3 – Ashgrove Connects Engagement Area



1.6. Baseline Assessment Scope

1.6.1. An outline of the scope for the Baseline Assessment is provided below:

- Baseline data analysis
  - Scoping and collation of existing data
  - Commission and management of data collection sub-contractors
  - Analysis and preparation of data outputs
- Engagement
  - stakeholder relationship development, including the setting up of a forum
  - community audits and on the ground engagement
  - Online platform, communication, and promotion
- Technical appraisal
  - Strategic policy, community, and infrastructure context
  - Network and street operations – how well the population is served by all modes
  - Engineering assessment – identification of physical opportunities and constraints
  - Heritage, Conservation and Net zero – identification of opportunities
- Objective Setting: the preparation of objectives based on all of the above

2. Policy Review

2.1. Introduction

2.1.1. This Chapter provides a summary of the desk-based review outlining relevant planning policy and strategy documents in relation to Aberdeen. The policy documents provide context in relation to transportation and local requirements, and where possible links these back to the Ashgrove area.

2.1.2. The purpose of this review is to identify any frameworks or policy objectives that will guide the proposals for Ashgrove Connects, with particular consideration given to the time of development that would be in line with established policy, as well as traffic and travel, and environmental objectives.

2.1.3. The full policy review is presented in document CR-L.

2.2. Policy Documentation

2.2.1. The following documents have been reviewed at the request of ACC:

- Aberdeen City Council - Local Transport Strategy 2021-26
- Aberdeen City Council - Climate Change Plan 2021-25
- Community Planning Aberdeen Local Improvement Plan 2016-26
- Community Planning Aberdeen - Aberdeen City – Central Locality Plan 2021-26
- Community Planning Aberdeen - Partnership Development Plan
- Nestrans - Regional Transport Strategy 2040
- Nestrans / ACC / Aberdeenshire Council - North East Scotland Roads Hierarchy Study 2019
- Nestrans / ACC / Aberdeenshire Council - A944 / A9119 Transport Corridor Study – STAG-Based Appraisal 2020
- Civitas Portis - Aberdeen Sustainable Urban Mobility Plan 2019
- Transport Scotland - National Transport Strategy 2
- Transport Scotland - Strategic Transport Projects Review

2.3. Policy Review Summary

2.3.1. The adopted North East Scotland Roads Hierarchy downgrades the street to one primarily for local access, albeit it will remain the primary access route for the hospital and other local destinations.

2.3.2. Adopted policies point towards a future direction for Aberdeen of more walking, cycling, bus travel and improved accessibility as well as local priorities for places where people activities have greater prominence.

2.3.3. Proposals for the Berryden Road corridor improvements, at an advanced stage of delivery planning, will provide improved cycling and walking facilities for people to access the city centre.

2.3.4. Combined, this presents an opportunity for the street. The opportunity is to reduce the speed and volume of vehicular traffic using the route and to increase the space given over to people accessing destinations for walking, cycling, wheeling and local residential and local economic and community activities.

2.3.5. Table 2.1 summarises the relevant aims of each of the reviewed local and regional policy documents and highlights how they support the strategic aims of Ashgrove Connects.

Table 2.1 – Policy Document Summary

Document	Summary of policy	Synergy with Ashgrove Connects
Local Outcome Improvement Plan 2016 to 2026 (2017, refreshed 2021)	The LOIP is a document which sets out how Community Planning Aberdeen will improve outcomes for and with local people and communities. The vision set out in the LOIP is that Aberdeen will be 'a place where all people can prosper' by 2026.	Links reduced car usage with various issues such as net zero, connectivity, and employment Sets percentage targets for increasing walking and cycling as main mode of travel by 2026
Climate Change Plan (2021)	The purpose of the Council climate change plan is to set out the Council's approach, pathway, and actions towards net zero and climate resilient Council assets and operations, by 2045. The plan sets out the scope of the City Council's ambitions with net zero and interim targets for a reduction in carbon emissions.	Sets out scope of ACC's net zero ambitions, with interim targets Note that Council General Fund Revenue Budget and Capital Programme has funding commitment for initiatives that will support development of net zero
Nestrans Regional Transport Strategy for the North East of Scotland (2021).	The RTS for the NESTRANS area is a statutory document covering Aberdeen City and Aberdeenshire Council areas. The RTS focusses less on the provision of new infrastructure and more on optimising infrastructure to influencing behaviours.	Aims include enhancing travel opportunities, reducing number and severity and casualties, increasing use of active travel, reducing proportion of journeys by car
NE Scotland Roads Hierarchy Study (2019)	The purpose of this document was to develop options for the updated roads hierarchy and to identify possible levels of intervention that could be implemented to support the delivery of the updated hierarchy.	Led to the reclassifying Ashgrove Road West as a C-class road / tertiary route
Local Transport Strategy (2016-2024) (2016)	The vision for the Local Transport Strategy (LTS) is to develop "a sustainable transport system that is fit for the 21st Century, accessible to all, supports a vibrant economy, facilitates healthy living and minimises the impact on our environment"	Increase no. people walking / cycling / using public transport Improve public realm by prioritising pedestrians, cyclists, public transport
Aberdeen City Central Locality Plan 2021-26 (2021)	The plan links to the re-fresh of the City's Local Outcome Improvement Plan (LOIP) which highlights the breadth of work taking	Identifies Ashgrove and Stockethill as priority neighbourhoods. Aims include creating employment opportunities, improving access to services, create

	place and aims to utilise our assets to their full potential by working together.	opportunities for people to connect and increase physical activity
Aberdeen Active Travel Action Plan 2017-2021 (2017)	This Action Plan identifies the policies and design principles that Aberdeen City Council will abide by and a series of actions and interventions that will be pursued in order to increase the proportion of journeys undertaken in our City by active travel.	Delivers on the Council's commitment to "identify and implement projects that prioritise sustainable transport movements in the City" and "ensure that new cycling infrastructure adheres to best practice guidelines"
Aberdeen Sustainable Urban Mobility Plan (2019)	Aberdeen City Council has developed a Sustainable Urban Mobility Plan (SUMP) for the city centre. A SUMP is a transport strategy for a specific area which identifies projects that could be delivered by the Council and partners to enable and encourage users of that area to travel on foot, bike, public transport, or other low-emission forms of transport more often.	Key principle is to lock in benefits of AWPR to prioritise movement of active and sustainable travel through the reallocation of carriageway space and other prioritisation and traffic management measures

3. Engagement Area Context

3.1. Introduction

3.1.1. This chapter sets out the context for the Engagement Area, including socio-economic factors, travel to work and car ownership data, as well as the key destinations and trip attractors in the area.

3.1.2. Data has been gathered from the 2011 Scotland Census for each of the postcodes within the Engagement Area on various key indicators, such as home ownership levels and travel to work data. This allows for the identification of potential opportunities to encourage residents to cycle or walk to work or local amenities, and to identify where existing residents travelling by these modes would benefit from improved connections in the area.

3.1.3. It is noted that a large proportion of the area to the south of the street, particularly west of Westburn Drive, is non-residential, with large areas occupied by the hospital and university. It is therefore likely that these areas will have very low numbers of residents relative to those north of the street. This can potentially result in percentage values derived from statistical data being skewed very high or very low by virtue of the low number of residents.

3.2. Home & Car Ownership within Engagement Area

3.2.1. Home ownership levels within each postcode area are an indicator of residents' economic status and general wealth of an area, while car ownership can provide an insight into the level of access to viable alternative modes of transport. The home ownership levels are presented in Figure 3.1, and car ownership levels are presented in Figure 3.2.

3.2.2. Both car and home ownership levels are at their highest in the centre of the Engagement Area.

3.2.3. Home ownership is notable along the frontage of Ashgrove Road West on the north side of the carriageway extending to the west, and on the south side in the centre of the Engagement Area. High levels are also recorded in the centre to the north in Cornhill. Levels of home ownership drop to the east and west, in particular to the west at Stockethill, and the northeast near Back Hilton Road.

3.2.4. The percentages for car ownership in each postcode area indicate the percentage of households owning at least one car or van. Car ownership is generally higher than home ownership across the Engagement Area, although follows a broadly similar pattern. The highest levels of ownership were recorded in the centre, to the north, and along the Ashgrove Road West frontage, with the lowest levels recorded to the west in Stockethill.

Figure 3.1 – Home Ownership

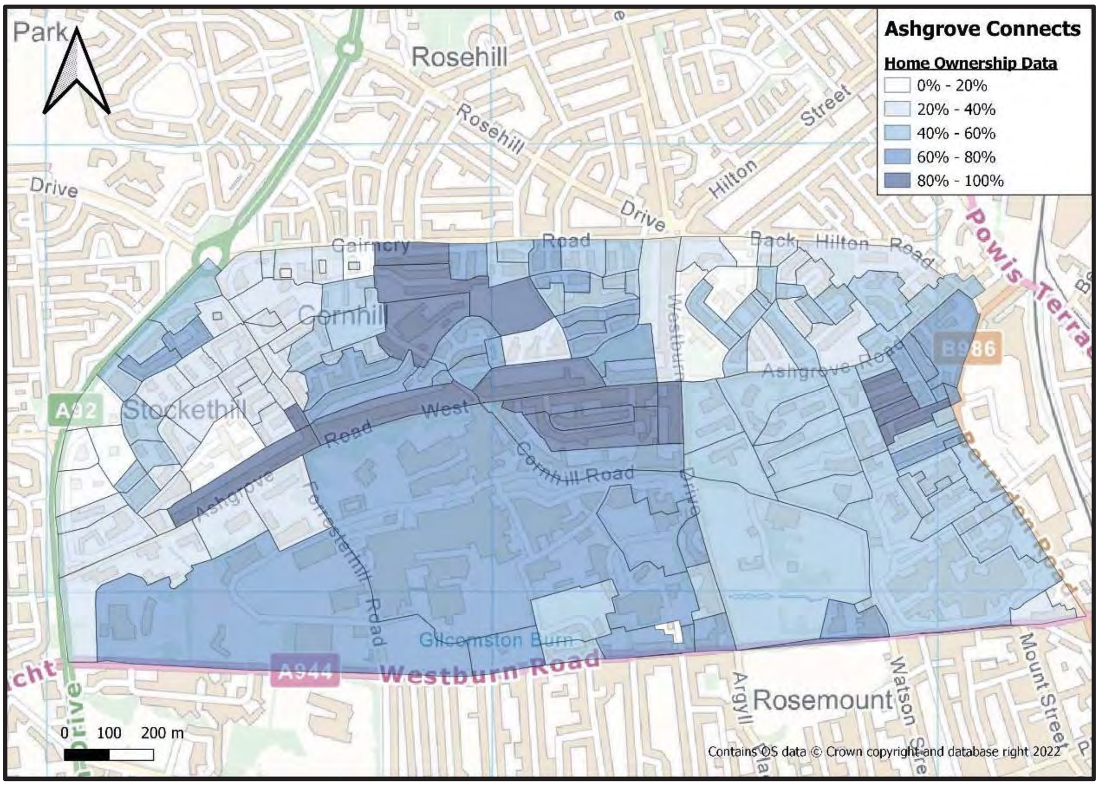
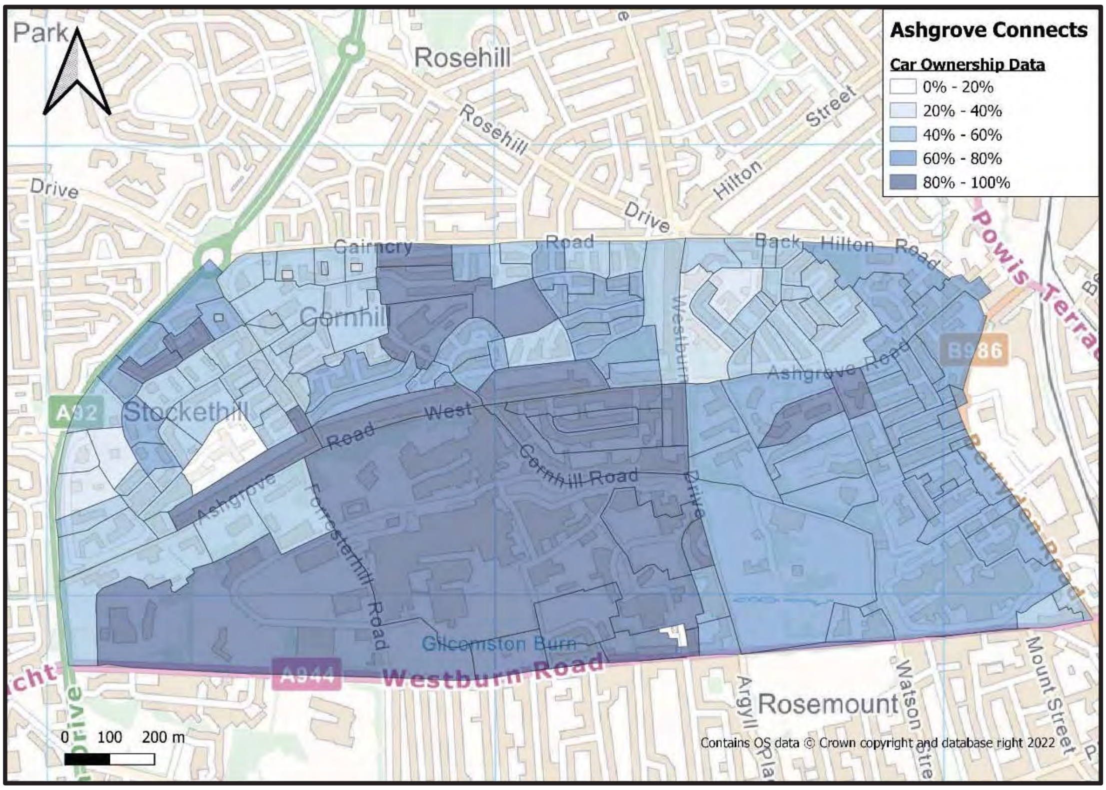


Figure 3.2 – Car Ownership



3.3. Travel to Work Data

3.3.1. Travel to work mode share and distances travelled data has been gathered for each of the postcodes within the Engagement Area. This data allows for the identification of travel habits within the area, and for the identification of potential opportunities for behavioural shifts. For example, if a high number of trips to work are by car and are also within a relatively short distance of residents' homes, then there is the potential to encourage a shift to active travel instead due to the distances involved.

3.3.2. It should be noted that while travel to work data provides an indication of travel behaviours, it does not account for not-work trips, e.g. leisure activities, therefore can only provide a partial picture of residents' travel habits. It is possible that a high percentage of local trips, such as to school, local shops, parks etc. are made on foot. As many leisure trips will be into the city centre or to well-connected retail centres like Kittybrewster Retail Park these will be made by public transport.

3.3.3. It should also be noted that the Census provides some datasets for 'travel to work' and others for 'travel to work or study'. The latter of these typically has a lower share of car drivers, as this includes trips to education establishments which are often shorter-distance trips than those to work.

3.3.4. A comparison of the average travel to work or study mode shares for Aberdeen City and the Engagement Area is presented in Table 3.1.

3.3.5. These values indicate that, broadly, there are more people within the Engagement Area walk to work than across the city, while there are fewer people driving to work in the Engagement Area than across the city.

Table 3.1 – Mode Share Comparison (Travel to Work or Study)

Mode	Aberdeen City	Engagement Area	Difference
Public Transport	16%	15%	2%
Car Driver	41%	37%	5%
Car Passenger	8%	7%	1%
Bicycle	2%	2%	0%
Pedestrian	29%	36%	-7%
Other	3%	3%	0%

3.3.6. Table 3.2 presents the distance travelled to work by travel modes – note that the Census data source only splits this into public transport, driving, and 'other', which includes active travel modes and car passengers. This table has been colour-coded to easily identify the highest values.

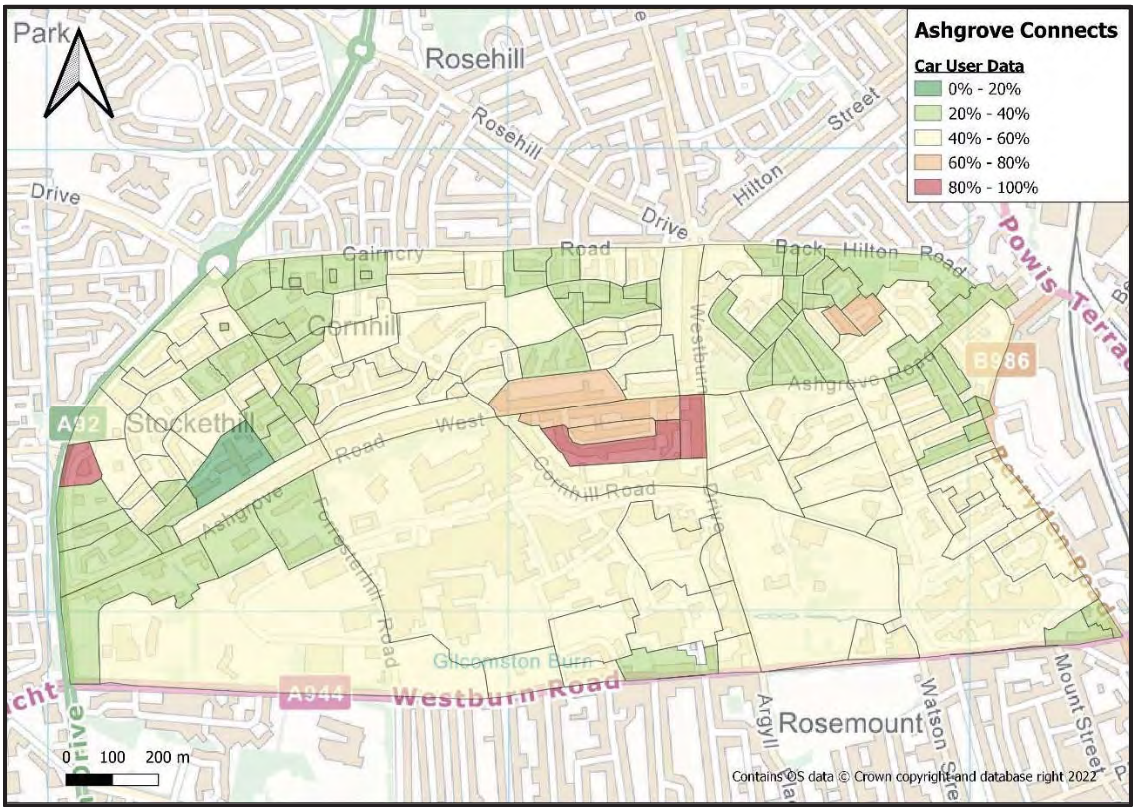
3.3.7. It shows that over a quarter (27%) of those driving to work travel less than 5km, and that only very low numbers travel further than 5km by either public transport or any other mode of travel. This suggests that there is an opportunity to encourage a shift away from driving for short-distance trips, and to potentially increase the use of public transport for medium-distance trips.

Table 3.2 – Engagement Area Distance Travelled to Work by Mode

Distance Travelled	Total People	Public Transport	Driving	Other
Less than 5km	66%	11%	27%	28%
5km to less than 10km	17%	2%	13%	2%
10km to less than 30km	4%	1%	3%	0%
30km and over	1%	0%	1%	0%
Total People	100%	15%	50%	35%

3.3.8. The travel to work data for each postcode within the Engagement Area, highlighting the percentage of residents whose primary mode of travel to work is by car, public transport, and walking and cycling is presented in Figure 3.3, Figure 3.4, and Figure 3.5 respectively.

Figure 3.3 – Travel to Work Data – Commutes by Driving

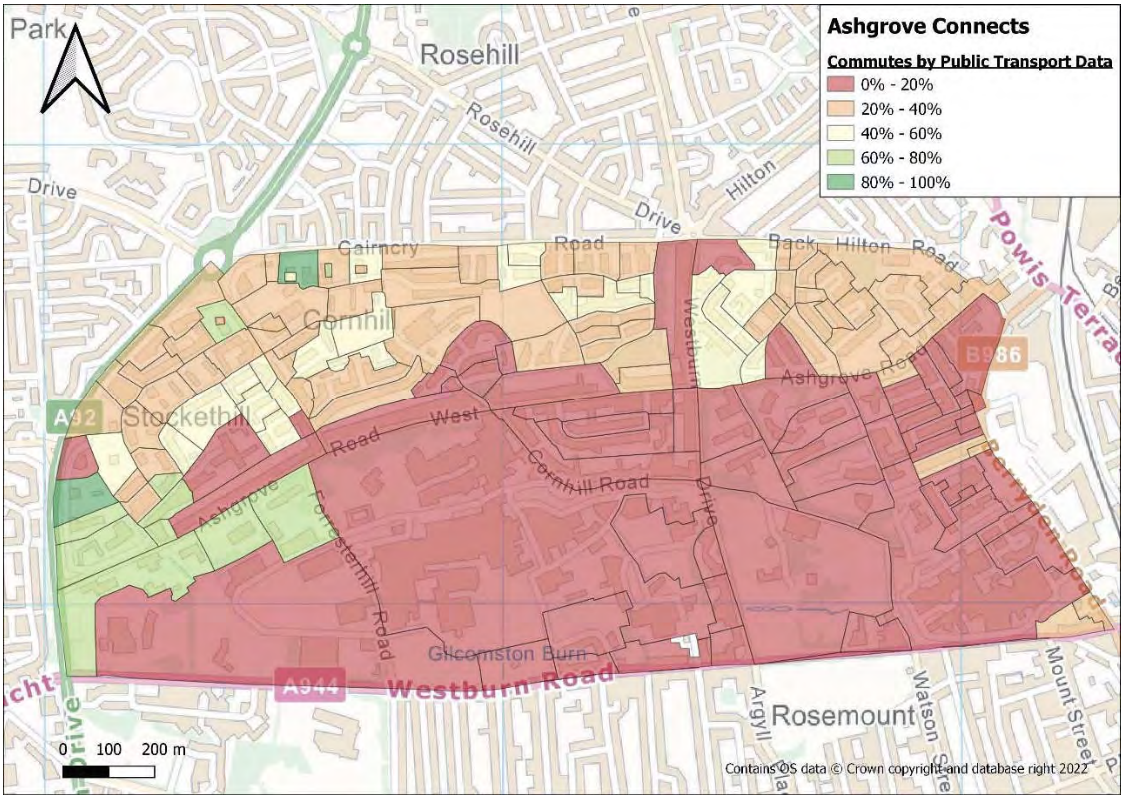


3.3.9. Travelling to work by car is broadly viewed as having a detrimental impact on the environment, therefore the colour grading reflects this by highlighting areas with high levels of car commuting in red, and lower levels in green. Conversely, the reverse is usually the case with regards to public transport and active travel, therefore the colour grading highlights areas with high levels of these travel modes in green, and lower levels in red.

3.3.10. The percentage ranges for each postcode area indicate the percentage of residents that reported in the 2011 Scotland Census that they primarily travel to work by driving car.

3.3.11. The data shows that the areas with the highest concentration of car travel are concentrated in the centre of the Engagement Area, and at their lowest levels to the west and northeast. While this is generally reflective of car ownership levels it is notable that some areas with high car ownership levels, such as the northern frontage of Ashgrove Road West, are in the middle 40-60% bracket despite having the highest levels of both car and home ownership.

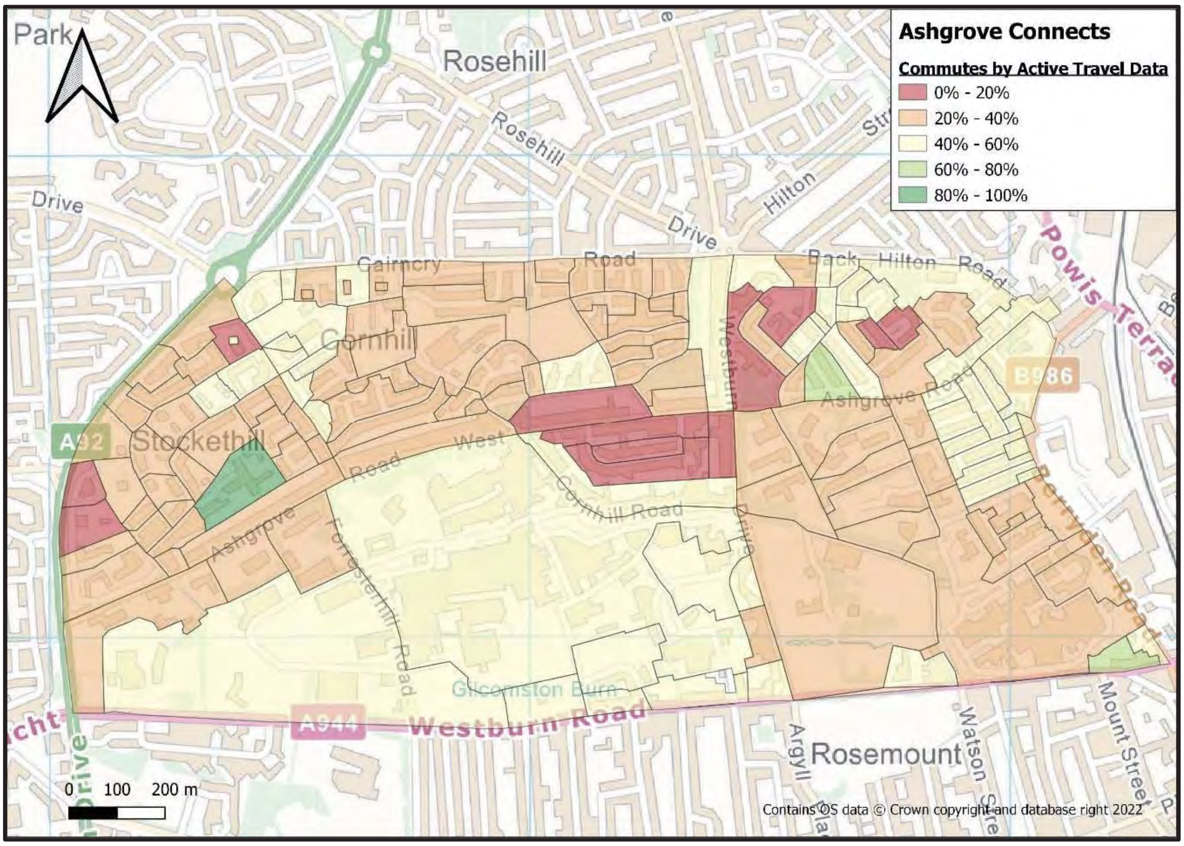
Figure 3.4 – Travel to Work Data – Commutes by Public Transport



3.3.12. The percentage ranges for each postcode area indicate the percentage of residents that reported in the 2011 Scotland Census that they primarily travel to work by public transport. While this includes bus, train, and light rail, it is assumed that given this mainly refers to bus travel for this area of Aberdeen.

3.3.13. The data shows that public transport usage across the area is generally low, with the majority of the postcode areas below 40%. A small number of locations in the west of the Engagement Area, and two isolated locations in the northwest, recorded usage greater than 60%, and only two areas were in the highest range of 80-100%. It should however be noted that these are in largely non-residential areas, therefore while proportionally high the actual numbers of people are likely to be low.

Figure 3.5 – Travel to Work Data – Commutes by Walking / Cycling



3.3.14. The percentage ranges for each postcode area indicate the percentage of residents that reported in the 2011 Scotland Census that they primarily travel to work by either walking or cycling.

3.3.15. Walking and cycling to work across the Engagement Area is mixed. It is generally at its lowest in the centre, which coincides with high levels of car ownership and car usage, although the majority of the Engagement Area falls within the 20-40% and 40-60% ranges.

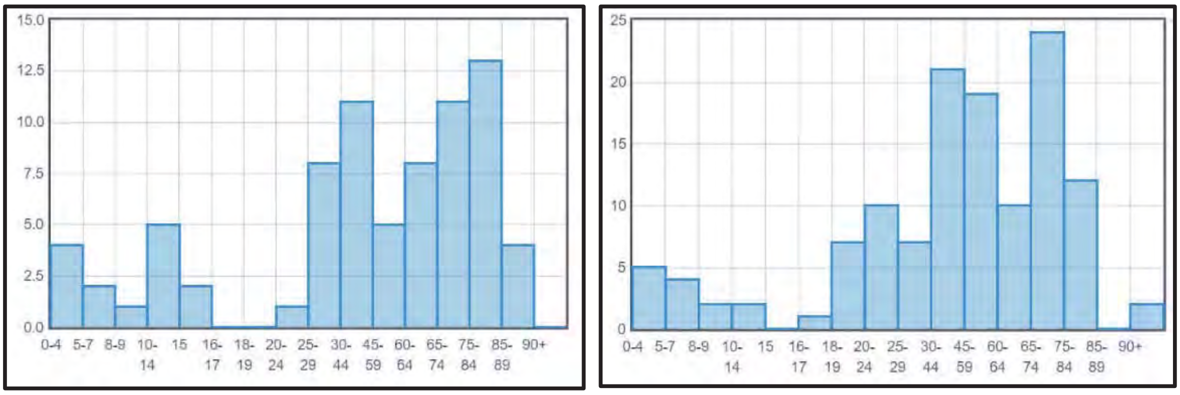
3.4. Demographics

3.4.1. The demographics within each postcode area are an indicator of mobility and should be considered when continuing to plan and deliver the engagement process.

3.4.2. There is a slight contrast in terms of demographics along the street, as shown in Figure 3.6 and Figure 3.7

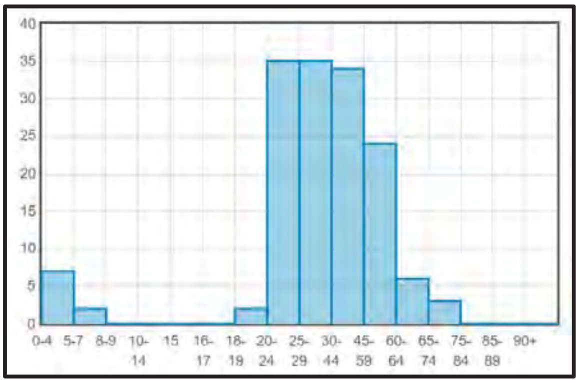
3.4.3. On Ashgrove Road West, there is a slightly older population and ethnicity is mainly White with some Black African and Indian. Information based on postcodes: AB16 5EH and AB16 5DZ.

Figure 3.6 – Age profile of AB16 5EH and AB16 5DZ



3.4.4. On Ashgrove Road, there is a slightly younger population and although ethnicity is mainly White, there is a mixture of Indian, Pakistani, Chinese and Other Asian. Information based on postcode: AB25 3BB.

Figure 3.7 – Age profile of AB25 3BB



3.4.5. Special attention to the accessibility and mobility requirements of these demographics should be considered when developing proposals in addition to tailoring the engagement process to ensure this is inclusive and representative of the local population.

3.5. Scottish Index of Multiple Deprivation

3.5.1. The Scottish Index of Multiple Deprivation (SIMD) is a relative measure of deprivation across small areas. SIMD looks at the extent to which an area is deprived across seven domains: income, employment, education, health, access to services, crime and housing. The level of deprivation can be an indicator of income, but it can also indicate level of resources or opportunities available to the people who live there.

3.5.2. Within the Engagement Area, there is a wide range in the data results derived from the SIMD, with some areas falling within the overall 20% most deprived in Scotland while other areas fall within the 20% least deprived.

3.5.3. An overview of the SIMD classifications within the Engagement Area, as recorded by the SIMD in 2020, is presented in Figure 3.8.

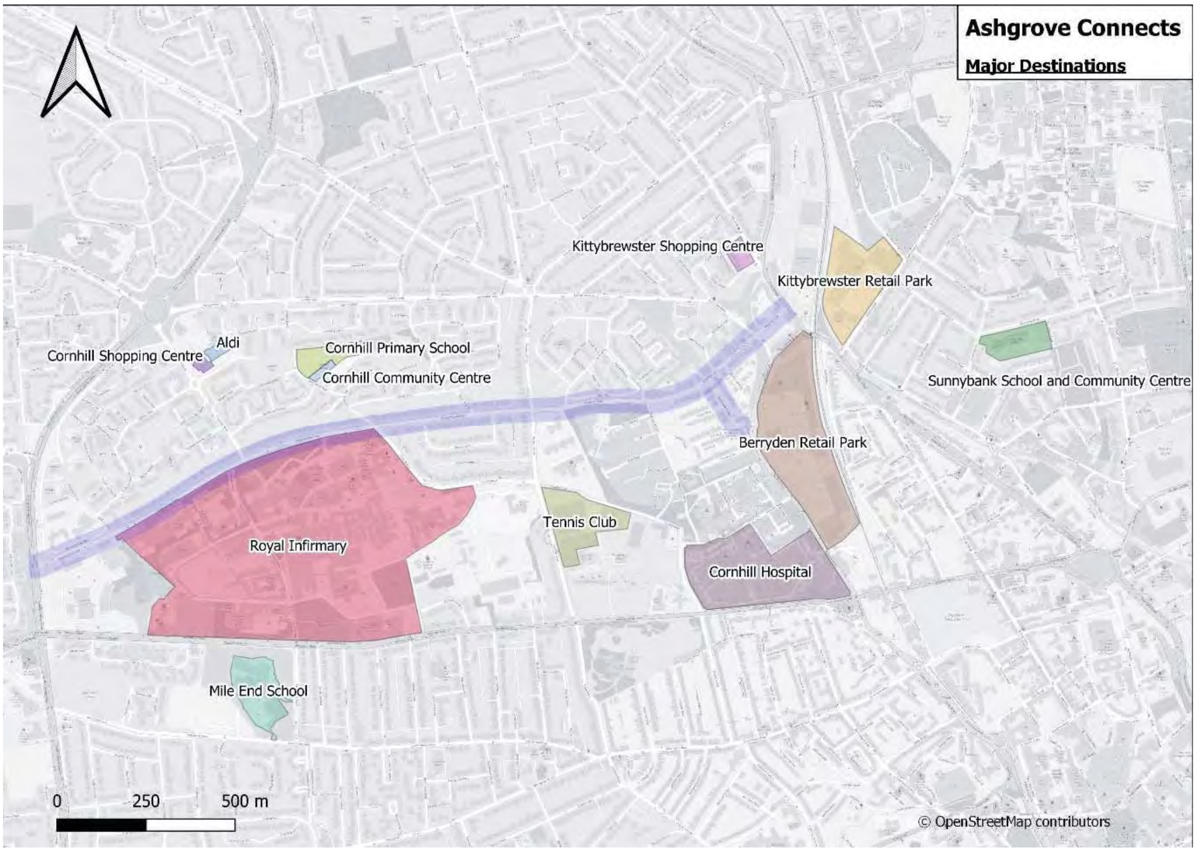
3.5.4. Special attention to the level of deprivation should be considered when tailoring the engagement process to ensure this is inclusive and provides local people with an opportunity to shape the decision-making process.

Figure 3.8 – Scottish Index of Multiple Deprivation Overview

3.6. Key Trip Attractors & Destinations

3.6.1. The major and local destinations, along the designated green spaces in and around the Engagement Area are presented in Figure 3.9, Figure 3.10, and Figure 3.11.

Figure 3.9 – Key Attractors – Major Destinations



3.6.2. Most of the major destinations are located to the south of the street, while the smaller local destinations are located to the north, and are largely concentrated in the east end of the Engagement Area.

3.6.3. It is assumed that the larger destinations, such as the Royal Infirmary, Cornhill Hospital, and the two retail parks, will attract trips from a wider catchment than the more locally focused destinations highlighted in Figure 3.10. This may present an opportunity to encourage the use of alternative routes to these larger destinations when considering measures to reduce traffic speeds and volumes along the street, particularly for trips generated by the retail parks.

Figure 3.10 – Key Attractors – Local Destinations

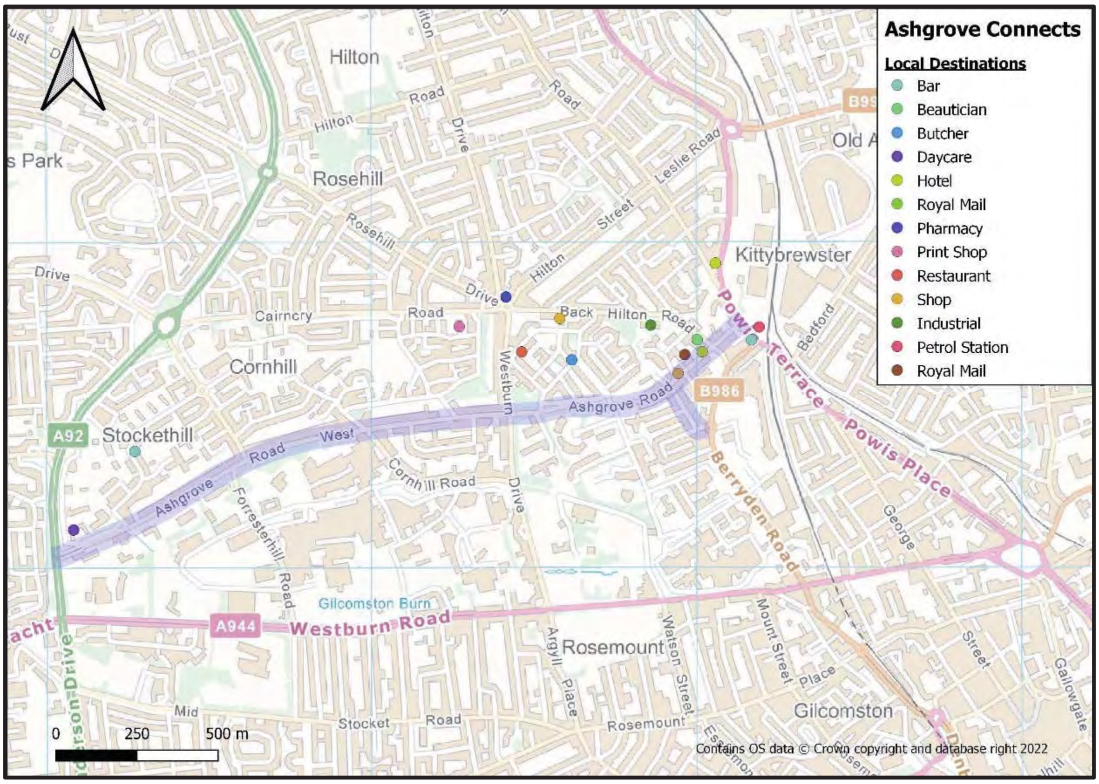
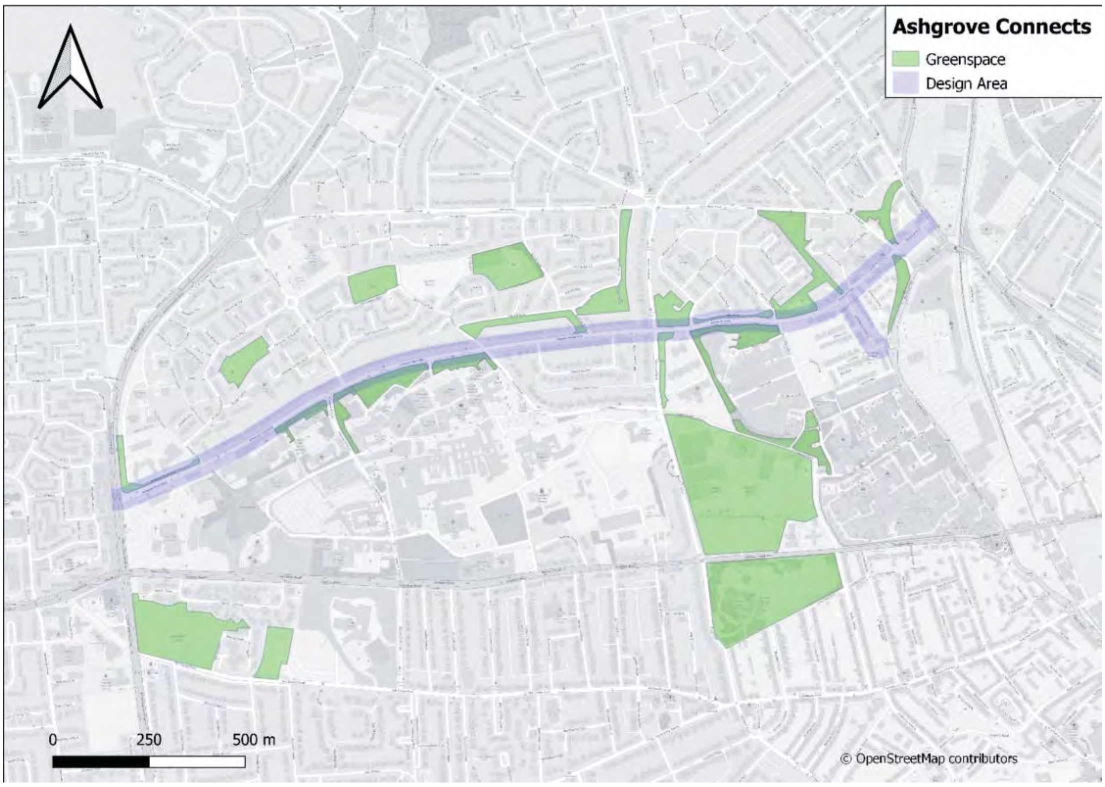


Figure 3.11 – Key Attractors – Green Space



3.7. Summary

3.7.1. The socio-economic and demographic data identified within the Engagement Area indicates that the area is relatively diverse, with a range of ages and ethnicities. Car and home ownership levels vary significantly, and the car ownership and travel to work data in particular suggests that there is an opportunity to improve employment opportunities for some residents by enhancing lower cost travel links to employment destinations.

3.7.2. The car / home ownership and travel to work data suggests that while there is a link between car ownership and car usage, this is only a partial link, indicating that car drivers could be encouraged to travel by other modes for certain trips, given more favourable street conditions. It is also noted that walking and cycling was generally recorded at significantly higher levels than public transport, indicating that this may be a more desirable alternative to car travel than public transport.

3.7.3. One issue that will require consideration is access for disabled people; it is recommended that an Integrated Impact Assessment is undertaken for the scheme, and that following its implementation the use of the scheme by different groups is monitored.

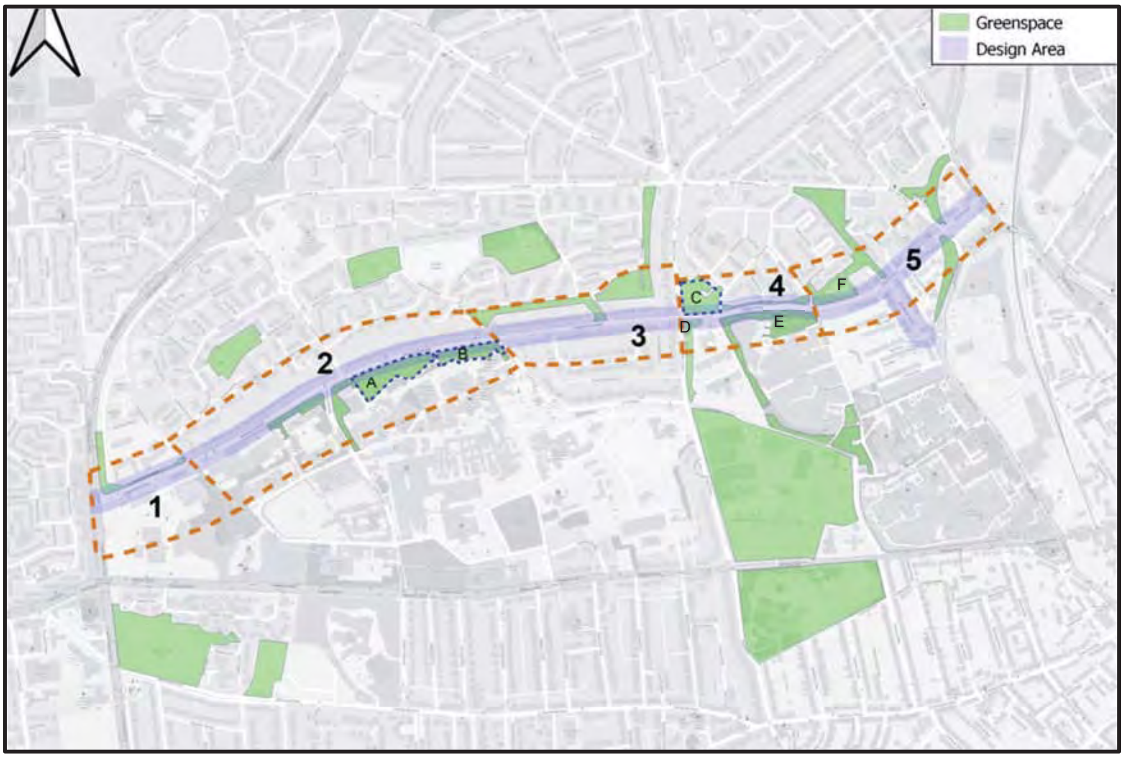
3.7.4. The relative ethnic diversity of this area is both an opportunity and a challenge. Some ethic groups historically have a lower propensity to engage in project consultations and in travelling by certain modes. The Behaviour Change Plan and Engagement approach should consider this through all project development stages.

4. Heritage & Conservation

4.1. Introduction

4.1.1. This chapter describes the streetscape and landscape values of the Design Area, including notable characteristics of sub-areas along the street, building typologies and trees/planting and highlights opportunities to enhance or improve the place quality along the street which may help to make it an attractive route to travel through and stay in.

Figure 4.1 – Sub-areas



4.2. Sub-area 1 (North Anderson Drive)

Streetscape

4.2.1. The street contains mostly industrial units to the northwest corner and the south side of Ashgrove Road West. The buildings to the north are set back from the street and are separated from the main movement corridor by a slip road which in practice means that Ashgrove Road West is 5-6 vehicle lanes wide at this point.

4.2.2. Walled boundary to the south with no active frontages and no entrances onto the street creates a low-quality streetscape.

4.2.3. No seating areas or opportunities to rest in the area and no opportunity to cross the road.

Landscape

4.2.4. There is a long stretch of grass separating the North Anderson Drive carriageway from a parallel carriageway on the north-east side of the junction, and there is a row of trees running along the verge. Part of the greenspace has been damaged by vehicles driving onto the grass to enter a building.

4.2.5. The greenspace in front of the buildings north of Ashgrove Road West have a small, planted area and otherwise consist mainly of grass and mature trees without any infrastructure that invite people to use the space.

4.3. Sub-area 2 (Aberdeen Royal Infirmary)

Streetscape

4.3.1. All residential detached houses to the north set back slightly and positioned higher than street level, all with driveways and small front gardens. This building typology is typical for residential streets; however Ashgrove Road is wider than an average residential street and has higher volumes of traffic and higher speeds than would be expected.

4.3.2. Fencing and walled boundary to the south with few gaps and no entrances to the street.

4.3.3. Relatively wide road with advisory cycle lane and no parking on north side (by residences) and line of parking and a bus stop on south side towards the hospital and Aberdeen University campus.

4.3.4. No seating areas or opportunities to rest in the area and limited opportunity to cross the road apart from the signalised crossing at Foresterhill Road.

Landscape

4.3.5. There are street trees along the stretch, most of them mature and valuable. The trees are in very constrained locations and in many situations the tree roots have damaged the pavement and kerb.

4.3.6. Area A – Extensive greenspace, heavily wooded, with large number of damaged trees and dead wood. The woodland belongs to the university grounds and is located behind a metal fence, thus not accessible to the public. The woodland and its understory do not seem to be accessed by the university users, with no footpaths or activity present.

4.3.7. Area B – Greenspace that belongs to the campus and is walled off from Ashgrove Road West. The area, however, presents user activity, with large number of mature trees, mown amenity grass and a seating area. There is a bus stop in front of the greenspace which is separated by the stone wall. The bus stop serves the university bus and hosts up to 30 people at peak times. Following the walking audit with the Aberdeen University, it has been highlighted that the university would be interested in removing or moving the wall to the back, widening the pavement, and opening the space up at this area.

4.4. Sub-area 3 (West of Westburn Drive)

Streetscape

4.4.1. All residential two storey detached houses on both sides of the Ashgrove Rd with advisory cycle lane and no parking. This building typology is typical for residential streets; however, Ashgrove Road is wider than an average residential street and has higher volumes of traffic and higher speeds than would be expected. Traffic volumes and speeds are discussed in more detail in Section 6.

4.4.2. No seating areas or opportunities to rest in the area and limited opportunity to cross the road apart from the signalised crossing at Westburn Drive.

Landscape

4.4.3. There are street trees along the stretch, most of them mature and valuable. The trees are in very constrained locations and in many situations the tree roots have damaged the pavement and kerb.

4.4.4. A small greenspace at Braefoot Road has a large number of trees and the track of a desire line through the grass in the southeast corner indicates that it is used as a cut-through, most likely connecting to the primary school. This does not currently have high recreational value but has high potential.

4.5. Sub-area 4 (East of Westburn Drive)

Streetscape

4.5.1. Ashgrove Road narrows considerably compared to Ashgrove Road West and the character changes because there are no frontages to the street. Instead, tall stone walls constrain the street on both sides and block all view of the buildings along this stretch of street. At the walking audit with University of Aberdeen a participant noted that the area feels quite isolated because of the walls. Proposes opening up the street to make it more inviting.

4.5.2. North of Ashgrove Road a residential area with flatted dwellings in housing blocks set in open parkland. Buildings set back far from the road and separated from the main road, with a stone wall and greenspaces in between. No frontages or entrances to the street.

4.5.3. South of Ashgrove Road a low bungalow-style set of building houses care home and NHS hospice facilities and taller buildings with serviced apartments.

Landscape

4.5.4. There are empty tree pits along this section, showing that trees have been there at some point but have either been damaged or removed and have not been replanted. The lack of street trees in conjunction with the walled corridors add to the change of character, making this section of Ashgrove Road seem “hard” and less hospitable than the residential sections. Tall trees are visible above the walls but people on the street side are completely cut off from the greenspace where the trees stand.

4.5.5. Area C is semiprivate open greenspace with mixed tree planting and is only accessible from Carnie Drive and Elder Place, and not directly form Ashgrove Road. Some buildings have private front gardens of higher quality planting, but these are not visible from Ashgrove Road.

4.5.6. Area D The landscape that surrounds the hospice buildings is a denser wooded area and this section is part of the Rosemount Conservation Area. The grounds appear well kept but are only visible and accessible from the entrance opposite Carnie Drive.

4.5.7. Area E high quality landscaped areas with large number of mature trees that in majority make up for semiprivate spaces to adjacent residential houses, inaccessible from Ashgrove Rd. The grounds appear well kept and include some amenities such as cycle parking, bin sheds, lower-level planting, etc. but are not visible or accessible from Ashgrove Road.

4.6. Sub-area 5 (Berryden Road)

Streetscape

4.6.1. The last section of Ashgrove Road consists mainly of residential building with mixed typology and commercial units near the Berryden Road junction. The street is narrow and has street trees (some of which have been removed) as well as parking on one side of the street.

4.6.2. On the north side a tall stone wall separates Ashgrove Road from Beattie Avenue Playpark and continues into a row of town houses leading to the Berryden Road junction and interrupted by the Royal Mail distribution facility. The town houses have small front gardens with low boundary walls and good connection to the street. At the Berryden Road junction a newer building hosts a SPAR and has a small car park in front.

4.6.3. To the south, Crosby House, a VSA care home facility, is set back from the street and separated by a stone wall, however the middle section of this wall has been lowered to less than a meter to create a visual connection to the street. It connects to a row of town houses and then transitions to newer, semi-detached single-family houses with front gardens and driveways for parking before meeting the greenspace at Berryden Road.

4.6.4. No seating areas or opportunities to rest on Ashgrove Road (however, the walled-off playpark offers seating and play). Connection across the street is reasonable on this part of Ashgrove Road as the road is narrower, vehicle speeds are lower, and the junctions have small corner radii and smaller crossing distances.

Landscape

4.6.5. There are street trees along the stretch, many of them mature and valuable. The trees are in very constrained locations and in many situations the tree roots have damaged the pavement and kerb. In some locations trees look to be recently re-planted probably due to older trees having been damaged.

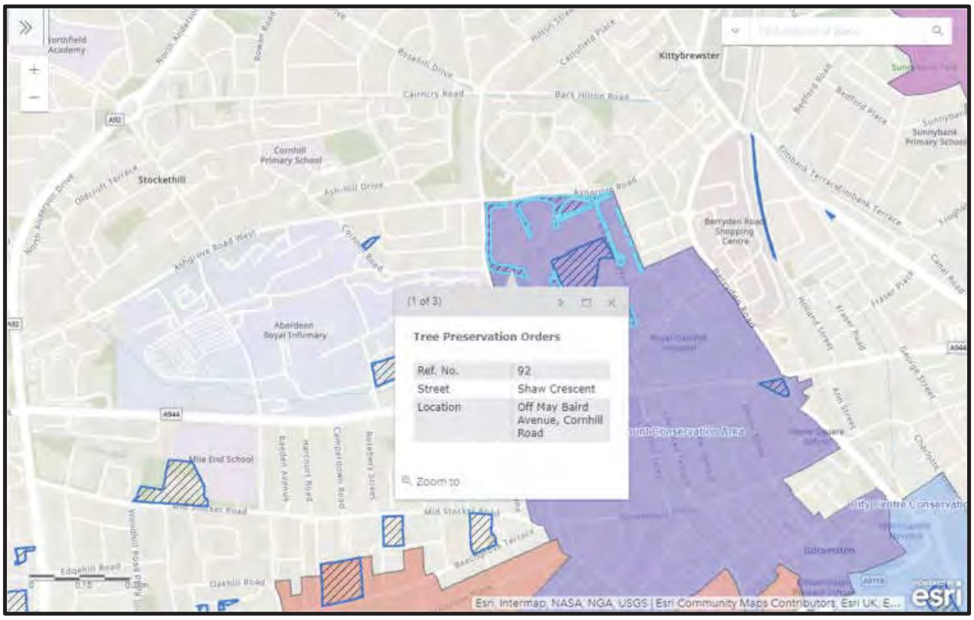
4.6.6. Area F is a public recreational greenspace with mature trees and good quality play facilities which is visible from Ashgrove Road at the junction with Beattie Avenue but is separated from the street by a tall stone wall.

4.7. Conservation areas

4.7.1. There are few heritage restraints within the study area. The Rosemount and Westburn Conservation Area borders on a small stretch of Ashgrove Road east of Westburn Drive and is the only recorded heritage interests within the study area. It is worth noting that the buildings with notable historical significance within the conservation area are in the Rosemount area while the reason for including Westburn in the Conservation order is to retain the parklands of Westburn and Victoria Parks for future generations. The boundary walls bordering the Design Area are not mentioned in the conservation order.

4.8. Tree Preservation Orders

Figure 4.2 – Tree Preservation Orders



4.8.1. While all trees set within a Conservation area are automatically protected, an explicit tree preservation order is placed on the edge planting surrounding Elmwood and Roxburghe House, two NHS hospital facilities, running along Westburn Drive and Ashgrove Road.

4.8.2. Several large trees have been cut down on Ashgrove Road within the last couple of years, most likely due to damage from storms, and it is worth doing more detailed surveys of the mature trees remaining in the Design Area to assess how best to ensure they stay healthy and safe and are able to contribute to the quality of the street in the future.

4.9. Summary

4.9.1. The Design Area is disjointed and does not have one single identity. There is a clear difference between Ashgrove Road West, which is a wide A-road designed to accommodate high volumes and high speeds of motor traffic, and the eastern section of Ashgrove Road which is narrower and has road dimensions more akin to residential areas. However, even within each area the look and feel changes a lot and there is no single typology of housing or frontage to tie the area together.

4.9.2. The area east of Westburn Road is the least attractive place to linger, being framed by a long stretch of tall stone walls with few gaps and no frontages to the street. People walking, cycling and wheeling in the area will experience little diversity of space and have no breaks or long views at eye-level to break the monotony. The area also could be considered as least safe as there is no passive surveillance of the street and no entrances with people coming and going.

4.9.3. The walls (in the whole Design Area) are an element that could be changed to improve the quality of urban space. Options are both to move back the walls (as proposed by Aberdeen University at the Rowett Institute), to lower them to allow for better visual connection (as VSA have done at the care home), to add “doors and windows” to the wall to increase permeability or even to remove the barrier completely to give a sense of openness to the space. This would allow for activation of the greenspaces too.

4.9.4. Placemaking opportunities exist in several locations. Some unused or underused greenspaces around Ashgrove Road West could be improved to offer opportunities for rest or play or could be used as small activity hubs around for example bus stops. Adding seating or informal opportunities to rest would also provide places to rest for people who want to walk but may not be physically able to do long routes without rest.

4.9.5. The shop located at the far east of the Design Area presents both an active frontage and a contribution to street life during the day which is another placemaking opportunity. Further dialogue is planned with the business to understand whether they would benefit from, and be interested in collaborating to provide, seating, informal play areas, cycle parking, or the like.

5. Transport Network Context

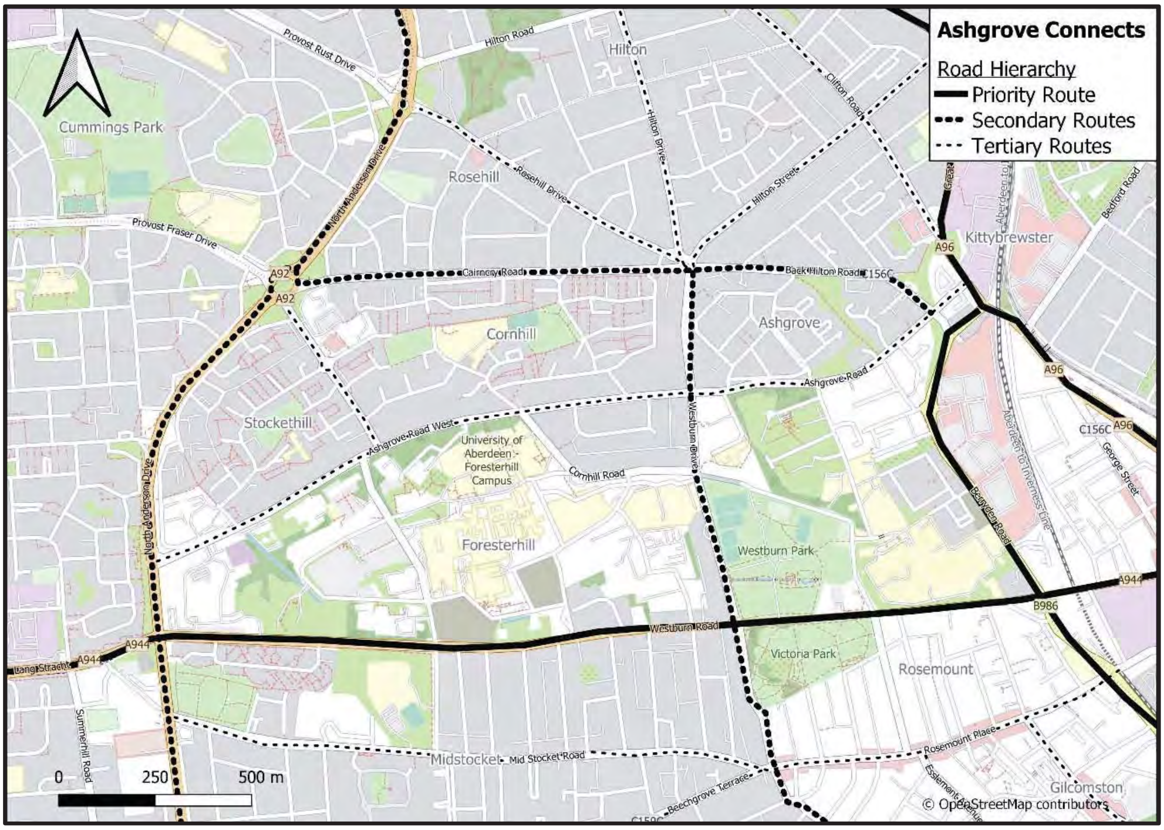
5.1. Introduction

5.1.1. This Chapter sets out the existing transport situation for the area, including the proposed road hierarchy, public transport and active travel provision, parking provision and restrictions, and a review of supplied collision data. This information provides the basis for the identification of potential opportunities linked to improvements within the Design Area, for example potential safety improvements at junctions, existing active travel connections that could be linked with Ashgrove, and the future of the local road network.

5.2. Road Hierarchy

5.2.1. The current hierarchy is reproduced in Figure 5.1. It illustrates the proposed new roads hierarchy as identified in the North East Scotland Roads Hierarchy Study 2019, and forms the basis for each of the identified options.

Figure 5.1 – Proposed Road Hierarchy – City Hierarchy Package



5.2.2. The City Hierarchy Package proposes the following roads hierarchy within the Engagement Area:

- Priority Routes: Westburn Road, Berryden Road (new section from junction with Ashgrove Road to Kittybrewster roundabout), A96 Powis Terrace / Great Northern Road
- Secondary Routes: A92 North Anderson Drive, Cairncry Road, Westburn Drive, Berryden Road (existing section)
- Tertiary Routes: Ashgrove Road, Ashgrove Road West, Foresterhill Road

5.3. Existing Parking Provision & Restrictions

5.3.1. The existing parking bays and Traffic Regulation Orders (TROs) in the area are presented in Figure 5.2. Further details of the parking provision, along with the results of the car parking surveys, are provided in Chapter 6.

Figure 5.2 – Parking Provision & Restrictions Plan

5.3.2. Parking outwith the designated bays on Ashgrove Road West is restricted by either double yellow lines or single yellow lines, the latter of which is provided along the north side of the carriageway to generally coincide with cycle lane provision. All of the designated parking on Ashgrove Road West is on the south side of the carriageway.

5.3.3. Designated bays are not provided on Ashgrove Road, however there are breaks in the provision of double or single yellow lines to allow vehicle parking.

5.4. Public Transport Provision

5.4.1. The existing bus services in the area are summarised in Table 5.1.

Table 5.1 - Bus Service Summary

Provider	Route Number	Route	Typical Frequency
First Aberdeen	8	Dubford - ARI	Mon - Sat: 60 mins
	8a	Dubford - ARI	Daily: One morning service
	11	Woodend - Northfield	Mon - Sun: 20 – 30 mins
	12	Torry - Heathryfold	Mon - Sun: 20 - 30 mins
	17/a	Faulds Gate - Dyce (Northern Lights) Via Duthie Park-City Centre-Newhills	Mon - Sun: 30 mins
	18	Charleston/Redmoss - Dyce (Northern Lights) Via Kincorth-City Centre-Mugiemoss	Mon - Sat: 30 mins Sun: No service
	23	Heathryfold - Sheddocksley (Sunshine)	Mon - Sat: 12 minutes Sun: 30 minutes
	172	Faulds Gate - Dyce (Northern Lights)	Mon - Sun: 15-30 mins (evening only)
Stagecoach	35	Elgin - Aberdeen	Mon - Sat: 30 mins Sun: 60 mins
	37	Aberdeen - Inverurie	Mon - Sun: 30-60 mins
	59	Northfield Teminus - Balnagask	Mon – Fri: 15 mins Sat: 10-15 mins Sun: 20 mins
	727	Aberdeen Airport Terminal - Aberdeen union Square	Mon - Sun: 15 - 20 mins
Bains Coaches	305	Oldmeldrum - Aberdeen	Mon - Fri: Three services per day Sat - Sun: No service

5.4.2. There are three sets of bus stops along Ashgrove Road West, and no stops on Ashgrove Road. A range of frequent services stop on Ashgrove Road West, with a wider range of services available further afield within the Engagement Area. The majority of the stops are simple flagpole stops with on-road bus cage markings, with the exception of the eastbound stop at Site 3 (the easternmost set of stops, adjacent to Cornhill Road).

5.4.3. A route plan illustrating the routes of each of the services summarised in Table 5.1 is presented in Figure 5.3, and a summary of the level of service to each area of the city is presented in Table 5.2.

Figure 5.3 – Bus Service Routes

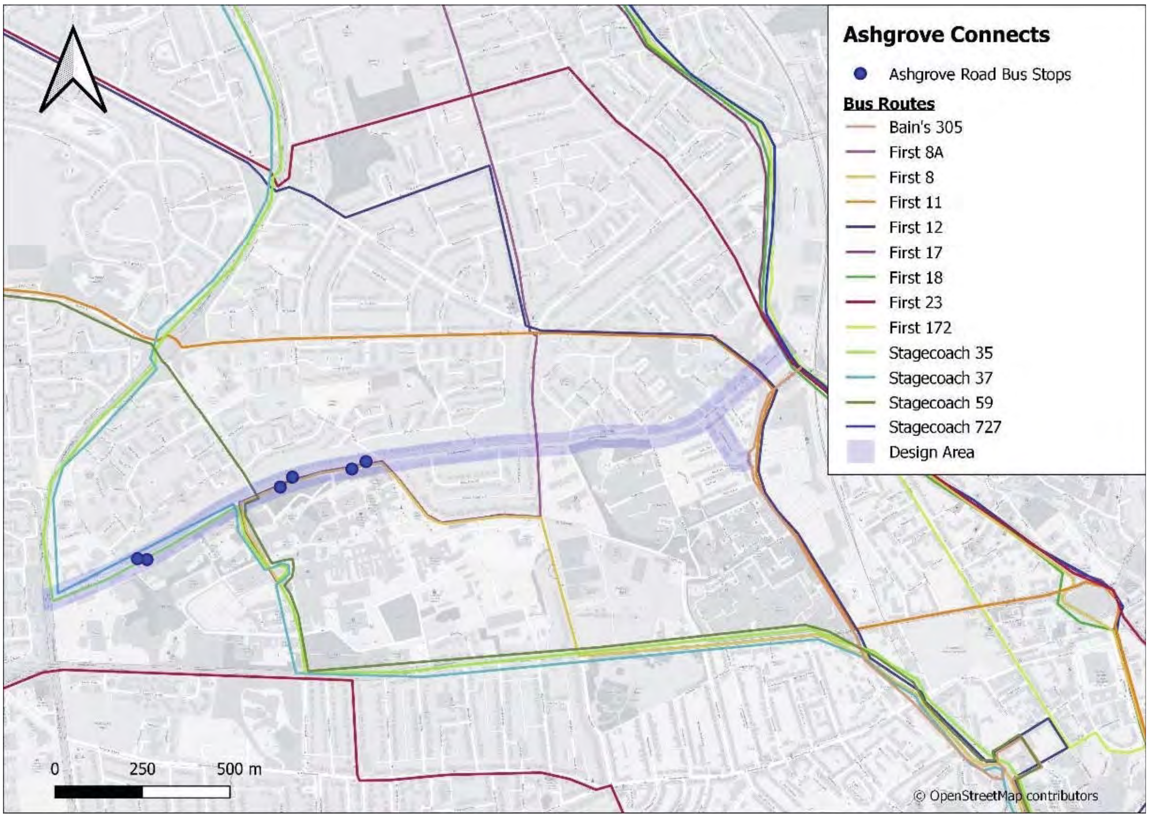


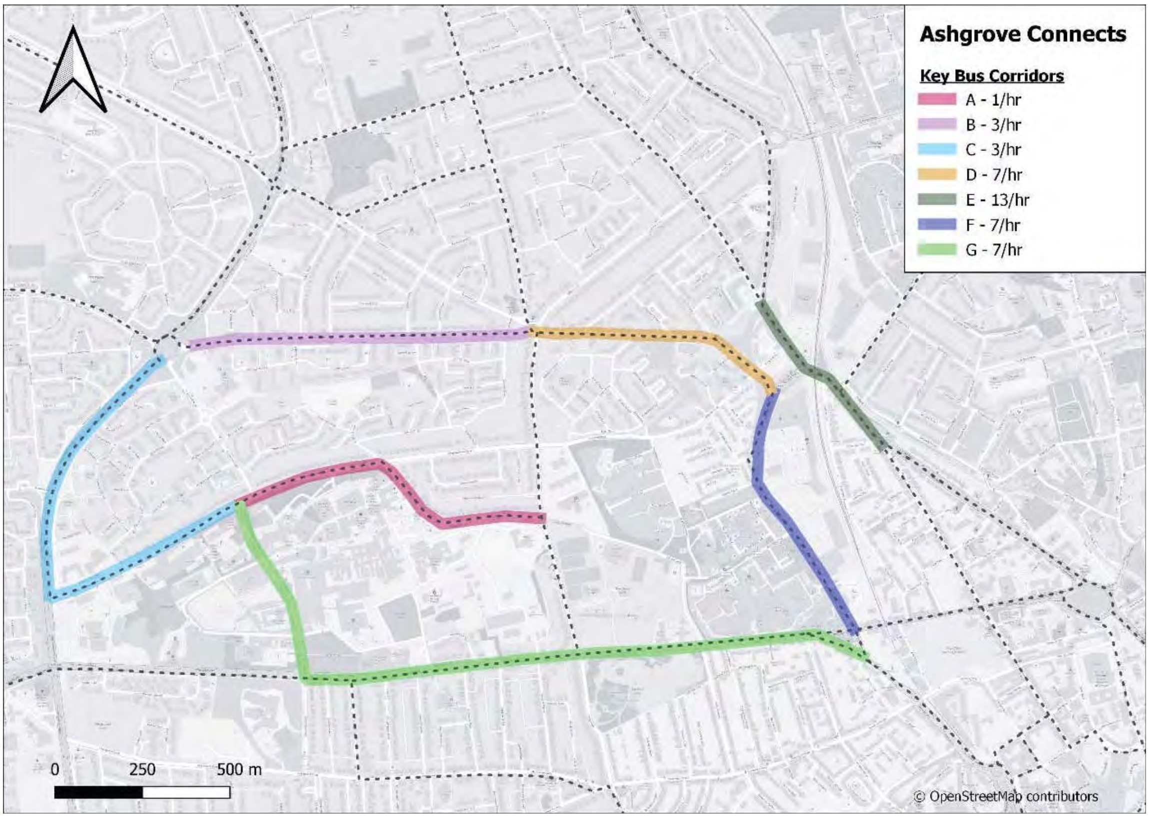
Table 5.2 - Bus Services – Summary of City Areas Served

Location Served	Bus Services
North	8, 8A, 11, 12, 17, 17A, 18, 18A, 23, 35, 37, 172, 727, 305
South	17, 17A, 18, 18A, 59, 172
West	11, 23
Centre	All services
Ashgrove Bus Stops	8, 8A, 35, 37

5.4.4. All of the services around the Engagement Area provide connections to the city centre, and the majority connect to the north. Two of the services provide connections to the west.

5.4.5. A plan highlighting the overall service frequency (bus per hour) along key corridors in and around the Engagement Area is presented in Figure 5.4

Figure 5.4 – Bus Services – Frequencies on Key Corridors



5.5. Active Travel Provision

5.5.1. This section of the report provides details of the existing active travel provision in the area. While particular focus is paid to the Design Area, the provision of formal features in the wider area, such as National Cycle Network and Core Path provision. This will allow for the identification of established connections and barrier between the Design Area and the wider network, and for the identification of potential opportunities to provide new and enhance existing connections.

Walking Facilities

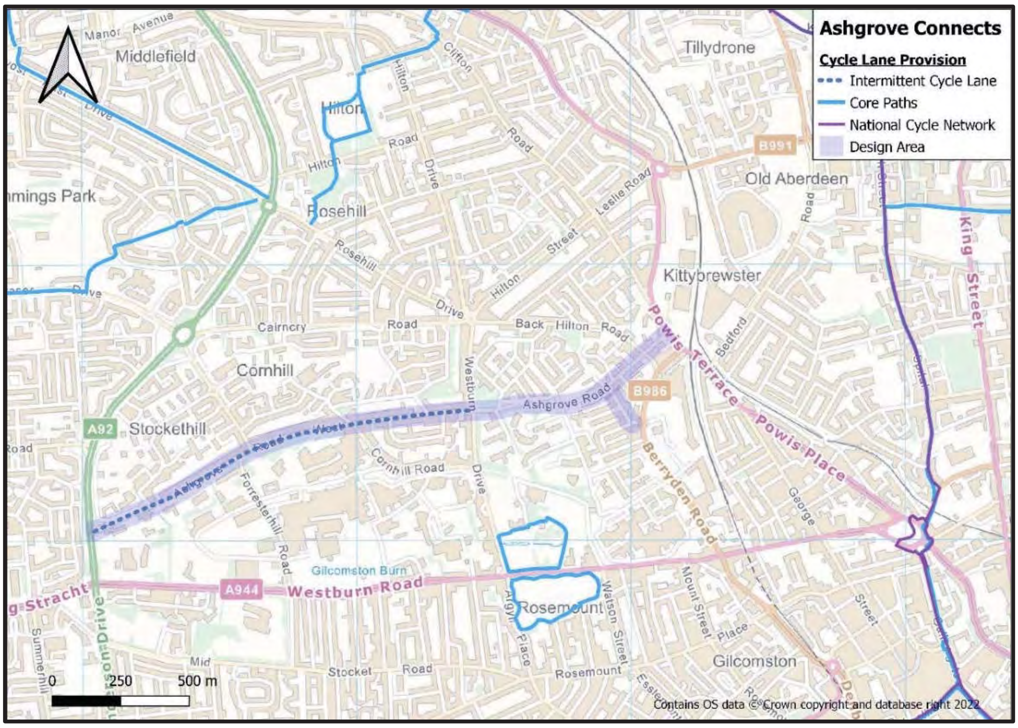
5.5.2. Footways within the Design Area are generally provided to a good standard, with good quality surfacing and lighting, and a minimum width unobstructed width of approximately 2m along the majority of the street. While the footways on Ashgrove Road West are generally at least 3m wide, the effective unobstructed width is narrowed due to the presence of trees and lighting columns.

5.5.3. Crossings over the side roads vary in quality, with inconsistent provision of tactile paving at uncontrolled crossings, although the majority are provided with dropped kerbs. Signal controlled crossings are provided over all approaches of the signal-controlled junctions.

5.5.4. Crossing opportunities over the street itself are generally limited to the signal-controlled crossings. A lack of clearly designated crossing points, combined with the carriageway width which varies between 11m-13m, create a barrier to pedestrian movements.

5.5.5. The existing active travel provision in the area, including core paths and the National Cycle Network, is presented in Figure 5.5.

Figure 5.5 – Active Travel Provision



5.5.6. . It is noted that, as it stands, the Design Area appears isolated from existing core paths and the National Cycle Network and from door-to-door provision for residents.

Cycling Facilities

5.5.7. Currently Ashgrove Road West is provided with advisory cycle lanes on both the eastbound and westbound sides of the carriageway, however this provision is intermittent. The cycle lanes are frequently interrupted by on-road parking bays, and as such the Ashgrove Road West carriageway broadly alternates between the provision of cycle lanes and on-road parking.

5.5.8. The provision of advanced cycle stop lines at each of the signal-controlled junctions formed with Ashgrove Road West is limited, as is the provision of cycle lanes on the junction approaches. A summary of this provision is summarised below:

- North Anderson Drive – no cycle lanes or advanced stop lines on any approach

- Foresterhill Road – no cycles lanes on any approach, advanced stop lines provided on all external approaches but not on internal link between the north/south approaches. Cycle lane provided on eastbound exit.
- Westburn Drive – no cycle lanes or advanced stop lines on any approach. Cycle lane provided on westbound exit

5.5.9. Ashgrove Road, which is located to the east of the junction with Westburn Drive, currently has no cycling facilities.

Active Travel Network Assessment

5.5.10. A more detailed review of the wider active travel network will be provided in the Active Travel Network Assessment (ATNA). The methodology for the ATNA is based on some of the requirements and advice contained within DMRB GG 142 to provide a framework for the background data capture, and also draws on LTN1/20 Cycle Infrastructure Design, and Cycling by Design.

5.5.11. The two key themes observed were that of severance and barriers. Limited pedestrian crossing opportunities, coupled with long crossing distances and multi-stage crossings at controlled crossings, hinder the pedestrian accessibility of destinations such as bus stops, Cornhill Primary School, the hospital, and Victoria Park. Equally, limited cycling lane provision, a lack of provision for right-turners at junctions, and large junctions contribute to a street environment that poses a significant barrier to travel by bike.

5.5.12. Three potential packages of measures have been identified to address each of the identified issues in the area. A summary of these packages is provided below, and further details, including a plan highlighting the locations of the improvements, are presented in the full report.

- One – upgrade / install crossings at three key locations with modern parallel pedestrian and cycle facilities
- Two – add crossings at a further five locations, and improve the provision along three key links
- Three – provide complimentary area-wide measures that aim to reassign traffic from Mid Stocket Road and Foresterhill Road to the surrounding strategic routes.

Active Travel Summary

5.5.13. Active travel provision within the Design Area is limited. While footway provision is to a good standard, crossing opportunities over the street are generally limited to the signal-controlled junctions, and crossings over side roads vary in quality.

5.5.14. An advisory cycle lane is provided on Ashgrove Road West, but this is frequently interrupted by on-road parking bays, resulting in only intermittent provision, and advanced stop lines are only provided at the Foresterhill Road junction

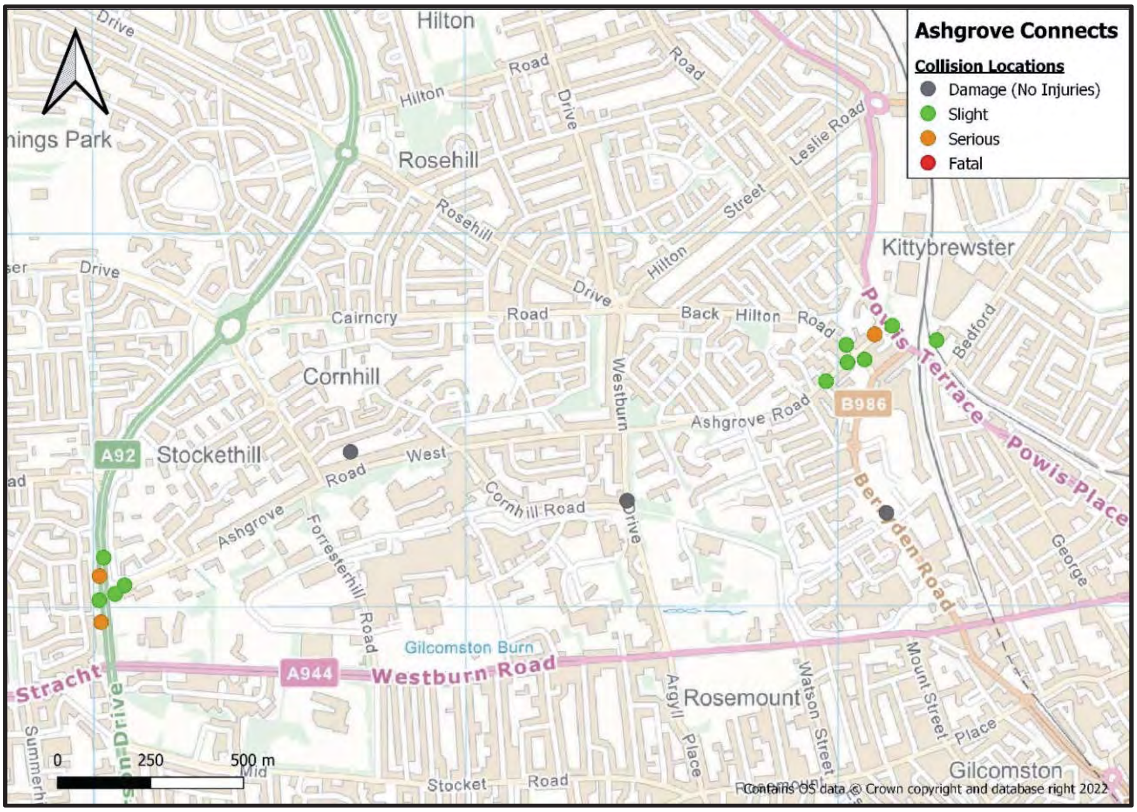
5.5.15. While there are facilities in the wider area across Aberdeen, such as the Core Path network and National Cycle Network, the Design Area is remote from these facilities.

5.6. Collision Data Review

5.6.1. A review of collision data for the Design Area has been undertaken using records supplied by ACC covering the five-year period between 2016-2020. This review allows for the identification of any underlying safety issues, with consideration given to the occurrences of collision clusters, collision severity, and the involvement of pedestrians and cyclists.

5.6.2. The locations of each of the collisions within the supplied records are presented in Figure 5.6.

Figure 5.6 – Design Area Collision Location Plan (2016-2020)



5.6.3. The majority of the Design Area has had very few collisions, particularly along the main stretches of Ashgrove Road West and Ashgrove Road. While a total of 17 collisions were recorded, none were recorded at any of the intermediate junctions within the Design Area, such as the Foresterhill Road staggered signal-controlled crossroads, the Cornhill Road priority crossroads, or at the Westburn Drive signal-controlled crossroads. Improvements to the street may encourage a significant increase in active travel users along the Design Area, including at the eastern and western junctions, therefore it is recommended those junctions are reviewed for potential safety improvements as part of this project.

5.6.4. It is also noteworthy that no fatal collisions and three 'serious' collisions were recorded over the five-year period, with the majority of the collisions recorded as 'slight' in severity. Three non-injury 'damage-only' collisions were also contained within the supplied data, although it should be noted all three were outwith the Design Area.

5.6.5. Two notable clusters have however been recorded at the eastern and western edges of the junction:

- At the eastern end, there is a cluster of three slight collisions at the Ashgrove Road / Back Hilton Road crossroads. A single 'slight' collision was recorded to the west of this cluster at the Belmont Gardens junction, and a 'slight' and 'serious' collisions were recorded to the east of the cluster at the Powis Terrace junction.
- At the western edge of the Design Area at the North Anderson Drive signal-controlled junction a more notable cluster was recorded. Six collisions, three 'slight' and three 'serious', were recorded over the five-year period.

5.6.6. The severity of the collisions and involvement of pedestrians and cyclists charts in Figure 5.7 and Figure 5.8, and the full collision records supplied by ACC are presented in Table 5.3. These figures demonstrate that the majority of the collisions resulted in either no injury or slight injuries, and that pedestrians or cyclists were involved in a single collision.

Figure 5.7 – Collision Severity (2016-2020)

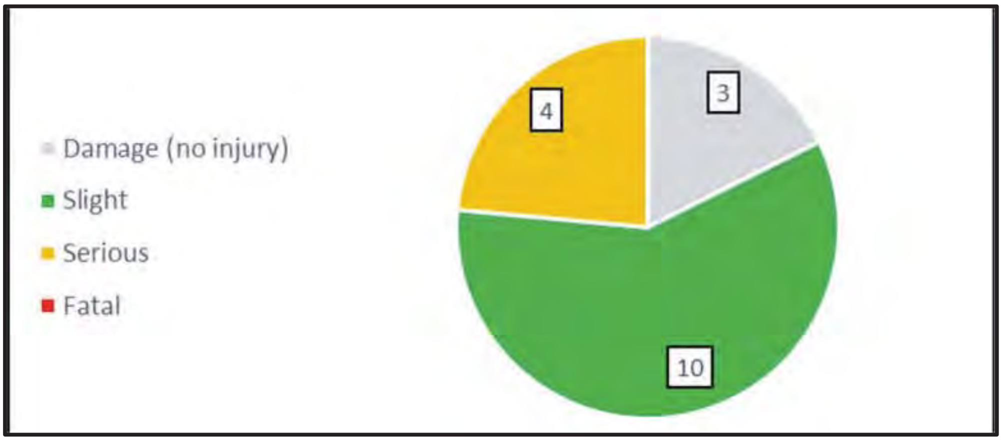


Figure 5.8 – Pedestrian & Cyclist Involvement (2016-2020)

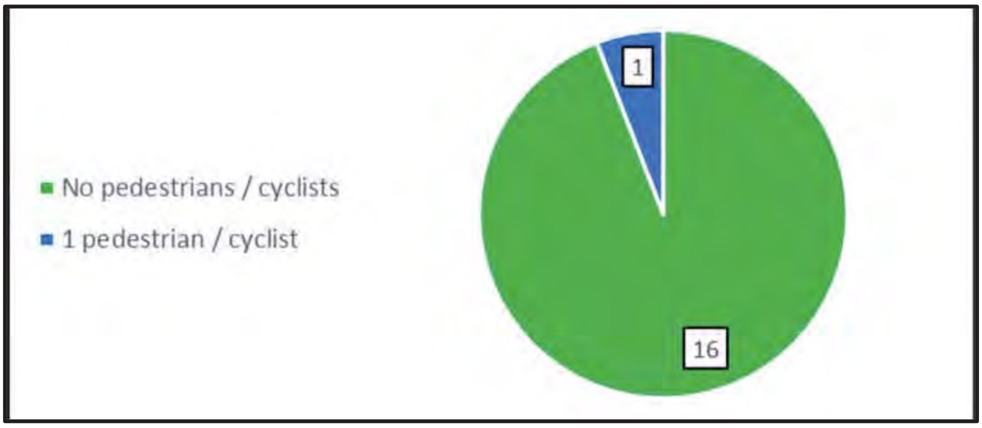


Table 5.3 – Full Collision Records 2016-2020

Date	Day	Time	Location	Severity	Vehicles	Pedestrians / Cyclists
24/03/2016	Thursday	18:00	Ashgrove Road / Back Hilton Road	Slight	2	0
28/06/2016	Tuesday	10:05	Ashgrove Road / A96	Slight	2	0
07/05/2017	Sunday	06:50	Westburn Drive / Cornhill Drive	Damage	2	0
18/06/2017	Sunday	09:40	Berryden Road	Damage	2	0
26/06/2017	Monday	12:45	Ashgrove Road West	Damage	2	0
24/09/2017	Sunday	17:40	Ashgrove Road / A96	Slight	2	0
22/12/2017	Friday	20:50	A90 / Ashgrove Road West	Slight	3	0
06/08/2018	Monday	13:05	Ashgrove Road / Back Hilton Road	Slight	2	0
20/09/2018	Thursday	08:30	Ashgrove Road / Back Hilton Road	Slight	3	0
19/10/2018	Friday	16:30	Ashgrove Road / A96	Serious	1	1
05/01/2019	Saturday	21:05	Ashgrove Road / A96	Serious	2	0
30/09/2019	Monday	16:06	Ashgrove Road / Back Hilton Road	Slight	1	0
16/12/2019	Monday	15:30	A90 / Ashgrove Road West	Slight	3	0
21/01/2020	Tuesday	13:00	A90 / Ashgrove Road West	Slight	2	0
18/02/2020	Tuesday	11:00	A90 / Ashgrove Road West	Serious	1	0
23/06/2020	Tuesday	18:30	A90 / Ashgrove Road West	Serious	2	0
22/07/2020	Wednesday	16:00	A90 / Ashgrove Road West	Slight	2	0

5.6.7. Most of the collisions involved multiple vehicles, and as shown in Figure 5.6 were largely clustered around junctions. Typically, collisions of this nature are recorded to be as a result of driver inattention, either moving off too early or failing to stop in time at a red light, leading to minor collisions between vehicles.

5.6.8. The collision involving a pedestrian was described in the police report as involving a vehicle making a right-turn at a junction and being momentarily distracted by "*the low bright sun coming in between the visors and interior mirror*" at the same time as pedestrian had stepped into the carriageway to cross. The vehicle was noted as moving slowly.

5.7. Summary

5.7.1. Current provision for active travel is piecemeal and does not provide the opportunity for door-to-door walking, cycling, and wheeling. For the street in this study area, it is recommended that project objectives should consider how to provide for all ages and abilities to unlock suppressed demand for these modes.

5.7.2. Bus use and frequency in the study area is low, however there are a number of routes running along and crossing the street. Bus stops are provided on Ashgrove Road West, with further stops available to the north and south of the design area on surrounding streets, including Westburn Drive, and to the east on Powis Terrace. The majority of the routes provide frequent connections between the city centre and the north of Aberdeen; six of these services also extend to the south of the city. Two services (First Bus 11 and 23) provide links to the west of Aberdeen, but do not stop within the design area.

5.7.3. A single collision involving a pedestrian, and no collisions involving cyclists were recorded in the period 2016-2020. No trends can be identified in the supplied collision reports for pedestrians and cyclists, therefore it is considered that there is insufficient recorded evidence of safety issues for pedestrians or cyclists to draw any conclusions. Multiple studies have however documented the problem of perceived safety for people cycling as well as walking and the significant under-reporting of minor injury or no injury collisions involving people walking and cycling. In the case of cycling, one notable study (Aldred, 2015[1]) sought to quantify the frequency of near misses involving adults cycling. Its conclusions indicated that this had a particularly significant impact on the perception of cycling as an attractive option for females and people who cycled less frequently.

5.7.4. Similarly, resident perceptions of street safety are commonly focussed on the speed, volume and vehicle size. Further, the liveability of a street (defined by the number of community connections) is generally considered to be impacted negatively by the volume of traffic using it, partly due to the perception of safety as well as factors such as noise and air pollution (Appleyard (1981))[2]. This collision analysis should therefore be considered in the context of the community engagement responses and baseline data analysis.

[1] Aldred (2015), The Near Miss Project [Nearmissreport-final-web.pdf (rachelaldred.org)]
[2] Appleyard (1981) Liveable Streets

5.7.5. 16 vehicle-on-vehicle collisions were primarily recorded in two clusters at either end of the street at junctions and resulted in primarily slight injuries. It is recommended that the design options consider this analysis in any changes that may be made at these locations.

6. Street Network Operation

6.1. Introduction

6.1.1. This section of the report will present the results of the traffic surveys, car parking surveys, and junction models for the existing junctions. The purpose of this analysis is to provide a baseline for existing demand.

6.2. Traffic Flow & Speed Data

6.2.1. This section provides summary data for the Automated Traffic Counter (ATC) surveys. These have been conducted over a seven-day period for 24 hours a day, and recorded classified vehicle speeds and traffic volumes. Surveys have been undertaken at three locations as indicated in Figure 6.1. The ATC counters were in place between 12/03/22 – 20/03/22.

Figure 6.1 – ATC Survey Locations

Traffic Volumes

6.2.2. The average weekday and Saturday traffic flows and proportion of HGV traffic observed at each of the ATC Sites are summarised in Table 6.1, and the daily total traffic flows are summarised in Table 6.1.

Table 6.1 – Average Weekday and Saturday Flows

Site	Average Weekday Flow	Average Saturday Flow	% HGVs
1	6,919	3,854	8.4%
2	10,636	5,600	7.7%
3	6,196	4,674	5.2%

Table 6.2 – Total Daily Flows

Day	Site 1	Site 2	Site 3

Monday	6,572	9,945	5,836
Tuesday	6,981	10,438	6,098
Wednesday	7,092	11,022	6,336
Thursday	7,123	10,925	6,387
Friday	6,826	10,848	6,325
Saturday	3,854	5,600	4,674
Sunday	3,173	4,750	3,850

6.2.3. Traffic flows observed at the weekend were significantly lower than those during the week, and the highest traffic flows were observed at ATC Site 2 throughout each weekday and the weekend. Across all three sites Wednesday and Thursday were observed to have the highest volume of traffic, while Monday was observed to be the weekday with the lowest flows.

6.2.4. HGV traffic, as a proportion of the overall traffic volumes, was observed to be highest at ATC Site 1 and lowest at ATC Site 3. These results are broadly in line with typical urban traffic flow patterns; busier activity during the week is reflective of commuter traffic, with weekday traffic forming a bell curve that peaks on Wednesday to reflect the increasing trend towards home / flexible working at the start and end of the working week. The higher proportion of HGV flows at the west of the street are assumed to be linked to the proximity of North Anderson Drive.

6.2.5. The 2019 Road Hierarchy Study notes that while there is no fixed number of vehicles that set the criteria for identifying a suitable class of road for any given route, the document does identify thresholds for considering which routes could be considered for priority and secondary routes.

6.2.6. These thresholds and the observed traffic volumes for each mode of travel are identified in Table 6.3.

6.2.7. The observed traffic volumes are the weekday averages; it should be noted that the cycle movements also include those for powered two-wheelers.

6.2.8. The bus movements were identified from bus timetables, as the ATC surveys cannot differentiate between buses and similarly sized two and three axle HGVs.

Table 6.3 – Road Hierarchy Thresholds and Traffic Volumes

Mode	Movements per Day				
	Priority	Secondary	Site 1	Site 2	Site 3
Cars	> 10,000	> 3,000	6,269	9,674	5,760
Freight (LGVs / HGVs)	1,500+	> 450	503	889	369
Buses	100	< 100	114	27	0
Cycles	100	< 100	33	45	67

6.2.9. The observed movements for cars for each of the three sites falls within the threshold for a secondary road, as do the freight movements at Sites 1 and 2. The bus movements would class Site 1 as a priority route, and Site 2 as a secondary, while no bus activity occurs at Site 3.

Peak Hours

6.2.10. The observed average weekday AM and PM, and Saturday, peak hours are identified in

Site	Typical Weekday Peak Hours		Saturday Peak Hour
	AM	PM	
1	07:45 - 08:45	16:30 - 17:30	12:15 - 13:15
2	07:45 - 08:45	16:15 - 17:15	12:15 - 13:15
3	08:00 - 09:00	16:30 - 17:30	12:00 - 13:00

6.2.11. The observed peak hours across each of the three sites are broadly similar, with a 15-minute variance observed for a single site in each of the three peak hours.

Traffic Flow Profiles – Two-way Daily Movements

6.2.12. The daily traffic flow profiles for each of the three sites are presented in Figure 6.2, Figure 6.3, and Figure 6.4. The flow profile charts provide a comparison of the two-way traffic flows throughout each surveyed 24-hour period across the full seven-day survey. This enables the identification of trends in traffic activity, such as typical peak periods and a comparison of activity between days.

Figure 6.2 – ATC Site 1 Daily Flow Profile

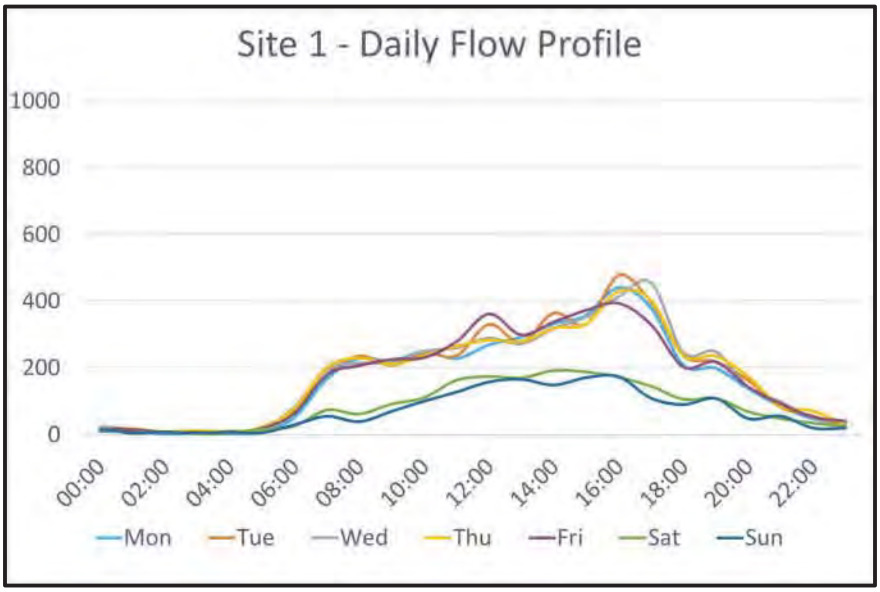


Figure 6.3 – ATC Site 2 Daily Flow Profile

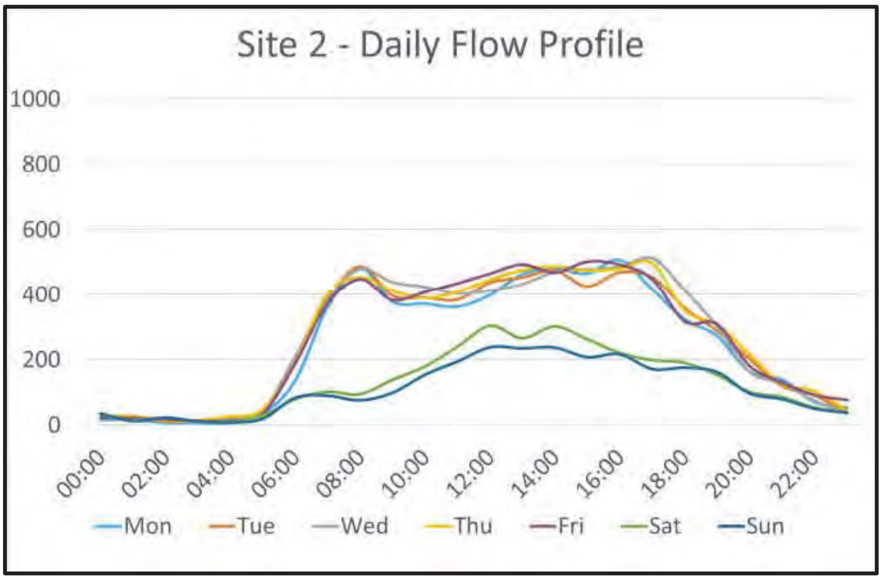
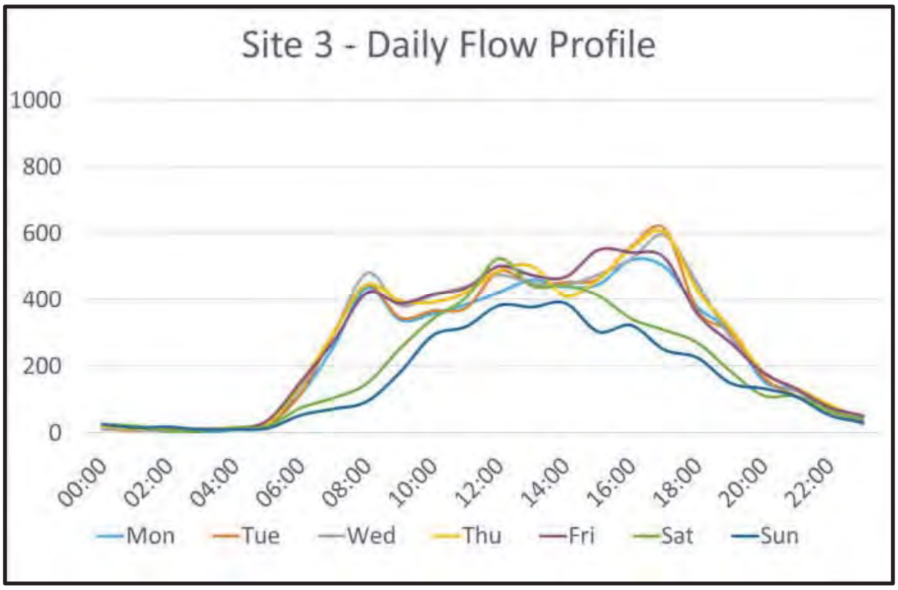


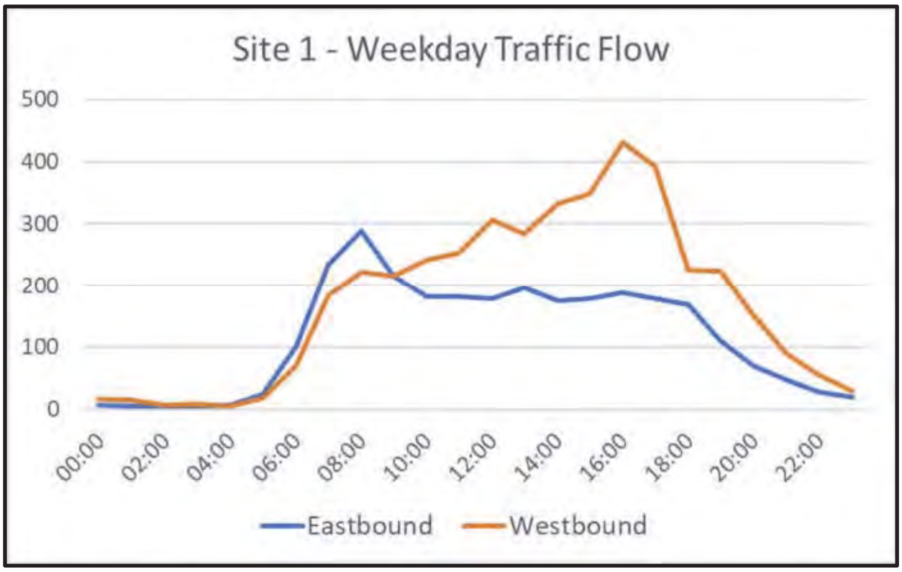
Figure 6.4 – ATC Site 3 Daily Flow Profile



Traffic Flow Profiles – Weekday Movements by Direction

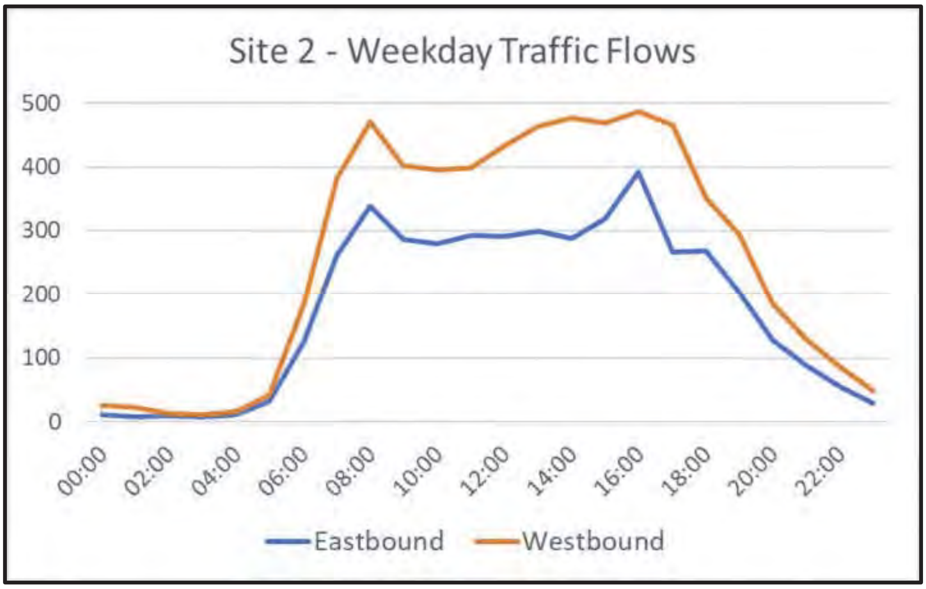
6.2.13. The average weekday directional flow profiles for each ATC Site are presented in Figure 6.5 to 6.7. The Saturday flow profiles have been omitted as both the eastbound and westbound movements form a general bell curve around the peak hours at all three sites, with no discernible difference in directional movements throughout the observed Saturday.

Figure 6.5 – ATC Site 1 – Average Weekday Flow Profile by Direction



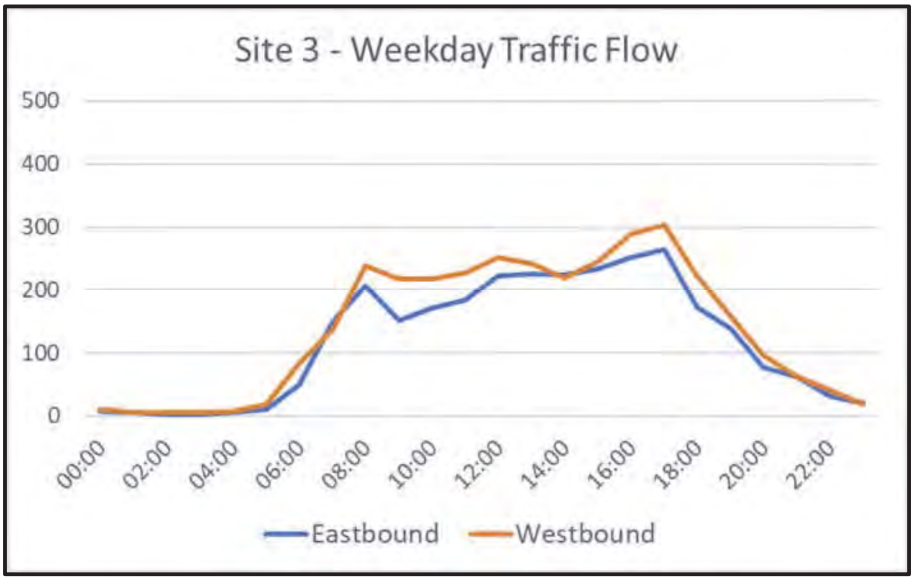
6.2.14. The directional traffic volumes observed at ATC Site 1 are tidal in nature, with higher eastbound flows in the morning and higher westbound flows in the evening. It is notable that the PM peak westbound traffic volumes are higher than the eastbound, indicating that some traffic may be choosing an alternative route for the eastbound AM movements. Given the proximity of the hospital this routing may be a result of morning staff arrivals via routes to the south and evening staff departures routing west towards North Anderson Drive.

Figure 6.6 – ATC Site 2 – Average Weekday Flow Profile by Direction



6.2.15. The average weekday directional flow profile for ATC Site 2 does not provide a clear indication of tidal movements, as both the eastbound and westbound movements show relatively symmetrical profiles with AM and PM peak hours. While there are distinct peaks, the drop-off between the peak hours is relatively low, at less than 100 vehicles in either direction, resulting in fairly steady flows of around 300 eastbound movements per hour and at least 400 westbound movements per hour.

Figure 6.7 – ATC Site 3 – Average Weekday Flow Profile by Direction



6.2.16. The weekday peak hours for ATC Site 3 are less defined; traffic flows increase from nominal levels to around 200 movements per hour in both directions in the AM period and remain relatively steady throughout the day, before gradually falling after the PM peak hour. Movements are generally balanced evenly between the two directions, slightly edged by the westbound, and flows are marginally higher in the evening than in the morning.

6.2.17. This profile suggests that while the overall flows are lower than those of ATC Sites 1 and 2, there is a higher proportion of activity throughout the day, as opposed to being having distinct peak periods typically associated with weekday commuter travel habits.

Traffic Speeds

6.2.18. The average and 85th percentile traffic speeds observed at the three ATC Sites are presented in Table 6.4. This provides an indication as to whether the posted speed limit (30mph on Ashgrove Road West and Ashgrove Road) are being adhered to at each section of the street, and to allow for a comparison between speeds on each section, and by direction.

6.2.19. The average speeds in Table 6.4 are the mean of the speeds measured across all seven days of the surveys. The 85th percentile speeds are the seven-day average of the 85th percentile speeds recorded on each day of the survey. The 85th percentile speed is the maximum speed to which 85% of all observed traffic adheres; the remaining 15% exceed this speed.

Table 6.4 – 7-Day Speed Summary (mph)

Direction	Site 1		Site 2		Site 3	
	Average	85th %ile	Average	85th %ile	Average	85th %ile
Eastbound	31.3	35.3	28.0	33.6	29.4	33.3
Westbound	31.3	35.3	26.3	31.3	29.7	33.4
Two-way	31.3	35.3	27.0	32.4	29.6	33.4

6.2.20. The highest average 7-day speeds were observed at ATC Site 1, with both the eastbound and westbound average speeds exceeding 30mph by a little over 1mph. The observed 85th percentile speeds were higher, averaging over 35mph over the 7-day survey period. The same speeds were observed in both directions.

6.2.21. ATC Site 2, which had the highest traffic flows throughout the survey, was observed to have the lowest average speeds. Speeds in both directions were observed to be below the posted 30mph limit, and the eastbound flows were observed as the lowest speeds of all those surveyed at an average of 26mph. are lowest at site 2, with the Eastbound and Westbound 7-day averages below the speed limit. The figure for the 85th percentile 7-day average in the Westbound direction is the lowest of the three sites. However, its 85th percentile 7-day average Eastbound is slightly higher than that of site 3.

6.2.22. Data for site 3 demonstrates that speed limits are mostly adhered to in this area, as 7-day average speeds are under 30mph in both directions. For the most part, average speeds at site 3 fall between those of sites 1 and 2, with the 85th percentile 7-day average speed Eastbound the only exception to this trend.

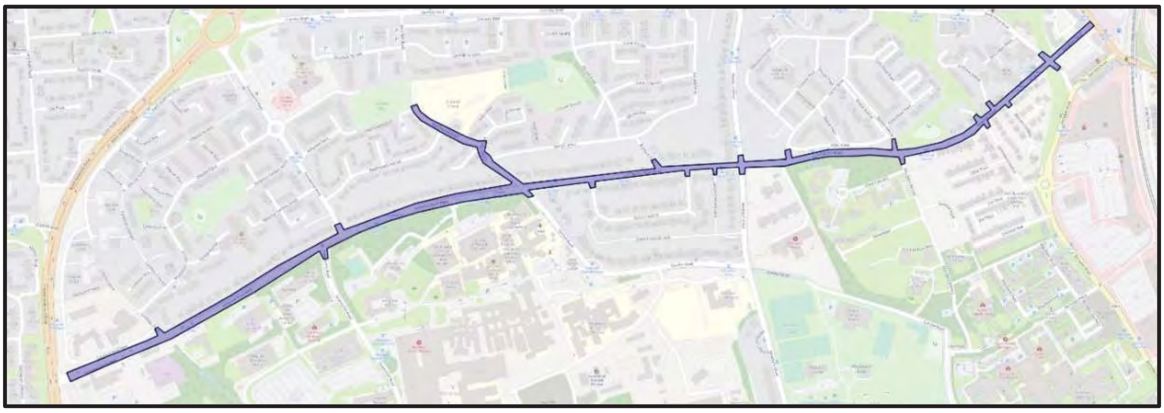
6.2.23. In summary, average speeds are highest and often exceed the speed limit at site 1, average speeds are the lowest and mostly within the speed limit at site 2 and average speeds are slightly higher but mostly within the speed limit at site 3.

6.2.24. The 2019 Road Hierarchy Study identifies speed limits of 30-40mph are suitable for priority and secondary routes, while 20mph is suitable for a tertiary route. It may therefore be necessary, in order to classify the street as a tertiary route, to lower the speed limit to 20mph and potentially introduce speed reduction measures.

6.3. Car Parking Surveys

6.3.1. Car parking surveys were undertaken on Tuesday 26th April and Saturday 30th April 2022. These surveys covered the length of the street, as well as the first 20m of each of the side roads that form junctions with the street. The survey area also extended north on Cornhill Terrace and Beechwood Road to observe pick-up / drop-off parking for Cornhill Primary School. The survey area is presented in Figure 6.8. Note that the survey on Cornhill Terrace did not extend beyond the junction with Beechwood Road.

Figure 6.8 – Parking Survey Area



6.3.2. These surveys were undertaken across a 16-hour period and recorded parking levels throughout the identified area in 15-minute intervals to build up a picture of parking demand. Parking outwith the identified bays was also be recorded, such as on footways or double yellow lines, and the presence of parking permits in vehicles will be observed.

Parking Provision and Restrictions

6.3.3. All of the marked bays within the survey area are signed as "*Mon – Fri, 10am – 4pm, voucher parking and residents permits only*", and fall within Controlled Parking Zone (CPZ) Z.

6.3.4. The levels of parking provision on the street, the roads leading to Cornhill Primary School, and the remaining areas of the survey are summarised in Table 6.5. Individual bays are not marked, so these levels are identified on the assumption that a single bay is 5m long.

Table 6.5 – Parking Provision

Street	Residents / Permit	Unrestricted	Total
Ashgrove Road	0	23	23
Ashgrove Road West	112	0	112
Beechwood Road	14	1	15
Cornhill Terrace	3	0	3
Other	6	20	26

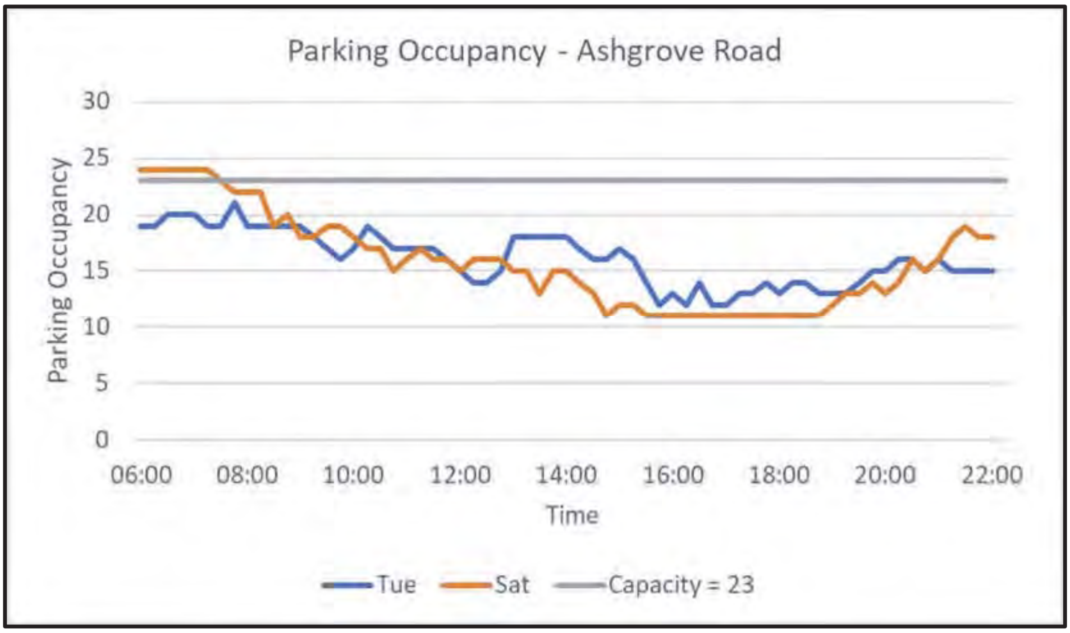
6.3.5. Parking provision on the main sections of the survey area is provided as follows:

- Ashgrove Road – no designated bays are provided, but there are multiple sections on the south side of the carriageway, east of May Baird Avenue, where there are breaks in the double and single yellow lines that allow unrestricted parking.
- Ashgrove Road West – parking is provided in designated on-road parking bays, and restricted outwith those bays by either double or single yellow lines. All the bays are provided on the south of the carriageway.
- Beechwood Road – marked bays are provided on the west side of the carriageway, and a short unrestricted section was observed that could accommodate a single vehicle. Keep Clear markings are provided along the school frontage, supported by signage stating "*no stopping, Mon – Fri, 8am – 5pm, on school entrance markings*".
- Cornhill Terrace – there is one short section of marked bays on the west side of the carriageway, located between Ashgrove Road West and the Beechwood Road junction. Outwith the bays both sides of the carriageway are marked by double yellow lines.

Overall Demand & Occupancy

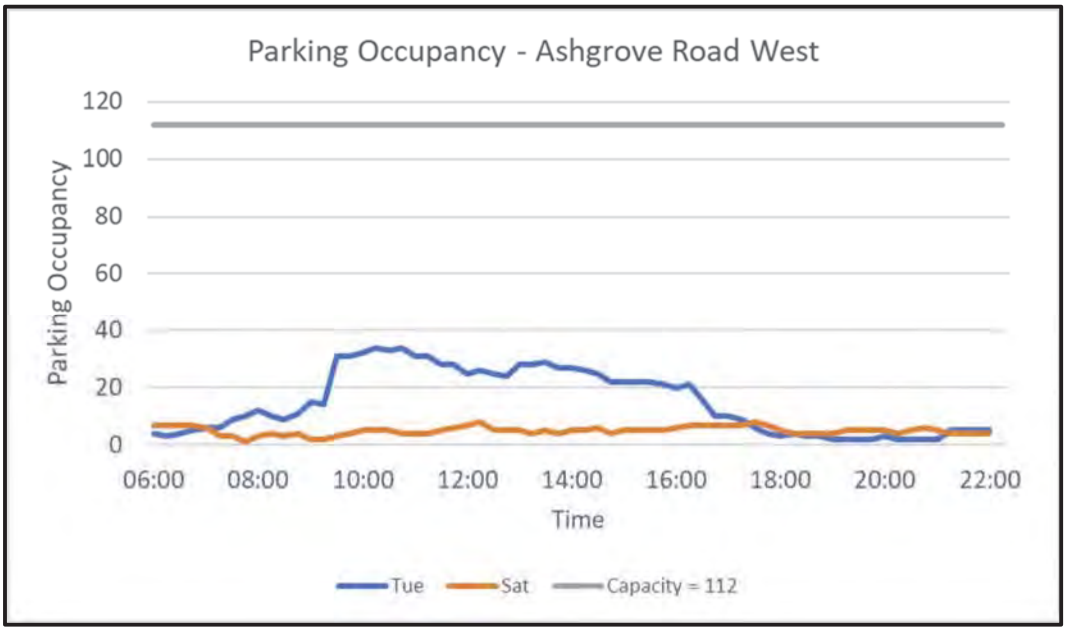
6.3.6. The parking occupancy levels throughout the surveyed days for Ashgrove Road, Ashgrove Road West and Beechwood Road are summarised in Figure 6.9, Figure 6.10, and Figure 6.11 respectively.

Figure 6.9 – Parking Occupancy and Capacity – Ashgrove Road



6.3.7. Parking occupancy on Ashgrove Road was near full capacity overnight and in the early morning for both the Tuesday and Saturday, and occupancy fell throughout the morning and afternoon in both days, with a minor rise around midday on Tuesday. Occupancy levels reached a minimum of around 50% on both days before rising once more in the evening.

Figure 6.10 – Parking Occupancy and Capacity – Ashgrove Road West



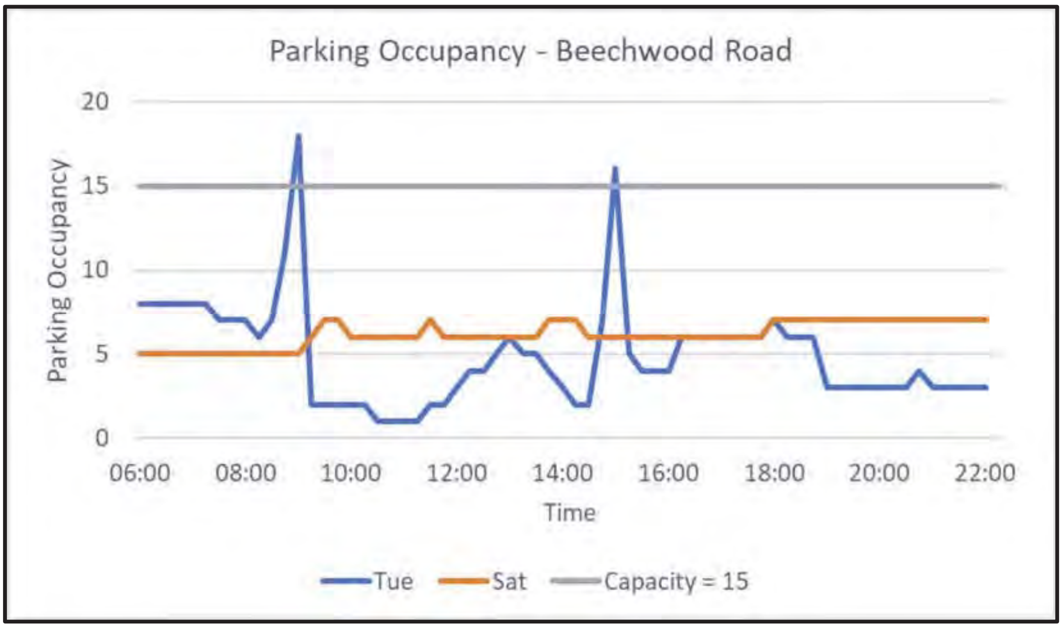
6.3.8. The occupancy on Ashgrove Road West was minimal overnight, and remained well below the total capacity of 112 parking spaces on both surveyed days. Occupancy was higher on the Tuesday,

reaching around 30 vehicles at approximately 09:00, and maintained a similar level throughout the day before dropping at 17:00.

6.3.9. The Saturday survey results show a very low number of parked vehicles; occupancy is well below capacity and remains low throughout the day.

6.3.10. These levels generally indicate that demand is primarily driven by employment, as occupancy levels coincide with typical weekday working hours.

Figure 6.11 – Parking Occupancy and Capacity – Beechwood Road



6.3.11. On Beechwood Road occupancy briefly exceeded capacity at both 09:00 and 15:00, coinciding with the pickup and drop off times at Cornhill Primary School. Outside these peak times, occupancy remains below 50% of capacity throughout Tuesday with some fluctuations.

6.3.12. The Saturday survey results show static occupancy levels throughout the day, and did not exceed an occupancy of approximately 50%.

6.3.13. A summary of the total vehicles observed across the survey, sorted by vehicle type, is presented in Table 6.6.

6.3.14. Three types of vehicles were observed across the entire survey – cars, LGVs, and HGVs, with cars making up the majority of the parking demand.

6.3.15. The two HGVs were observed on Ashgrove Road West both on Tuesday 26th April 2022:

- The first parked in the CPZ parking area, without a permit, between 10:00 – 11:15
- The second parked on double yellow lines between 07:30 – 09:45

Table 6.6 – Parking Totals by Vehicle Type

Street	Day	No. Cars	No. LGVs	No. HGVs	Total
Ashgrove Road	Tue	44	5	0	49
	Sat	49	2	0	51
Ashgrove Road West	Tue	58	22	2	82
	Sat	30	11	0	41
Beechwood Road	Tue	52	3	0	55
	Sat	12	0	0	12
Other Locations	Tue	24	5	0	29
	Sat	20	2	0	22

Parking Duration

6.3.16. The parking durations observed on Ashgrove Road, Ashgrove Road West, and Beechwood Road are summarised in Figure 6.12 and Figure 6.13.

Figure 6.12 – Parking Duration – Tuesday 26th April 2022

6.3.17. Tuesday parking duration results for Ashgrove Road show that most vehicles that parked on this street stayed for a duration longer than one hour, with a significant portion remaining for longer than five hours.

6.3.18. Ashgrove Road West shows similar results but skews more towards shorter durations, and with a higher overall number of parked vehicles. Around one third of vehicles parked for less than one hour and more than half parked for less than two hours. A large proportion of the remaining vehicles were recorded at between five and ten hours.

6.3.19. Parking durations on Beechwood Road are highly influenced by the nearby Cornhill Primary School; the majority of parked vehicles were short school pickups or drop-offs as described in the previous section.

Figure 6.13 – Parking Duration – Saturday 30th April 2022

6.3.20. Saturday parking duration results show a lower number of vehicles on all surveyed streets. The typical Ashgrove Road parking duration is relatively similar; the majority over one hour and a large proportion over five hours.

6.3.21. On Ashgrove Road West the majority of vehicles stay for less than two hours, in contrast to weekday observations. On Beechwood Road parking levels are very low outside of school access and egress times; vehicles that park here at the weekend generally stay longer than two hours. Only three vehicles were recorded on Cornhill Terrace on this day, all with a duration less than 15 minutes.

Restricted / CPZ Parking

6.3.22. A summary of number of vehicles parking in each type of location, whether a designated space, unrestricted space or otherwise, is presented in Table 6.7. This includes vehicles parked on single and double yellow lines, and on 'Keep Clear' signage. The number of vehicles parked in CPZ parking is also displayed, along with the number doing so without the correct permit in place.

Table 6.7 – Parking by Type of Restriction

Street	Day	Unrestricted	Single Yellow	Double Yellow	Keep Clear	CPZ	CPZ (no permit)	Total
Ashgrove Road	Tue	41	1	7	0	0	N/A	49
	Sat	46	1	4	0	0	N/A	51
Ashgrove Road West	Tue	0	15	6	0	61	50	82
	Sat	0	18	3	0	19	19	40
Beechwood Road	Tue	4	5	4	9	33	23	55
	Sat	0	0	0	0	12	4	12
Other Locations	Tue	12	0	2	0	14	9	28
	Sat	8	3	1	0	9	9	21

6.3.23. The majority of vehicles parking in the designated CPZ parking bays did so without the required permits, although it is noted that it is possible to pay using the PayByPhone smartphone app which cannot be observed during parking surveys., indicating that there is minimal enforcement of the CPZ restrictions. This also indicates that very few residents park on-road, particularly on Ashgrove Road West, the demand on which appears to be primarily driven by employment traffic. Several of those parking on Beechwood Road parked either on single or double yellow lines, or on the Keep Clear markings. A significantly lower proportion of those parking in the CPZ spaces did so without a permit on the Saturday. This further supports the short-term demand driven by pick-up and drop-off trips to Cornhill Primary School.

7. Active Travel Activity

7.1. Introduction

7.1.1. This section of the report will present the results of the pedestrian and cycle crossing surveys, and the public life surveys. The purpose of this analysis is to provide a baseline for existing demand and to inform the opportunities and constraints for options development.

7.2. Active Travel Crossing Surveys

7.2.1. Active travel crossing surveys were undertaken between 12th – 20th March 2022 and covered the 16-hour period from 06:00-22:00. The surveys were undertaken at key junctions within the Design Area, and at the three sets of bus stops on Ashgrove Road West. The junction locations are presented in Figure 7.1, and the bus stop locations are presented in Figure 7.2.

Figure 7.1 – Pedestrian / Cycle Crossing Survey Locations

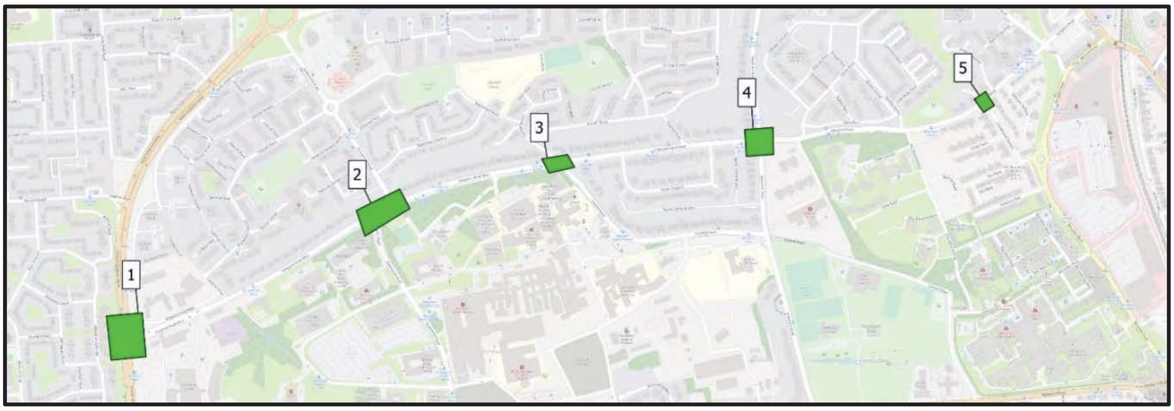
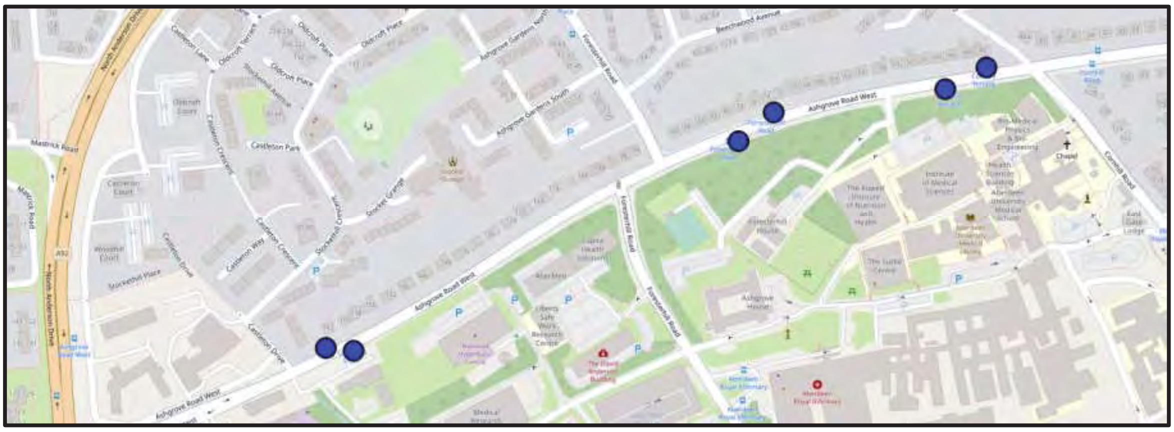


Figure 7.2 – Bus Stop Survey Locations



7.2.2. All active travel movements were recorded at the junctions and encompass each approach for a distance of at least 20m back from each junction. The surveys will be broken into 30-minute time periods and will record the direction of each movement.

7.3. Walking Movements

Figure 7.3 – Number of People Walking and Cycling in Survey Area on a Weekday

Table 7.1 – Summary of Walking and Cycling Survey Counts (Weekday)

Location	Pedestrians	Cycles	Total
Site 1	719	149	868
Site 2	1,466	145	1,611
Site 3	2,027	169	2,196
Site 4	2,805	277	3,082
Site 5	2,403	213	2,616

7.3.1. As was also the impression from site visits, the pedestrian activity is lowest to the west near North Anderson Drive and numbers rise further to the east. The total numbers are very low overall, and the level of pedestrian activity amounts to only a couple of people passing a count location per minute, even during the busier times of day. There are several locations that recorded zero pedestrian activity for a whole hour of counting. This is seen both in the outermost counts (6-7 am and 9-10 pm) but for site 1 this even occurs for several stretches during the day, in mid-mornings as well as afternoon.

7.3.2. This implies that area is not an attractive place to walk around in but has the additional negative impact of feeling empty and unsafe with no eyes on the street. As the number of cycles counted in the area is even lower there is also little chance of a cycle passing and so there is very little passive surveillance on the street. It is worth noting that the speed of passing traffic also impacts on the sense of safety as cars passing at high speeds are less likely to notice and incident or stop to intervene. This could be further explored as part of improving the pedestrian experience.

7.3.3. The primary movement on the stretch is the east-west movement however at the Foresterhill signalised crossing (site 2) the pedestrian movement on arm C which connects north-south across Ashgrove Road is the busiest one.

7.4. Cycle Movements

7.4.1. The number of people cycling within the Design Area is low. Cycles make up less than 10% of the total active travel count in the area which implies that the route is not an attractive cycle route. One reason might be that it does not feel safe to cycle there and this can also be seen in the fact that many people choose to cycle on the footway rather than on the carriageway.

7.4.2. A summary of the number and percentage of cyclists observed using the footways and carriageways at each of the surveyed sites is presented in Table 7.2.

Table 7.2 – Summary of Footway & Carriageway Usage by Cyclists (Weekday)

Location	Number			Percentage	
	Footway	Carriageway	Total	Footway	Carriageway
Site 1	74	75	149	50%	50%
Site 2	54	91	145	37%	63%
Site 3	34	135	169	20%	80%
Site 4	70	207	277	25%	75%
Site 5	34	179	213	16%	84%

7.4.3. Examples of where a high proportion of cycling was observed on the footway are presented in Figure 7.4 and Figure 7.5 at the Foresterhill Road junction (Site 2) and Cornhill Terrace junction (Site 3) respectively. While a full data set of cycle movements on the footways and carriageways at each of the sites has been collected, these locations have been selected as the proportion of cyclists using the footways was notable higher than elsewhere in the surveys. It is however noted that cycling movements across the entire survey are considered low, irrespective of whether they were observed on footways or carriageways.

Figure 7.4 – Site 2 Movements

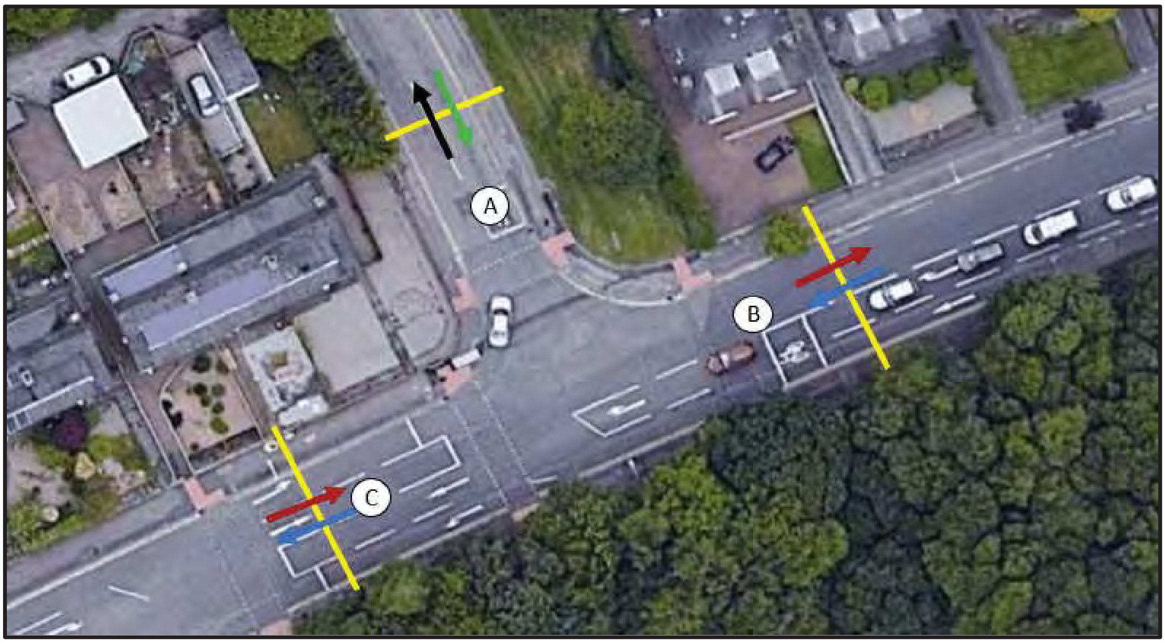


Table 7.3 – Site 2 Summary of Footway & Carriageway Usage by Cyclists (Weekday)

Approach	Number			Percentage	
	Footway	Carriageway	Total	Footway	Carriageway
Arm A	7	21	28	25%	75%
Arm B	24	43	67	36%	64%
Arm C	23	27	50	46%	54%
Total	54	91	145	37%	63%

7.4.4. In this situation almost half of all people cycling, chose to do so on the footway. This shows that Ashgrove Road West is not considered appropriate or safe to cycle on. Furthermore, even if it only happens occasionally, people cycling on the footway may also potentially create unsafe situations for pedestrians using the same space.

7.4.5. At site 2 cars are approaching the ring road and may be starting to drive at higher speeds. As this part of the road also has more commercial buildings and fewer residential there will be fewer locals cycling here and the people cycling are going further afield and may be commuter cyclists who feel confident to cycle in the road.

Figure 7.5 – Site 3 Movements

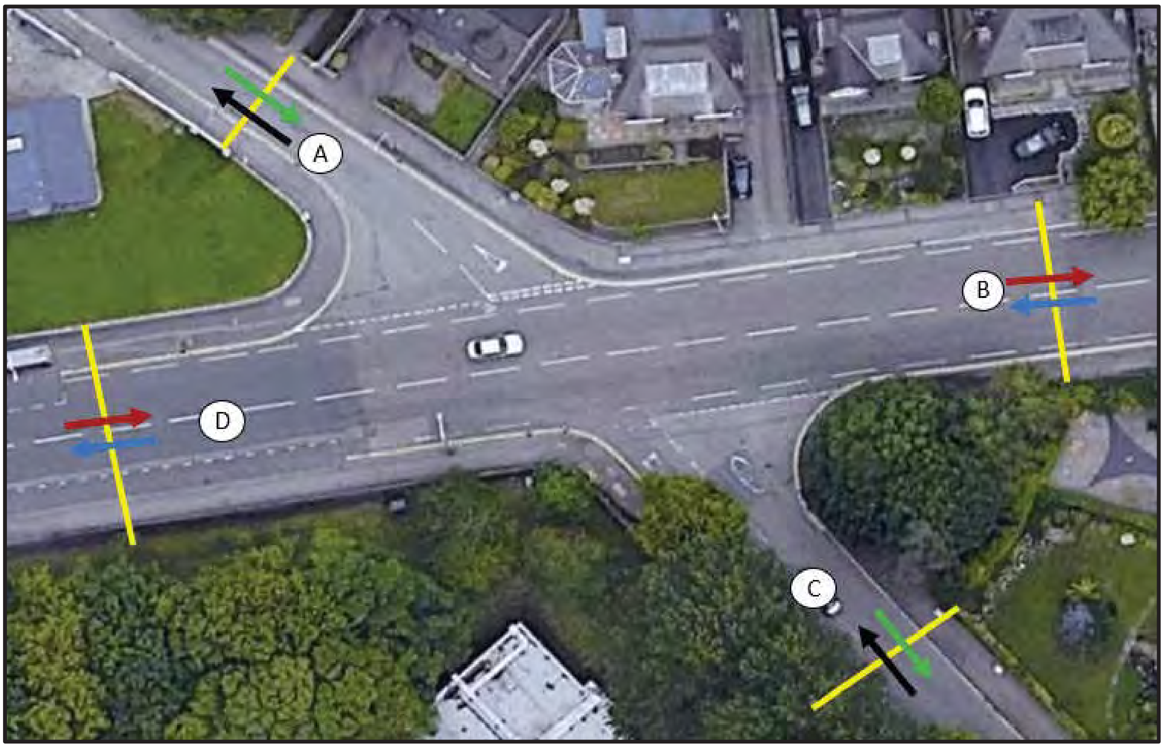


Table 7.4 – Site 3 Summary of Footway & Carriageway Usage by Cyclists (Weekday)

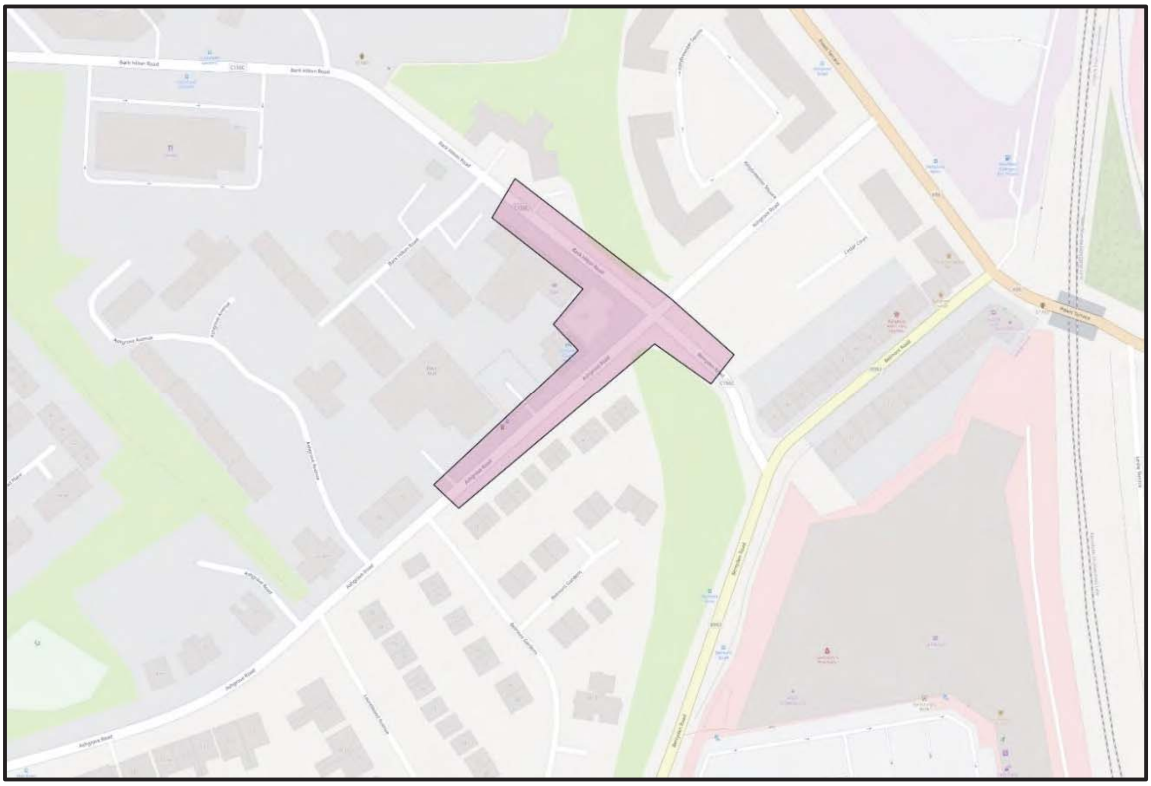
Approach	Number			Percentage	
	Footway	Carriageway	Total	Footway	Carriageway
Arm A	9	10	19	47%	53%
Arm B	9	51	60	15%	85%
Arm C	2	19	21	10%	90%
Arm D	14	55	69	20%	80%
Total	34	135	169	20%	80%

7.4.6. Site 3. Arm A, Cornhill Terrace which connects to the primary school has the highest number of people cycling on the pavement and this is likely to be a large number of children. Nonetheless it shows that even for a residential street in close proximity to a primary school the street environment is not inviting to people cycling. It is also worth noting that the southbound Cornhill Road has 90% of cycles on the carriageway which both implies that the street is more cyclable but could also partly be explained by the University site where people going to the university from Ashgrove Road West will enter/exit onto the street and may choose to cycle on the footway only once they get to Ashgrove Road West.

7.5. Public Life Survey

7.5.1. A Public Life Survey (PLS) has been undertaken at the east end of the Design Area, at the location shown in Figure 7.6. The PLS involved counting pedestrian and cycle movements within the designated survey area, as well as observing stationary activities and behaviours.

Figure 7.6 – PLS Location

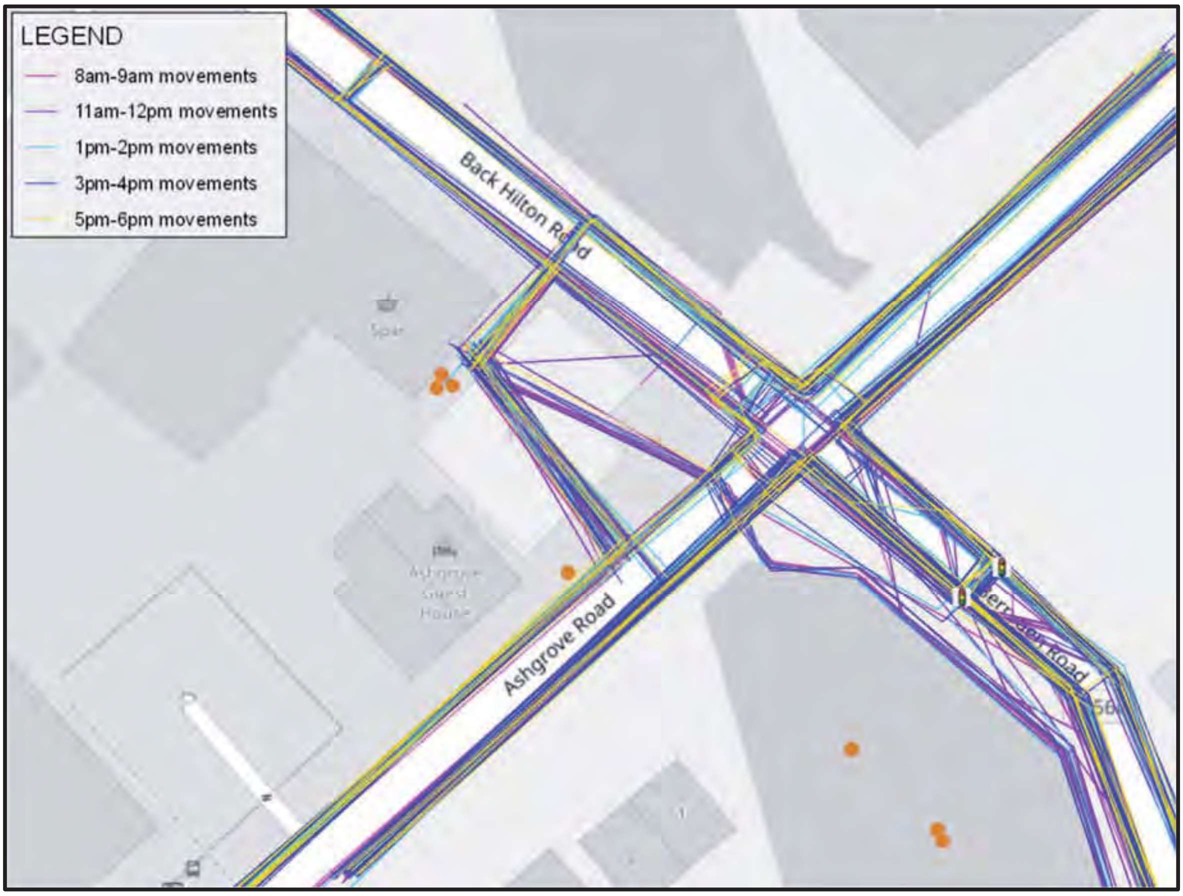


7.5.2. The PLS covers the same period as the crossing surveys but has gathered data over a nine-day period, with half-hour snapshots taken of the busiest periods of activity. This data is the basis for the movement tracing plan presented in Figure 7.7, which also includes locations of activity / gathering (known as ‘sticky’ locations).

7.5.3. The movement tracing shows how the junction is currently being used by pedestrians. While many people use the signalised pedestrian crossing it shows clearly that pedestrians choose to cross the street in many different locations when there are gaps in traffic rather than choosing the controlled crossing. It also shows how many pedestrians choose to follow their desire line and cross in a straight movement along Berryden Road/Back Hilton Road while others veer off their path and pass at the dropped kerbs further down Ashgrove Road.

7.5.4. The Public Life Survey showed very few instances of people lingering in the area. There were occasions of people walking their dog who would stay for short periods in the green area and the ATM outside the shop was a point of gathering, even if for very short time. In an instance there was also an extended stay outside the gate to the parking area, a person being picked up in a car. The area therefore is not considered “sticky”, i.e. there are not many things keeping people in the area and the opportunities for informal gathering and meeting areas could be improved.

Figure 7.7 – Movement Tracing



7.5.5. While proposed changes to the Berryden Corridor will considerably alter pedestrian movement at the junction of Ashgrove Road, the public life survey indicates clear crossing desire lines on Ashgrove Road itself and heavy footfall on the footways. The project should consider how best to accommodate these desire lines.

8. Infrastructure Review

8.1. Introduction

8.1.1. The study roads are in a predominantly residential environment which connects the radial A92 to the arterial Berryden Road corridor. While it is not intended to serve an arterial / distribution function, its proximity to the key routes does make it vulnerable to through traffic. Its status is further elevated by its direct access to several major city civic facilities. The majority of the route emulates a wide traffic focused boulevard with limited attractiveness and appeal for people, place and amenity.

8.1.2. It is acknowledged the corridor is likely to continue to serve a semi strategic function on the local road network. This engineering review seeks to consider opportunities for redressing the balance and enhancing the study area's sustainable connectivity, place, and amenity, whilst maintaining an appropriate level of vehicular access.

8.1.3. The purpose of this section is to present the engineering and infrastructure conditions within the existing study area and explore design opportunities for enhancement.

8.2. Design Guidance

8.2.1. The reclassification of the street (in the North East Roads Hierarchy) from an A to a C class route provides the opportunity to deliver a more holistic street environment to respond to the principles of Designing Streets, the National Roads Development Guide and Cycling by Design.

Designing Streets

8.2.2. Designing Streets[3] emphasises the importance of providing well designed streets at the heart of sustainable communities and demonstrates the benefits that can be realised by assigning a higher priority to pedestrians and cyclists from good street design. The document seeks a shift away from a rigid application of design standards and guidance to a more holistic approach to the creation of places. The overall aim can be summarised as:

8.2.3. "Streets should not be designed just to accommodate the movement of motor vehicles. It is important that designers place the highest priority on meeting the needs of pedestrians, cyclist and public transport users so that growth in these modes of travel is encouraged in line with sustainable travel."

8.2.4. Designing Streets is the first policy statement in Scotland for street design and marks a change in the emphasis of guidance on street design towards place-making and pedestrian movement and away from a system focused upon the dominance of motor vehicles. It has been created to support

[3] Designing Streets: A Policy Statement for Scotland (www.gov.scot)

the Scottish Government's place-making agenda and is intended to sit alongside the 2001 planning policy document Designing Places, which sets out government aspirations for design and the role of the planning system in delivering these.

8.2.5. Designing Streets emphasises the importance that prioritising sustainable modes is a key aspect to the creation of attractive and functioning urban environments. Designing Streets emphasises that street design should meet the following six qualities of successful places:

- Distinctive
- Safe & pleasant
- Easy to move around
- Welcoming
- Adaptable
- Resource efficient

National Roads Development Guide

8.2.6. The National Roads Development Guide (NRDG) has been produced by the Society for Chief Officers of Transport in Scotland (SCOTS), supported by Transport Scotland and Scottish Government. The document supports Designing Streets policy and bridges the gap to more traditional road design guides. The NRDG provides a framework which balances prescriptive standards with providing licence for freedom in design.

8.2.7. The NRDG was adopted by Aberdeen City Council in 2014, where a number of area specific alterations have been applied. The NRDG provides information including geometric provision, design / construction details and parking provision.

8.2.8. One of key parameters which will influence this study is the guidance pertaining to provision pedestrians. With regard to pedestrian network and routes within new developments, the NRDG states: "*Pedestrian movements should be made as convenient, safe and pleasant as possible by careful attention to the design and layout of pedestrian routes. The pedestrian network should reflect nature desire lines and be more attractive for pedestrians to use than the vehicular route. The provision for cyclists should be examined at the same time as the provision for pedestrians as the two can often be combined*."

8.2.9. Footway widths should take account of pedestrian volumes and compositions. These widths represent desirable minimums and footways should be provided to a suitable width giving cognisance to the local environment and pedestrian traffic, exceeding the minimums wherever possible.

Table 8.1 – Minimum footway widths

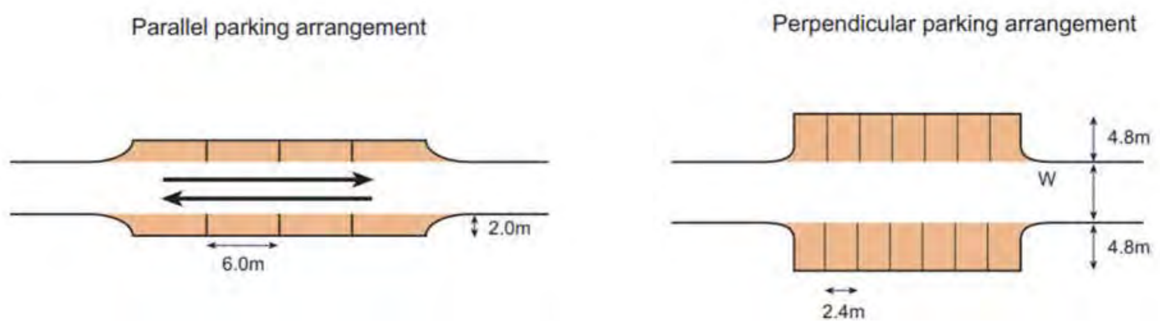
Frontage Development	Width (metres)
None	2.5 – 3.0*
Industrial	2.0 – 5.0
Residential	2.0 – 3.0
Local Shops	4.0
Major Shops	5.0

**minimum 3.0m for arterial roads*

8.2.10. Parking provision is another key aspect which is covered by the NRDG and Designing Streets. The NRDG makes it clear that it is important to consider a design-led approach to the provision of car parking space that is well integrated with a high-quality public realm. A design-led and contextual strategy for car parking can often lessen the impact on the built environment.

8.2.11. With regard to parking bay widths, the NRDG states: "*For parking parallel to the street, each vehicle will typically need an area of about 2 m wide and 6 m long. For echelon or perpendicular parking, individual bays will need to be indicated or marked*."

Figure 8.1 – Parking Arrangements



8.2.12. Road widths should be considered by creating carriageway space which allows the appropriate type of vehicles to travel on the road safely and comfortably.

8.2.13. With regard to road widths, NRDG states: "*Road design should therefore commence with an analysis of the types of road users anticipated on the route along with the design speed. This should be considered along with the percentage of HGVs and buses and where this is expected to be high then widths should be able to accommodate these larger vehicles to pass each other in free-flowing traffic*."

8.2.14. The tables below provide an indication of the necessary lane widths required to accommodate certain vehicle types.

Table 8.2 – Accommodating Different Vehicle Types

Vehicle Type	Width of Vehicle (m)	Minimum Lane Width (m)
Bicycle	0.6	1.0
Bus	2.5	3.0
HGV	2.5	3.0
Van	2.2	2.6
Car	1.8	2.0

Table 8.3 – Minimum Clearance Distances

Distance	20mph Design Speed	30mph Design Speed
Kerb to vehicle clearance	200mm	250mm
Vehicle to vehicle clearance	300mm	800mm

Cycling by Design 2021

8.2.15. Cycling by Design provides guidance for cycling infrastructure design on all roads, streets, and paths in Scotland. It aims to ensure that cycling is a practical and attractive choice for the everyday and occasional journeys of all people, particularly new, returning or less confident users.

8.2.16. The guidance provides designers with the information they need to make good design decisions and to prepare solutions which are appropriate in the overall context of each specific situation.

8.2.17. The guidance has been developed to respond to a key recommendation by the Active Travel Taskforce. The taskforce reported its findings in 2018 and sought to "*improve delivery of the ambitious and inclusive walking and cycling projects in Scotland that will help to create high-quality places and communities that support health and wellbeing*". Cycling by Design supports this objective and the key infrastructure recommendations made by the taskforce.

8.2.18. The guidance supports the integration of cycling with people walking and wheeling in a holistic and attractive environment that serves the needs of all users, so that designs can facilitate the implementation of the Scottish Government's Sustainable Travel Hierarchy.

8.2.19. Cycling by Design provides a variety of technical design considerations that should be met to ensure that active travel facilities are comfortable, safe, attractive, and suitable for walking and cycling users. This guidance includes, but is not limited to, track types, dimensions, buffers, and the need for segregation. These requirements are outlined in more detail below and overleaf.

8.2.20. Consideration must first be given to the suitability of the different cycle link types, with respect to the environments a route would navigate, and the opportunities and constraints faced. Figure 8.2 below provides an overview of the cycle link types and their differences, in terms of the level of separation provided between motor vehicles, cyclists and pedestrians.

Figure 8.2 – Link Type Considerations

Link Type	Considerations
Mixed Traffic Streets	• Mixing with motor traffic within suitable conditions • Greatest freedom of movement for cycle users
Detached or Remote Cycle Tracks	• Not adjacent to motor traffic, thus provide greatest protection • May provide separation from pedestrians • May not link to as many trip attractors as other options
Cycle track at carriageway level (adjacent to carriageway)	• Provides physical protection from motor traffic (which may include light segregation) • Provides separation from pedestrians
Stepped cycle track (adjacent to carriageway)	• Provides physical protection from motor traffic • Provides separation from pedestrians
Cycle track at footway level (adjacent to carriageway)	• Provides physical protection from motor traffic • May provide separation from pedestrians
Cycle lanes (on carriageway)	• No physical protection from motor traffic • Provides separation from pedestrians

8.2.21. The recommended route will utilise a combination of the cycle link types, and where possible, on carriageway cycle lanes will be avoided. With regards to sections of the route that extend along existing road networks, Cycling by Design outlines that due to the higher posted limits generally in place along rural road networks, that cycle paths detached or remote from the carriageway are preferred.

8.2.22. Figure 8.3 outlines the most appropriate type of cycle infrastructure for cycle links based upon the speed and volume of motor traffic in the area. It also outlines the different Cycling Level of Service provided by different infrastructure types depending on the setting and importantly, where certain infrastructure types should not be used.

Figure 8.3 – Level of Service

Motor Traffic Speed (85th percentile)	Two-way traffic flow (pcu per day)	Two-way traffic flow (pcu per hour)	Mixed Traffic Street	Detached or Remote Cycle Track	Cycle Track at Carriageway Level	Stepped or Footway Level Cycle Track	Light Segregation	Cycle Lane
0 to 30 kph	0 to 2000	0 to 200	●●●	●●●	●●●	●●●	●●●	●●●
	2000 to 4000	200 to 400	●●	●●●	●●●	●●●	●●●	●●●
	4000+	400+	●	●●●	●●●	●●●	●●●	●●
30 kph to 50 kph	0 to 1000	0 to 100	●●●	●●●	●●●	●●●	●●●	●●●
	1000 to 2000	100 to 200	●●	●●●	●●●	●●●	●●●	●●
	2000 to 4000	200 to 400	●	●●●	●●●	●●●	●●●	●●
	4000+	400+	●	●●●	●●●	●●	●●	●
50 kph to 65 kph	0 to 1000	0 to 100	●●	●●●	●●	●●	●●	●●
	1000 to 2000	100 to 200	●	●●●	●●	●●	●●	●
	2000+	200+	✗	●●●	●●	●●	●	●
65 kph to 80 kph	0 to 1000	0 to 100	●	●●●	●●	●●	●●	●
	1000+	100+	✗	●●●	●	●	●	●
80 kph to 95 kph	0 to 1000	0 to 100	●	●●●	●	●	●	●
	1000+	100+	✗	●●●	●	●	✗	✗
95 kph to 110 kph	All	All	✗	●●●	●	●	✗	✗

In relation to Design Principle – Safety

●●● **High Level of Service:** Suitable for most users.

●● **Medium Level of Service:** May not be suitable for some users, particularly novice users. Designer should consider the lack of attractiveness of the facility to these users and how this can be overcome or mitigated.

● **Low Level of Service:** Not suitable for a range of users, including novice and intermediate users. Should be avoided unless the risk to these users is conveyed to the Overseeing Organisation by the designer and accepted by the Overseeing Organisation. See Section 2.4.

✗ **Should not be used**

8.2.23. Another key consideration in the development of the route proposal is ensuring suitable widths are provided to accommodate path users safely and comfortably.

8.2.24. Figure 8.4 shows the recommended dimensions for cycle tracks based upon their geographical situation and anticipated cycle flows. Path and track dimensions should not be considered in isolation, instead in conjunction with Figure 8.5 which provides the guidance on appropriate buffer widths depending on the speed limit of adjacent roads. These two Figures will provide the baseline geometry and cross section for the proposed route.

Figure 8.4 – Recommended Buffer Widths by Road Speed

Speed Limit	Minimum Buffer Width
30 mph	0.50 m
40 mph	1.00 m
50 mph	2.00 m (including any hard strip)
60 mph	2.50 m (including any hard strip)
70 mph	3.50 m (including any hard strip)

Figure 8.5 – Recommended Cycle Track Widths

Cycle Track Types		Footway Width	Separation	Cycle track width* – One-way, less than 300 cycles per hour peak	Cycle track width* – One-way, more than 300 cycles per hour peak	Cycle track width* – Two-way, less than 300 cycles per hour peak (per direction)	Cycle track width* – Two-way, more than 300 cycles per hour peak (per direction)	Buffer Width
Remote Cycle Tracks Separated from Pedestrians	Desirable minimum	2.0 m	Varies with Facility	2.0 m	2.5 m	3.0 m	4.0 m	N.A.
	Absolute minimum	1.5 m	Varies with Facility	1.5 m	2.0 m	2.0 m	3.0 m	N.A.
Remote Cycle Tracks Shared with Pedestrians	Desirable minimum	N.A.	N.A.	Not Recommended	Not Recommended	4.0 m	Not Recommended	N.A.
	Absolute minimum	N.A.	N.A.	Not Recommended	Not Recommended	2.5 m	Not Recommended	N.A.
Cycle Tracks adjacent to Carriageway Separated from Pedestrians	Desirable minimum	2.0 m	Varies with Facility	2.0 m	2.5 m	3.0 m	4.0 m	Refer to Table 3.8
	Absolute minimum	1.5 m	Varies with Facility	1.5 m	2.0 m	2.0 m	3.0 m	Refer to Table 3.8
Cycle Tracks adjacent to Carriageway Shared with Pedestrians	Desirable minimum	N.A.	N.A.	Not Recommended	Not Recommended	4.0 m	Not Recommended	Refer to Table 3.8
	Absolute minimum	N.A.	N.A.	Not Recommended	Not Recommended	2.5 m	Not Recommended	Refer to Table 3.8

- On gradients greater than 3%, cycle track width should be increased by 0.25 m to allow for greater lateral movement.
- Where gullies are present on a cycle track that do not allow cycles to easily overrun, the cycle track width should be increased by the widths of the gully.

8.3. Preliminary Review of Design Area Infrastructure

Table 8.4 – Preliminary Review of Design Area Infrastructure

Location and Environment

Ashgrove Road West is a wide two-lane single carriageway to the west of Aberdeen City Centre. It is positioned to the north of the A944 Westburn Road, the east of A92 North Anderson Drive and west of the A96 Great Northern Road. It generally lies on a west – east axis and is generally residential in nature. The road also provides access to a number of health, civic and commercial properties. The road is subject to a 30mph restriction and situated within a Controlled Parking Zone.

Ashgrove Road is predominantly a wide single carriageway which narrows east beyond the Laurelwood Avenue side road junction. The western section of the road has minimal direct frontages, with residencies and health facilities setback via a secondary carriageway. The eastern side of the road is predominantly fronted by flatted residential properties.

Transport Provision

Walking Provision	A continuous footway is provided on both sides of the carriageway. This is except for the northern footway between North Anderson Drive and Castleton Drive which deviates into a secondary carriageway. The footway widths appear to be approximately 3m wide, although this is constrained by trees and lighting columns. The footways narrow to 1.8-2m wide on Ashgrove Road between Laurelwood Road and Great Northern Road. Most road crossings are uncontrolled except for the signal-controlled junctions at North Anderson Drive, Foresterhill Road and Westburn Drive. The drop kerb provision at crossings is also inconsistent.

	Several of the side road crossings are long, for example at Cornhill Terrace the approximate crossing distance is 21m and Cornhill Road 17m. It is worth noting Chapter 6 of the Traffic Signs Manual suggests that for signal-controlled crossings a staggered crossing should be considered for crossings over 12m and implemented for crossings over 15m.
Inclusivity	There is limited provision for vulnerable or impaired pedestrians on the corridor. Tactile paving is only provided at the signal-controlled junctions of Foresterhill Road and Westburn Avenue.
Cycling Provision	Cycling provision is limited to marked on-road cycle lanes on both sides of Ashgrove Road West, with an approximate width of 1m.
Public Transport	Public transport provision is limited to Ashgrove Road West, where six bus stops are provided. Only one shelter is provided in the eastbound direction adjacent to Cornhill Terrace. Bus stop cages are marked on the carriageway, no bus stop has a lay-by. During the site visit a number of passengers were observed egressing and alighting at the stops nearest the University of Aberdeen Medical Campus.
Parking	Cycle parking is provided within the campus of the University of Aberdeen Medical Campus, the Hospital and Aberdeenshire’s Woodhill House. There is no cycle parking on Ashgrove Road / West. Ashgrove Road West is within the Controlled Parking Zone Z, therefore, all lengths of road must be covered by some form of restriction/ control. Marked parking bays are provided on; 1. Northern side, 25m west of Castleton Drive, westwards for approximately 90m. 2. Southern side, four bays are provided; East of the Ambulance Service access (40m length); West of Foresterhill Road (South) (260m length); East of Foresterhill Road (South) (165m length); West of Cornhill Road (45m length) Parking in the bays is restricted to those in possession of a valid resident’s permit, vouchers or have paid by phone. Occupancy levels were low during the day and evening visits. Junctions are protected by no waiting at any time restrictions whilst waiting was only prohibited between 9am and 5pm Monday to Friday.
Environment	
Topography	Ground levels along the corridor centre visually gently rise from the east extents of the corridor, where Ashgrove Road is approximately 38m above sea level, to a height of approximately 101m at North Anderson Drive. Ground levels to the south of the route corridor are either level or fall gently from the roadside. Land to the north of the corridor rises with varying degrees of severity. Ground level variations are less pronounced east of Westburn Drive.

Land-Use	Land use along the northern perimeter of Ashgrove Road West is predominantly low density residential. This is with the exception of between North Anderson Drive and Castleton Drive, where an office complex and high-density residential properties are set back from the main carriageway and access via secondary carriageways. West of Cornhill Road the land on the south is primarily occupied by; 1. Aberdeenshire Council; 2. Scottish Ambulance Service; 3. JFD – National Hyperbaric Centre (training); 4. Aberdeen Royal Infirmary Campus; and 5. Aberdeen Universities Institute of Medical Sciences. Land between Cornhill Road and Westburn Drive are occupied by residential properties similar to those on the opposite side of the carriageway. On Ashgrove Road, between Westburn Drive and Laurelwood Avenue the built environment is generally set back from the corridor. Direct frontage is limited to a small number of medium density residential properties. East of Laurelwood Avenue the corridor is fairly constantly bounded flatted medium density residential properties. A number of non-residential facilities are located on the northern side of Ashgrove Avenue and Berryden Road, with the most prominent being the Royal Mail's Kittybrewster Delivery Office and a SPAR convenience store and its associated car park.
Green Infrastructure	Trees and tree pits are provided on both northern and southern footways at varying intervals. At least four tree pits are empty, with the other being occupied by trees of varying girth, maturity and amenity. The trees all appear to be deciduous trees, as during site visits in February non had leaves. The trees and trees pits, as discussed within the pedestrian section, significantly impacts the effective width of the footways for pedestrians. Most areas of unoccupied land adjacent to the corridor have areas of trees planted, with varying levels of density.
Space	The corridor does not contain any obvious vacant / unutilised space. There are significant parcels of land which are unoccupied greenspace, such as alongside Ashgrove Road West; 1. land north of the corridor between North Anderson Drive and Castleton Drive; 2. Portions of land within third party ownership of particular note as a wooded area within the Aberdeen Universities Institute of Medical Sciences. This land is immediately adjacent to the corridor and is situated between the core of the campus and the Hospital campus; and 3. Land alongside Braefoot Road. A considerable proportion of land north of Ashgrove Road is unoccupied greenspace.

Play and Leisure	Direct play and leisure are limited to Beattie Avenue playpark, however there is considerable amount of outdoor space dedicated for play and leisure within a short distance of the corridor, including; 1. Westburn Park including tennis, a skatepark, lawn bowls, cycle proficiency space, play facilities; 2. Cornhill Park and Playground; 3. Stockethill Play Park; and 4. Midstocket Park.
Flooding	The likelihood of river and surface water flooding across the study area can be reviewed through the Scottish Environmental Protection Agency's (SEPA) flood maps. The figure below contains flood maps for Aberdeen City and the study area.  SEPA's flood map shows that the Ashgrove Road corridor is situated outside the flood risk area of any waterway in Aberdeen. To the south of the study area highlighted by the dark blue / light blue colouring, a high likelihood is categorised as an area with a 10% / 0.5%chance of flooding respectively. The study area is susceptible to small, isolated areas of surface water flooding, marked by the purple colouring. The map shows areas of both high and medium likelihood of surface water flooding annually. The likelihood of river and surface water flooding across the study area is highly unlikely to adversely impact any proposed active travel route alignments.
Carriageway, Traffic Management and Operations	
Alignment / Cross Section	The full route follows a generally straight alignment, although there is a gentle curve Ashgrove Road West between Foresterhill Road and

	Westburn Drive, however this is likely to be barely notable to road users and unlikely effects their behaviours. Ashgrove Road gently meanders between Westburn Drive and Laurelwood Avenue. The corridor follows a generally west – east orientation, although the western and eastern extents follow a more pronounced southwest – northeast orientation. The cross-section of the Ashgrove Road West is a two-lane single carriageway route which is subject to a 30mph speed restriction. However, the carriageway width varies between 11m – 13m, far in excess 6m – 7.3m width typical of a standard urban residential route. At signal-controlled junctions the carriageway is sub-divided into several lanes to separate designated movement. Similarly, Ashgrove Road, between Westburn Drive and Laurelwood Avenue is generally 9m – 10m, narrowing east of Laurelwood Avenue to 7m – 8m
Junctions / Accesses	A significant number of junctions are situated directly on the route and are summarised below; 1. 1 x three arm signal-controlled junction at North Anderson Drive 2. 1 x staggered signal-controlled junction at Foresterhill Road 3. 1 x four arm signal-controlled junction at Westburn Drive 4. 1 x uncontrolled crossroad junction at Berryden Road (Ashgrove Road minor arms) Ashgrove Road West forms priority junctions at least 7 side roads excluding commercial, third party, unadopted and residential accesses. No dedicated right turn facility is provided at priority junctions; however, this is unnecessary due to the road width. The majority of residencies alongside the road have private driveways accessed via footway crossovers. It is a similar situation with Ashgrove Road, where it also junctions with 7 side roads.
Traffic Signals	At North Anderson Drive, traffic is controlled by traffic signals. Ashgrove Road West is a minor arm. Two lanes are provided on the approach to the junction and two on the exit arm. Ashgrove Road West has a long central island which separates traffic flows. Traffic approaching from the north and turning left into the corridor, do so via a filter lane. Pedestrians are provided an all-green phase, however, due to the filter lane all crossings involve two stages. Foresterhill Road and Ashgrove Road West form a signal-controlled staggered crossroads. Like North Anderson Drive pedestrian appear to have an all-green phase, which due to the complexity of the junction can take some time to appear. Westburn Drive is a typical signal-controlled crossroads, with an all-pedestrian phase. All controlled crossings are push button activated.
Lighting	Ashgrove West is illuminated by streets lighting with columns provided on alternating sides of the carriageway at intervals of 30-40m and situated to the front of the footway. The columns are constructed with concrete and the brackets appear to be galvanised steel. The head appears to have been upgraded to LED. The base of the column is approximately 350mm by

	400mm which significantly reduced the actual and effective footway widths. Furthermore, to allow a 450mm offset from the carriageway the posts can effectively impact approximately 1m of the footway cross-section. On Ashgrove Road the columns are most slender and generally situated in grass verges. Between May Baird Avenue and Laurelwood Avenue the columns were predominantly on the southern side of the carriageway and further east on the northern side. The footways are narrower at these locations therefore the columns are situated to the rear of the footway to minimise impacts on effective widths.
Drainage	Through the preferred route corridor, surface water is generally removed from the carriageway through carriageway edge drainage. Visually there appears to be a shallow camber applied to the road and footways gently fall towards the carriageway. No obvious SuDS provision was noted within the preferred route corridor.
Pavement	No cores or intrusive carriageway surface surveys have been undertaken. Visually the carriageway is constructed of a typical bituminous surface. The condition is reasonable and most wear observed around patches and other localised carriageway works.
Utilities	A C2 notification was issued to Statutory Undertakers in line with the New Roads and Street Works Act 1991. Thirteen Statutory Undertakers have confirmed they had apparatus within the corridor. These include: 1. Scottish Gas Networks currently have low and medium pressure gas mains below Ashgrove Road West and Ashgrove Road. The medium gas mains are generally situated within the carriageway boundary whilst the low-pressure main is situated below the footways. 2. BT Openreach, Neos Network, City Fibre and Vodafone all have fibre optic infrastructure within the study area. Generally, the cables are below either both footways or one of the footways. 3. Scottish and Southern Electricity Network have low voltage cables situated through Ashgrove Road and Ashgrove Road West. 4. Scottish Water have water distribution pipes and combined sewers situated below both Ashgrove Road West and Ashgrove Road.

8.4. Summary of Corridor Constraints and Opportunities

8.4.1. The corridor can be viewed as two separate zones, Ashgrove Road West, and Ashgrove Road including Laurelwood Avenue, with clear opportunity and constraint differences. **Figure 8.6** illustrates a snapshot of the key known constraints in the study area at this interim step.

Figure 8.6 – Key Constraints

8.4.2. Ashgrove Road West has a 12m wide carriageway with the restrictions located in the footways, trees, utility infrastructure, private property entrances. **Figure 8.6** highlights these restrictions, as trees are colour coded using the traffic light system, utility boxes are highlighted as black boxes, walls are highlighted as red dashed lines, and private drives are shown indicatively. Working within the current carriageway boundaries allow for a number of opportunities due to the width available without having to deal with the constraints. These opportunities may include widening existing footways, introducing cycling facilities suitable for all ages and abilities, while achieving a reduction in carriageway width available to motor vehicles.

8.4.3. Ashgrove Road has a narrower 7.5m-9m wide carriageway with similarly located constraints within the footways. Due to the narrower carriageway opportunities are limited within the current width and would potentially require reduction to the space available on footways and verges. These options then must deal with the restrictions within the footways. The opportunities described above are still available within this zone, but the width restrictions would require trade-offs to be made between different uses of the street.

8.4.4. There are businesses and services located along the length of the corridor, the key ones being the hospital, University of Aberdeen, the ambulance service, the Post Office, and the Spar (yellow highlights). These all come with their own restrictions, primarily accessibility. They all require good and clear access for non-motorised, public vehicle, and private vehicle, users.

8.4.5. Historical and conservation restrictions are indicated in green. The Rosemount and Westburn conservation area being the only conservation area within the study area, with a number of listed buildings. There are a few other listed buildings outwith the corridor. These are unlikely to cause any restrictions to the current scope and are not shown.

9. Net Zero Opportunities

9.1. Introduction

9.1.1. Aberdeen City Council has a Net Zero Vision which includes the pledge to reach Net Zero emissions in assets and operations by 2045 in line with Scottish Government targets. The plan includes interim goals of achieving 48% reduction by 2025 and 75% reduction by 2030 (against 2015/16 baseline). In addition to reducing carbon emissions and mitigating future climate change Aberdeen's Climate Plan also includes measures to adapt both infrastructure and operations to the shocks and stresses caused by climate change and ensure the city is climate resilient in the future.

9.1.2. There are opportunities to support this transition within the project both by providing the physical infrastructure required to achieve a low carbon future but also by planning for longer-term changes to mobility patterns, vehicle fleet standards and national legislation likely to be in place by the year of opening which will allow the operation of and access to the Ashgrove Road West and Ashgrove Road corridor to be substantially different from today.

9.2. Good practice examples of Net Zero Delivery

Mobility Hubs

9.2.1. A key component of the transition to Net Zero is providing attractive, affordable and reliable alternatives to transport by private car. A good example of providing this service comes from Gloucester where Mobility Hubs will bring together both traditional modes of public transport as well as a host of transport alternatives to suit most needs such as electric scooters for fast urban mobility, e-cargo bikes as alternative for last mile delivery and local cargo transport. By combining it with practical facilities such as package collection points, public toilets, recycling points as well as social amenities like cafes and community space these hubs have the potential to be both practical crosspoints but also central gathering places for the community.

Complementary Behaviour Change measures

9.2.2. Moving communities off their reliance on private cars for their daily transport requires both a new infrastructure as well as a new way of going about daily life. A great example of a council which has seen a steep change in the daily mobility routines of its residents is Waltham Forest near London. Through a process that has gone on for nearly a decade, combining new infrastructure - such as segregated cycle tracks, speed reduction measures and filtered streets - with behaviour change campaigns to take people along on the ride Waltham Forest has become a model for active travel in the UK. While private car is still dominant the area has the highest share of active travel among outer London boroughs and the project has been especially successful in getting people to walk for their local trips instead of short car journeys.

Cycle to work campaigns – campaign and infrastructure

9.2.3. Many businesses across the UK have joined in the work to get more people to walk or cycle to work. One example is the NHS who have implemented cycle-to-work schemes that encourage more staff to cycle to work through campaigning but also makes the Cycle to Work tax exemption scheme easy to utilise. Apart from this encouragement NHS has also supported councils in designing and delivering protected cycle routes and invested in better infrastructure for safe bike parking on site. NHS Grampian are among the NHS sites that are actively supporting Active Travel and they are an important stakeholder in this project going forward.

Freight Consolidation

9.2.4. As a response to a planned 40% increase in retail floor space planned for Broadmead, Bristol's core retail area, and the outlook of a corresponding increase to the 100,000+ deliveries per year already causing challenges in the city centre, Bristol has developed a freight consolidation scheme. By encouraging a new business model for retailers including packaging collection and remote stock storage in a consolidation centre 10 miles from the city centre and well connected to the strategic road network the aim was to reduce the number of delivery vehicles operating in the centre and reduce the harmful effects of this operation such as poor air quality and danger to pedestrians and vulnerable road users deriving from vehicles manoeuvring dangerously in and around loading areas. The trial period saw a reduction in CO2 emissions of more than 20 tonnes and almost 200,000 km of vehicle kilometres saved, thus also affecting the main routes to the city centre in a positive manner.

Green Infrastructure

9.2.5. The transition to Net Zero takes place in other domains than Active Travel and Transport. As the Aberdeen Climate Plan highlights future-proofing the city will require both mitigation measures as well as adapting urban infrastructure to cope with the effects of climate change. A good example of re-designing streets to suit the future is Copenhagen's Climate Resilient Neighbourhood, a demonstration project for retro-fitting a dense urban neighbourhood with green infrastructure. By reducing the speed on Bryggervangen and optimising the street geometry, the project was able to include surface water management infrastructure which can accommodate an extreme rain event and prevent sewer flooding but in a way that contributes to the urban environment by including several hundred new trees, significant bio-diversity gain as well as formal and informal meeting places for the community.

9.3. Net-zero Opportunities for Ashgrove Connects

Physical Infrastructure

9.3.1. Aberdeen City Council already has targets to provide infrastructure that supports the transition to Net Zero such as installing Elective Vehicle charging points and replacing lit signs and bollards with low-energy, cost-effective intelligent LED lights and upgrading street lighting to intelligent solutions.

9.3.2. With the change of class from A-road to C-road there is scope to change the layout of the carriageway to give more space to low-emissions transport alternatives. The provision of a safe, attractive, and effective active travel connection between North Anderson Drive and Berryden Road would provide a great alternative for local journeys, especially travel to the local primary school, to the large workplaces in the area and to the university sites. By improving the streetscape and using placemaking tools to improve the experience of moving around Ashgrove Road the area would also become more attractive for both people cycling and walking/wheeling to travel actively to the local shops instead of using private car for short journeys.

9.3.3. While public transport is a small percentage of current traffic on the street there are opportunities to improve the function as a bus corridor by improving access for buses through the street with bus lanes/gates and priority through junctions.

Mobility Hubs

9.3.4. The push to Net Zero involves reducing the number of journeys taken in private cars and so providing attractive alternatives will be key. There is an opportunity to create clusters where several sustainable transport alternatives are available in one location so users can always chose the mode of transport that suits their need at any given time – jumping on a bus to city centre, renting a bike to take a cycle ride to Westburn Park or picking up a car-share vehicle for a weekend trip. By clustering several services in one location the quality of the place can also be improved. A mobility hub with high quality shelter, seating, safe bike storage, electric charging points and place to rest/play while waiting will be valuable to both people cycling, riding the bus or picking up a car-share car.

9.4. Net-zero Partnerships

9.4.1. The Net Zero transition requires reducing emissions at an operational level and so external parties will play a large part in achieving the reductions needed. A number of large businesses adjacent to the street are already in the process of reducing their emissions.

9.4.2. Dialogue has started with several businesses and depending on the desire expressed, the project may include provision of infrastructure for Electric vehicles, Hydrogen vehicles and other low-emissions vehicles from the vehicle fleet of large businesses (especially Royal Mail) or include space for Car-share schemes parking or safe cycle storage near their buildings.

9.4.3. NHS Grampian is a key stakeholder who already have active travel policies in place to support and encourage both staff and users to use active modes of travel rather than motor vehicles. The NHS has been part of walking audits in the Design Area and conversation will continue to determine how Ashgrove Connects can support the work that NHS Grampian is already doing to support the transition to Net Zero.

9.5. Green Infrastructure

9.5.1. While the Design Area has several greenspaces and many mature trees in the sites adjacent to the road they do not currently serve additional function and the project could explore opportunities to enhance greenspaces and add to their value by providing additional services such as surface water management, urban cooling or bio-diversity effects. New Green Infrastructure solutions may also be included as part of enhancements/improvements to the street design (narrowing of junctions, improved crossing points, etc.).

9.6. Summary

9.6.1. While many Net Zero opportunities may not be delivered directly through the Ashgrove Connects project the buy-in and support of the local community and large stakeholders will be key to achieving the carbon reduction targets set out in Aberdeen City Council policy. There is however an opportunity to produce a carbon management / reduction plan for the design, construction, and maintenance of any works to further reduce emissions.

9.6.2. The team will continue to engage the local community in conversations about sustainable transport and the transition to net zero and will engage with key businesses/organisations to ensure that the physical infrastructure provided through this project will be supported by operational changes and behaviour change measures, so the infrastructure is put to full use in the future. While this RIBA Stage 2 can identify the opportunities for change, specific proposals should be worked up further alongside RIBA Stages 3 and 4.

10. Engagement Analysis

10.1. Introduction

10.1.1. The project will take a participatory approach to engagement which will actively involve the public and stakeholders at all stages to ensure their needs and aspirations are identified, understood, and considered, and to provide a level of influence over decisions.

10.1.2. A key part of the project will be working directly with residents, businesses, pupils, students, and stakeholders to improve the street and public spaces through a series of activities online and in the local area, providing an opportunity for people to get involved at every stage.

10.1.3. A Stakeholder Engagement and Communications Plan has been developed which sets out the aims and objectives of the engagement process alongside a Stakeholder Matrix to identify levels of stakeholder influence against anticipated levels of interest in the project.

10.1.4. An activities tracker is being kept up to date to record the level of engagement throughout the project.

10.2. Engagement (Define Stage)

10.2.1. The initial engagement period for the project commenced on Tuesday 8th March and was originally due to close on Sunday 27th March. This was extended to Sunday 3rd April, recognising the level of local interest in the project and value for the community.

10.2.2. The purpose of this engagement period was to raise awareness and understanding of the project locally and gather information from the community on their experiences of using the streets. The information gathered will help to define priorities and shape how the project develops.

10.2.3. A Stakeholder Engagement and Communications Plan for the project has been developed and an activities tracker is being kept up to date to record the level of engagement throughout the project.

10.3. Communications

10.3.1. A briefing was issued to all members representing Wards 5 (Hilton/Woodside/Stockethill) and 7 (Midstocket/Rosemount) on Monday 7th March with an invitation to join an online meeting on Monday 14th March.

10.3.2. A press release was issued to local media on Monday 7th March. The Press and Journal covered this in their online edition on Wednesday 9th March. It was also published on the Nestrans and ACC websites.

10.3.3. Notifications were issued to all identified stakeholders on Tuesday 8th March to introduce the project, extend the consultation invite and request support to raise awareness of the project locally.

A social media pack with suggested posts was also included for stakeholders to raise awareness though locally established communication channels.

10.3.4. Leaflets were distributed to all households and a separate business pack delivered to businesses within the Study Area on Tuesday 8th March. An electronic leaflet was emailed to all Cornhill Primary School parents/guardians and posters were distributed on the street and to venues within the engagement area.

10.3.5. A dedicated project website was launched on Tuesday 8th March to act as the main communication reference point for the project moving forward: http://ashgroveconnects.commonplace.is

10.4. Engagement Activities

10.4.1. The activities held during this initial engagement period are summarised in Table 10.1.

10.4.2. A more detailed overview of the activities is provided in the Stage 1 Engagement Report (CR-D1)

Table 10.1 – Engagement Activity Summary

Date	Activity	Stakeholder Group	Attendees
Tuesday 8th March	Walking audit	NHS Grampian	3
Wednesday 9th March	Walking audit	Community Group Representatives (Cornhill, Cairncry and Rosemount Community Associations)	3
Thursday 10th March	Meeting	Nestrans	1
Wednesday 16th March	Webinar	Open to the public	15
Monday 21st March	Meeting	Residents of Ashgrove Road West	21
Monday 21st March	Walking audit	Open to residents	5
Tuesday 22nd March	Walking audit	Open to residents	1
Wednesday 23rd March	Walking audit	Cornhill Primary School	9
Wednesday 23rd March	Walking audit	University of Aberdeen	3
		Overall Attendees	61

Figure 10.1 – Walking Audits with Community Representatives

10.5. Summary of Responses

10.5.1. A more detailed analysis of respondents and contributions is provided in the Stage 1 Engagement Report (CR-D1).

10.5.2. Between Tuesday 8th March and Sunday 3rd April, the project website received 958 visitors with 677 contributions either submitted directly on the website or surveyed by the project team.

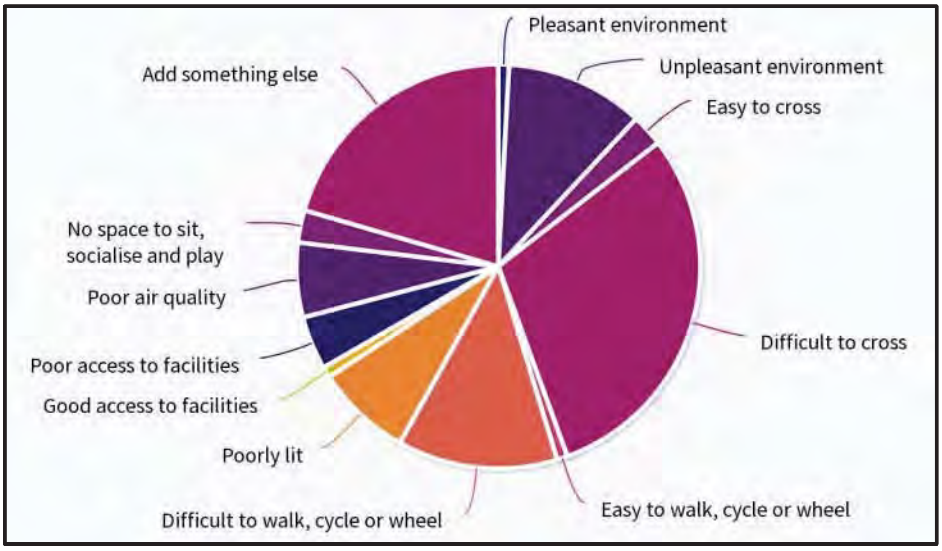
10.5.3. Most respondents either live and work in the area and normally travel by active modes when combining on foot and by bike. There were slightly more female respondents and most fell within the 35-44 age category.

10.5.4. The top three topics respondents commented on overall were *traffic and parking*, *moving around on foot, by bike or wheelchair* and *feeling safe*. Figure 10.2 presents the themes respondents commented on, with the most popular appearing the largest.

Figure 10.2 – Word Cloud of Respondents' Comments

10.5.5. When commenting on **traffic and parking**, respondents felt either negatively or mostly negatively (87%) towards this due to it being *difficult to cross*, *difficult to walk, cycle or wheel* and *unpleasant environment*. Figure 10.3 presents the reasons respondents gave for their sentiment towards traffic and parking. Respondents suggested this could be improved by *improve crossings, slow vehicles and add signage / navigation.*

Figure 10.3 – Respondents' Reasons for Their Sentiment Towards Traffic & Parking

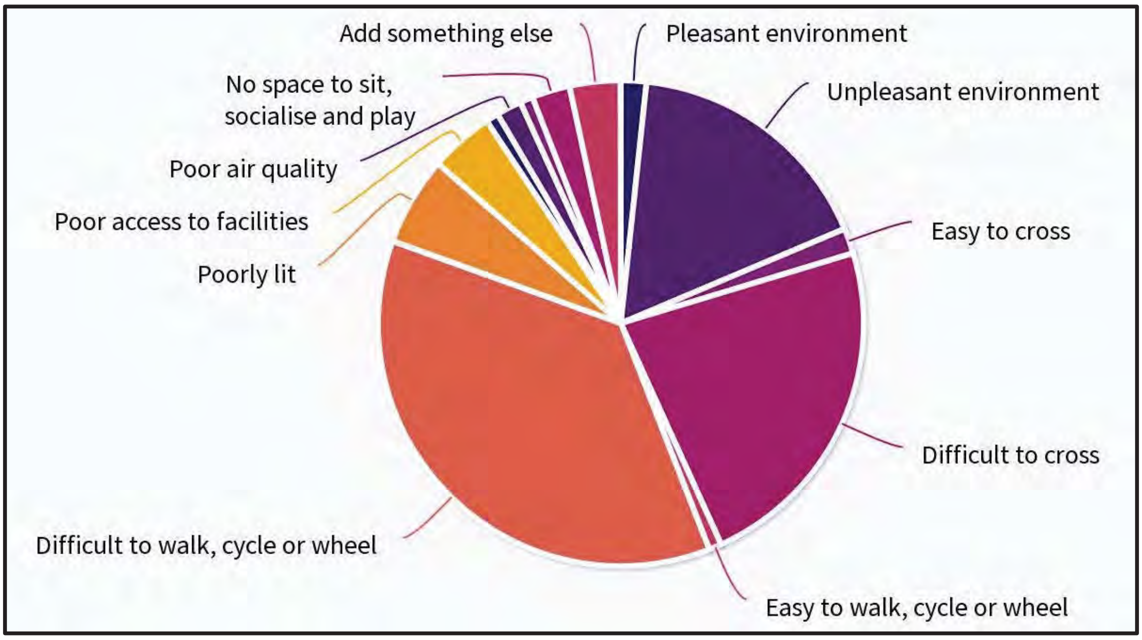


Survey respondent on traffic and parking (17 agreements):

"The Ashgrove Road West/Foresterhill Road staggered junction is confusing and overly complicated. Multiple times as a car driver and cyclist I have experienced near misses due to traffic in the wrong lane. The sequencing of the lights is suboptimal, with traffic getting stopped on the junction, blocking it for cross-traffic, and significant spells in the cycle where no traffic gets to use the crossing."

10.5.6. When commenting on **moving around on foot, by bike and wheel,** respondents felt negatively or mostly negatively (81%) towards this due to it being *difficult to walk, cycle or wheel*, *difficult to cross* and *unpleasant environment*. Figure 10.4 presents the reasons respondents gave for their sentiment towards moving around. Respondents suggested this could be improved by *improve crossings, improve pavement conditions, and improve the look and feel of the street*.

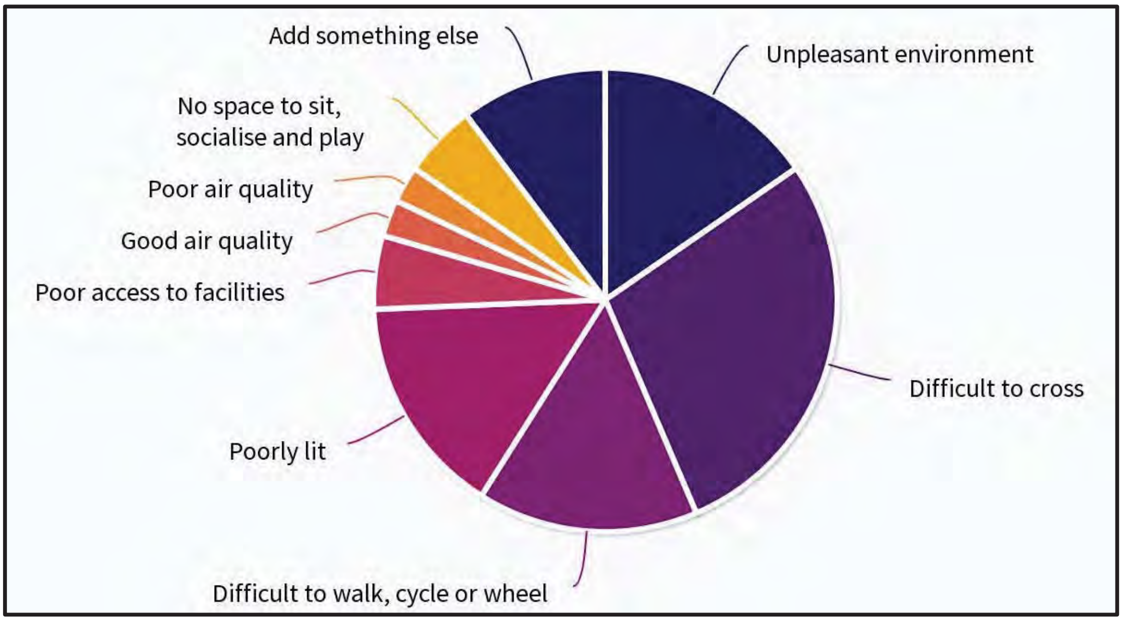
Figure 10.4 – Respondents' Reasons for Their Sentiment Towards Moving Around



Survey respondent about moving around on foot, by bike and wheel (8 agreements):
"The Ashgrove road all the way down from the top is not safe for cyclists, especially using the junctions because of the traffic caused by purely designed parking and lighting systems, and invisible markings and fast riding drivers. It's necessary to build a dual path for both cyclists and pedestrians and the width of the road is suitable enough to do that. This can encourage more people to cycle around neighbourhood and so the best solution for both traffic and air pollution."

10.5.7. When commenting on **feeling safe,** respondents felt negatively or mostly negatively (100%) towards this due to it being *difficult to cross, difficult to walk, cycle or wheel, unpleasant environment and poorly lit*. Figure 10.5 presents the reasons respondents gave for their feeling towards feeling safe. People suggested this could be improved by *improve crossings, slow vehicle speeds and improve street lighting.*

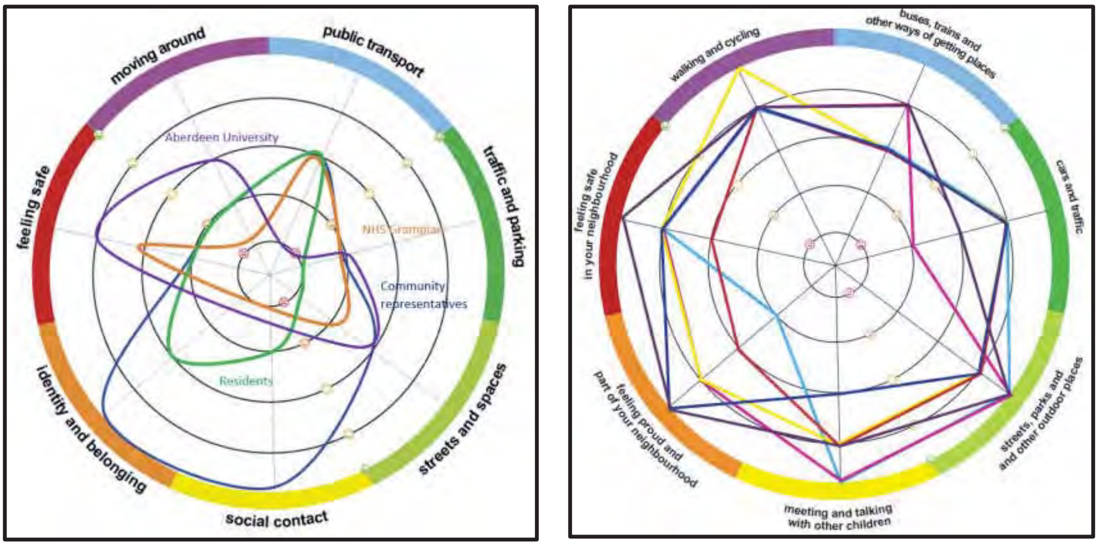
Figure 10.5 – Respondents' Reasons for Their Sentiment Towards Feeling Safe



Survey respondent about feeling safe (11 agreements):
"Really difficult junction pulling out of Laurelwood as vision to the right obscured by fence and parked cars as well as angle of junction. Also difficult to cross as a pedestrian"

10.5.8. Contributions were also collected through the walking audits where stakeholder groups were able to discuss their experiences and score each topic in situ. Each stakeholder group had slightly different priorities. Figure 10.6 provides an overview of the scores recorded at each session.

Figure 10.6 – Joint Scoring Wheel from Four Walking Audits and Cornhill Primary School



School pupil said: *"I feel proud to be part of this neighbourhood."*

10.6. Stakeholder Working Group

10.6.1. A Stakeholder Working Group was established providing stakeholder and community representation to help the project align with community priorities. A Terms of Reference was developed outlining the group's purpose, responsibilities, and membership.

10.6.2. At various stages of the project, the Stakeholder Working Group seeks representatives from different street users such as local residents, institutions, community groups, emergency services and disability groups.

10.6.3. To date, three meetings of the Stakeholder Working Group have taken place as summarised in Table 10.2. Each meeting has been held with a clear purpose and to seek stakeholder validation on key outputs including the emerging themes from Stage 1 and Design Objectives.

Table 10.2 – Stakeholder Working Group Meeting Schedule

Date	Validation	Attendees
Wednesday 27th April	Emerging themes from Phase 1	ACC – Roads Projects ACC – Transport Strategy Atkins University of Aberdeen NHS Grampian Resident of Ashgrove Road West Resident of Ashgrove Road Rosemount & Mile End Community Council Grampian Cycle Partnership Aberdeen Health and Social Care Partnership
Wednesday 18th May	Design Objectives (5 out of 6)	ACC – Roads Projects ACC – Transport Strategy Atkins University of Aberdeen NHS Grampian Resident of Ashgrove Road West Resident of Ashgrove Road Cairncry / Cornhill Community Association Grampian Cycle Partnership
Wednesday 15th June	Design Objectives (6 out of 6)	ACC – Roads Projects ACC – Transport Strategy Atkins NHS Grampian Resident of Ashgrove Road West Resident of Ashgrove Road Rosemount & Mile End Community Council

10.6.4. Meetings with the Stakeholder Working Group will continue as the project develops.

10.7. Key themes and next steps

10.7.1. Engagement to date has overall been very strong. The extension was primarily in response to a request from members of the community.

10.7.2. From the information gathered during Stage 1, the following key themes emerged:

- Slower and less traffic
- More crossings to reduce the severance effect of wide and heavily trafficked streets
- A network of safe infrastructure to make cycling accessible for most people
- Greater priority for pedestrians, particularly those with disabilities
- Improved place quality and access to greenspace
- A reduction in the negative impacts of parking and encourage use of off-street parking

10.7.3. These emerging themes will be presented to the Stakeholder Working Group for validation before being developed into Design Objectives.

10.7.4. The findings from the Phase 1 consultation have been communicated back to the community and stakeholders through the project website, ahead of Phase 2 engagement.

10.7.5. Known gaps in engagement response that are likely to require further work are:

- Invitations to join a walking audit and attend a meeting of Disability Equity Partnership (DEP) were extended to Aberdeen City Council Officers however a lack of response has meant engagement has not yet taken place with disability forums. Engagement with Shopmobility will take place during Stage 2 to discuss a meeting with DEP and invite feedback on the Initial Design Ideas. If there continues to be no response or availability from disability forums, engagement should take place with a local care home to understand and assess accessibility requirements.
- Responses from businesses has been low. Further business drop-ins should take place during Stage 2 to establish key contacts and raise further awareness of the project.

10.7.6. Ahead of the next phase of engagement, Atkins will review the proposed methodology to consider any appropriate adjustments, which may include:

- consideration given to delivery of a newsletter to residents and businesses, updating on progress with the project and invitation to further engagement activities.
- holding further meetings for residents living along the street and other stakeholders.
- building relationships with businesses in advance of the presentation of options
- engagement through Shopmobility to gain contact details of Disability Equity Partnership's and offer to attend an upcoming meeting to present on the project and seek their views on improvements.

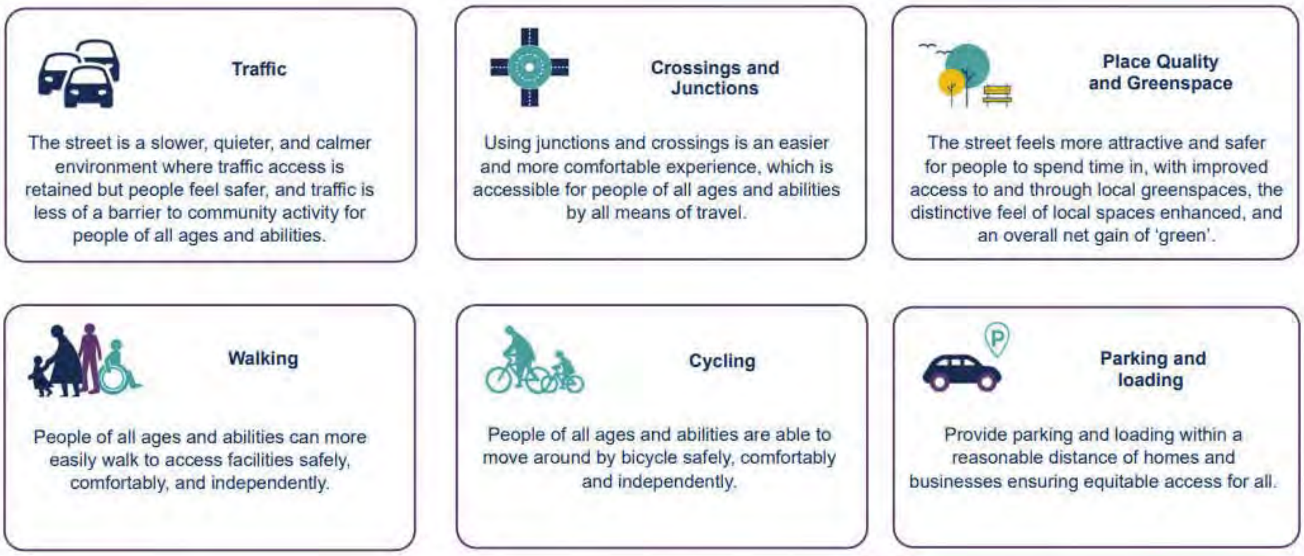
11. Design Objectives Development

11.1.1. In response to the policy and technical analysis of opportunities and constraints and the themes emerging from the engagement process, Atkins prepared a set of Design Objectives for the project.

11.1.2. The purpose of the objectives is to represent the priorities of committed Council policy and those of the community and to ensure that the interventions are in line with those.

11.1.3. Draft Design Objectives were validated in discussion with the ACC project team and the Stakeholder Working Group to ensure that they were representative of the information collated during Phase 1 of the engagement process. The resulting Design Objectives are illustrated in Figure 11.1.

Figure 11.1 – Design Objectives



11.1.4. These Design Objectives will be presented to the community as part of the Phase 2 engagement and will be used throughout Stage 2 to assess the scheme options.

12. Summary

12.1.1. This Baseline Assessment summarises the technical assessment work to date and the background to developing and agreeing design objectives for the project.

12.2. Established Context

Policy

12.2.1. The adopted policy framework in Aberdeen sets out a clear direction towards the following goals:

- More active travel, public transportation, and improved multi-modal accessibility
- Locking in the benefits of strategic network changes by reducing traffic volumes and speed
- Greater prioritisation of space for people and community activities

Community and Stakeholder Feedback

12.2.2. Extensive public engagement resulted in 677 contributions to the project website, with a further 61 direct engagements via walking audits and meetings, and 90 viewings of the online webinar. A Stakeholder Working Group was established, comprising Council officers, local businesses, community groups, and statutory stakeholders. The following key themes emerged from the engagement process:

- Traffic and parking
- Moving around on foot, by bike, and by wheelchair
- Feeling safe

Infrastructure

12.2.3. A review was undertaken of the heritage, streetscape, and landscape values of the design area, along with the transport infrastructure. Key observations included the following:

- Cycle provision throughout the area is poor, and in many locations non-existent
- Footways are in poor condition, and crossing opportunities are limited by a lack of crossing provision and the width of the street, coupled with high vehicle speeds and traffic volumes
- Greenspace in the area is generally underused
-

Appendices

Appendix A. Engagement Analysis

Appendix B. Policy Review

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Constituent Report CR-L

Policy Review

ATKINS
Member of the SNC-Lavalin Group

Technical Note

Project:	Ashgrove Connects		
Subject:	Policy Review		
Author:	Craig Jolly		
Date:	09/09/2022	Project No.:	5212138
Distribution:	Project Team	Representing:	Atkins

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1.1	Final revised	CJ	AM	FA	AM	08/09/2022
1.2	Final revised revised	CJ	AM	EM	AM	09/09/2022

Client signoff

Client	Aberdeen City Council
Project	Ashgrove Connects
Project No.	5212138

1. Introduction

This Technical Note provides a summary of the desk-based review outlining relevant planning policy and strategy documents in relation to Aberdeen. The policy documents provide context in relation to transportation and local requirements, and where possible links these back to the Ashgrove Connects project.

The purpose of this review is to identify any frameworks or policy objectives that will guide the proposals for Ashgrove Connects, with particular consideration given to the time of development that would be in line with established policy, as well as traffic and travel, and environmental objectives.

1.1. Policy Review

The following documents have been reviewed:

- Aberdeen City Council:
    - Local Transport Strategy 2021-26
    - Climate Change Plan 2021-25
    - Aberdeen Active Travel Action Plan 2017-2021
- Community Planning Aberdeen
    - Local Outcome Improvement Plan 2016-26
    - Aberdeen City – Central Locality Plan 2021-26
    - Partnership Development Plan
- Nestrans
    - Regional Transport Strategy 2040
- Nestrans / ACC / Aberdeenshire Council
    - North East Scotland Roads Hierarchy Study 2019
    - A944 / A9119 Transport Corridor Study – STAG-Based Appraisal 2020
- Civitas Portis
    - Aberdeen Sustainable Urban Mobility Plan 2019
- Transport Scotland
    - National Transport Strategy 2
    - Strategic Transport Projects Review

2. Aberdeen City Council Policy Documentation

2.1. Local Transport Strategy 2021-26

The vision for the Local Transport Strategy (LTS) is to develop: “A sustainable transport system that is fit for the 21st Century, accessible to all, supports a vibrant economy, facilitates healthy living and minimises the impact on our environment”

This vision will be realised through a series of transport objectives as follows:

- Rail: To work with partners to increase opportunities for rail travel to, from and within Aberdeen;
- Air services: To support the future growth and improvement of Aberdeen International Airport, including surface access;
- Road Carriageway and Footway Maintenance: To improve the condition of the road, footway and cycle networks;
- Winter Maintenance: To ensure the safe movement of traffic on carriageways, footpaths and cycle paths to minimise delays caused by adverse winter weather;
- Land Use Planning: To promote and enable development that reduces the need to travel, minimises reliance on the private car and facilitates and encourages walking and cycling for everyday trips;
- Travel Plans: To ensure that the transport impact of existing and new developments are minimised by requiring workplaces, schools and developers to prepare Travel Plans and, where appropriate, Travel Packs for all sites in the City;
- Car Sharing: To continue to promote and facilitate car sharing as a sustainable transport option;
- Car Clubs: To continue to facilitate and promote the Car Club in order to provide transport choice without necessitating individual car ownership;
- Travel Information and Awareness: To engage with members of the public, employers and schools on travel behaviour change campaigns, events and promotions and to provide the information that citizens and visitors need to let them undertake ‘smarter’ journeys in the City;
- Walking: To increase the number of people walking, both as a means of travel and for recreation, in recognition of the significant health and environmental benefits it can bring;
- Cycling: To foster a cycling culture in Aberdeen by improving conditions for cycling so that it becomes an everyday, safe mode of transport for all;
- Bus: To increase public transport patronage by making bus travel an attractive option to all users and competitive with the car in terms of speed and cost;
- Public Realm and the Sustainable Urban Mobility Plan (SUMP): To improve the public realm by prioritising pedestrians, cyclists and public transport (to enhance environment, aesthetic quality and air quality of the City) for the benefit of shoppers, visitors and residents.

2.2. Council Climate Change Plan 2021-2025

The purpose of the Council climate change plan is to set out the Council’s approach, pathway and actions towards net zero and climate resilient Council assets and operations, by 2045. Showing early leadership in transitioning to net zero through Council assets and operations and improving their climate resilience. The Plan sets out the scope of the City Council’s ambitions with net zero and interim targets for a reduction in carbon emissions.

The national policy drivers are:

- The Road to Zero Industrial Strategy (UK)
- Transport (Scotland) Act 2019
- National Transport Strategy (NTS2) 2020 includes the priority to take climate action: reduce emissions from the transport sector; adapt to the effects of climate change; and promote greener, cleaner choices.

The Local policy drivers are:

- Regional Transport Strategy – 2013. A new strategy Nestrans 2040 is in development.
- Local Transport Strategy (2016-2021) includes the objective; to contribute to Aberdeen's carbon emissions targets and develop climate resilient infrastructure.
- The Strategic Infrastructure Plan: Energy Transition includes a goal for Sustainable Mobility.
- Aberdeen Hydrogen Strategy and Action Plan 2015-2025.
- Electric Vehicle Framework for Aberdeen.
- Aberdeen Active Travel Action Plan.
- Aberdeen Sustainable Urban Mobility Plan (SUMP).

The Council General Fund Revenue Budget and Capital Programme contains a funding commitment towards achieving net zero emission targets, with funding for initiatives that will support the development of net zero and climate adaptation priorities with initiatives including fleet replacement, active travel, electric vehicle charging, energy efficiency,

The Council Climate Change Plan links what is being done internally in the Council and in Schools in terms of promoting active travel options (staff & schools) – cycling and walking and the reduced emissions that can be achieved from Increased staff uptake of active, sustainable and alternative travel choices, reducing the need for travel through use of technology. There is a focus on reduced emissions from staff travel which has decreased, but fluctuated in the last five years by mode and km travelled. The Staff commute is currently out of scope of Council reporting, however a cycle to work scheme is in place and pool bikes and cycle storage are available in several premises.

2.3. Aberdeen Active Travel Action Plan 2017-21

The Aberdeen Active Travel Action Plan (AATAP) *"identifies the policies and design principles that Aberdeen City Council will abide by over the next five years (and in some cases beyond) and a series of actions and interventions that will be pursued in order to increase the proportion of journeys undertaken in our City by active travel…"*.

Its aim is defined as:

"To create an environment and culture in which walking and cycling are convenient, safe, comfortable, healthy and attractive choices of travel for everyday journeys."

The AATAP notes the opportunities to capitalise on the freed-up road capacity and reconsider the city's urban spaces offered by the Aberdeen Western Peripheral Route (AWPR), and also notes the importance of the Road Hierarchy Study in allowing for the reprioritisation of walking and cycling.

While the AATAP does not directly reference Ashgrove Connects it does note a dozen areas to be prioritised for infrastructure improvements. These areas include projects that are noted to potentially interact with Ashgrove Connects, and as noted as follows:

- A96 (Aberdeen to Inverurie) – known as the A96 Multi-Modal Transport Study
- A944 (Aberdeen to Westhill)
- A90 Anderson Drive (now known as the A92 Multi-Modal Study)
- Access to Universities
- Access to NHS sites
- Local Improvements

The AATAP goes on to identify a range of projects in the 2016-21 Network Development Plan, including estimates of costs and funding partners. Beyond those already outlined above, the Network Development Plan notes the Berryden Corridor Improvement scheme, to be funded by ACC. It also presents a more detailed timetable and status update for each of the listed improvements

3. Community Planning Aberdeen Policy Documentation

3.1. Local Outcome Improvement Plan 2016-26

Refreshed in 2021, the Local Outcome Improvement Plan (LOIP) represents an opportunity for greater joint working towards early intervention and prevention to improve outcomes for citizens. The document sets out a vision for 2026 of an Aberdeen where all people can prosper, where all people can access the opportunities available in the City, regardless of background or circumstances.

Online consultation undertaken in March 2021 involved participants allocating points to 26 projects based on their importance. This was considered alongside the population Needs Assessment in prioritising projects in the new Local Outcome Improvement Plan. Five main themes emerged: People, spaces, wage, health, support. 15 Stretch Outcomes break down ACC's overall vision for the Economy, People (Children and Young People and Adults), Place.

The document links prosperity to health and sustainability, recognising that working to end poverty goes hand-in-hand with strategies that improve health and reduce inequality. Its aims are aligned with the United Nations Sustainable Development Goals, and although the ambitions are city wide its efforts are very much grounded in the needs of the most disadvantaged communities.

Links are made within the document between a reduction in car private transport, Net Zero, connectivity, low energy use, health active travel and public open space, access to schools, shops employment and leisure within walking distance from home.

Increasing sustainable travel and sustaining the increase in walking and cycling due to the pandemic are seen as key priorities. As such the document sets a stretch outcome to increase sustainable travel, with a target of 38% of people walking and 5% of people cycling as their main mode of travel by 2026. It also includes commitments to increase the percentage of people walking to work by 10%, and those cycling to work by 2%, by 2023.

3.2. Aberdeen City – Central: Locality Plan 2021-26

The plan links to the re-fresh of the City's Local Outcome Improvement Plan (LOIP) which highlights the breadth of work taking place and aims to utilise they city's assets to their full potential by working together.

Set out are priority neighbourhoods for Central locality, which include Tillydrone, Seaton and Woodside, as well as Ashgrove, Stockethill and George Street.

The Vision for Aberdeen City is a "place where all people can prosper".

Locality Priorities were set, along with how they link with city wide LOIP Priority Themes of Economy, People and Place along with projects that help achieve those priorities. The local priorities set were:

- Reduce the number of people living in poverty through creation of opportunities for employment and development of skills, and create solutions to tackle food and fuel poverty
- Ensure people have the digital means to ensure they don't miss out on opportunities
- Improve mental health & wellbeing of the population
- Ensure people can access services timely through a person-centred approach where the needs of the whole population are considered
- Create safe and resilient communities where hate crime will not be tolerated and develop initiatives which reduce the impact of substance misuse and anti-social behaviour
- Maximise use of spaces in communities to create opportunities for people to connect and increase physical activity

3.3. Partnership Development Plan 2021

The Community Planning Aberdeen Partnership Development Plan was produced to support the implementation and delivery of the refreshed Local Outcome Improvement Plan (LOIP) and Locality Plans in response to feedback gathered in April and March 2021.

The plan includes five themes for improvement under which actions have been identified to provide cross cutting support to colleagues across the Partnership in the delivery of the LOIP and underpinning Locality Plans. The plan includes a number of activities that include capacity building, advice support and coaching and the collection of data and research. Training will also be given in cross cutting campaigns, in involving children and young people, taking whole family; reducing inequalities; and trauma informed approaches to reduce the barriers of involvement and engagement for people in seldom heard communities.

The Development plan sets out a commitment to Development of a Collective Leadership Programme focussing on collaboration and innovation, and reflecting on what the Community Planning Aberdeen Management Group needs to do differently

4. Nestrans Policy Documentation

4.1. Regional Transport Strategy 2040

The Regional Transport Strategy (RTS) for the NESTRAN area is a statutory document covering Aberdeen City and Aberdeenshire Council areas. Published in 2021 this RTS focusses less on the provision of new infrastructure and more on optimising infrastructure to influencing behaviours.

The vision set out in the Regional Transport Strategy is: "A transport system for the north east of Scotland which enables a more economically competitive, sustainable and socially inclusive society."

The Strategy is expressed through four strategic objectives, reflecting different ways of achieving the objectives and indicators:

- SO1: Economy – to improve the movement of goods and people within the north east
- SO2: Accessibility, Safety and Social Inclusion – Enhance travel opportunities and reduce the number and severity of casualties for all transport users. To also achieve increased use of active travel modes;
- SO3: Environment – Reduce the proportion of journeys made by car; and
- SO4: Spatial Planning – Improve connectivity between Aberdeen City and towns and enhance public transport opportunities.

The Strategy identified a number of key transport projects relevant to this project. These are:

- Aberdeen Western Peripheral Route - Transport Scotland: Construction works completed in 2019
- Park and Ride sites at A96 (including link road from A96 to the Airport) and A90 (south). To be delivered in conjunction with the AWPR with construction of both expected by 2018 (Construction works completed in 2017);
- Aberdeen Crossrail: Service improvements: Enhancement to Sunday services and Aberdeen-Inverness line upgrade (Phase 1 due for completion in 2019).

Note: This document is linked to the National Transport Strategy and the Strategic Transport Appraisal, as objectives are similar in each of these documents. Additionally, many of the projects which emerge from the Strategic Transport Appraisal will be taken forward in the Regional Transport Strategy.

5. Plans and Projects

5.1. North East Scotland Roads Hierarchy Study 2019

The purpose of this document was to develop options for the updated roads hierarchy and to identify possible levels of intervention that could be implemented to support the delivery of the updated hierarchy.

The two key outcomes to be delivered as part of the work were:

- Development of roads hierarchy options to deliver a new roads hierarchy; and
- Identification of intervention levels to support that new roads hierarchy.

A series of Transport Planning Objectives (TPOs) were developed as part of a Scottish Transport Appraisal Guidance (STAG)-based assessment undertaken to identify how Aberdeen City and Aberdeenshire should operate in the post-AWPR scenario:

1. Create a city centre that is conducive to walking and cycling;
2. Reduce bus journey times to make them more competitive with car journey times;
3. Improve reliability to make public transport more attractive;
4. Ensure effective and efficient movement of goods to the city centre and harbour;
5. Facilitate removal of air quality management areas (AQMAs);
6. Ensure effective use of the post-AWPR transport network and maximise the benefits by “locking-in” the additional capacity created by committed road schemes towards sustainable transport modes; and
7. Support implementation of the CCMP.

The Study notes that Ashgrove Road West provides an access point to the Aberdeen Royal Infirmary (ARI), along with providing access to other destinations including the University of Aberdeen Medical Campus, SSE Enterprise, and Scottish Ambulance Service, and is the most efficient route for those arriving from the north.

The Study proposes that “the existing primary route along Ashgrove Road West is downgraded to tertiary … the route no longer functions as a priority route as it does not provide a connection with the strategic route network”. This downgrading to a tertiary route is linked with the downgrading of the A92 and A978 orbital routes, meaning that because Ashgrove Road West would no longer link with a priority route it would not adhere to the definition of a secondary route.

The Study acknowledges that while Ashgrove Road West would no longer meet the requirements of a priority or secondary route, it would still serve as the primary route to hospital and the other aforementioned destinations. Further details of the road hierarchy in the local network are outlined in Chapter 5 of the main report.

5.2. A944/A9119 Transport Corridor Study – STAG-Based Appraisal 2020

Undertaken in 2020, the purpose of this document was to identify and appraise options for improving transport connections (particularly active travel and public transport connections), in line with the Sustainable Travel & Investment Hierarchies, between Westhill and Aberdeen City Centre. The study focusses on the key western approaches to the city, the A944 and A9119 (formerly B9119) corridors, and other roads used by public transport services serving the west of the city, reflecting the status of these corridors within the North East Scotland Roads Hierarchy.

The study did not require a four-stage STAG Appraisal, but took a focussed and proportionate appraisal underpinned by STAG principles, to guide the development of business cases for any emerging interventions and consisted of two main deliverables;

- an Initial Appraisal: Case for Change, outlining the need for intervention, completed in July 2020, and
- a ‘hybrid’ Preliminary Options Appraisal, supported by Appraisal Summary Tables (ASTs).

In undertaking the audits for the study, a significant number of problems, issues and constraints were identified across the network including inconsistent and incoherent cycling infrastructure, poor surface conditions for pedestrians and cyclists, vehicles parking in advisory cycle & bus lanes and all-round poor level of service for sustainable active travel transport users.

Considering the COVID pandemic the study found that it is crucial that investment is targeted and focussed to ensure that:

- It maximises the potential benefits and current captured market with cycling and walking;
- It improves the attractiveness of the public transport network and reassures the public about the use of bus services to minimise any negative connotations of health fears using public transport to avoid future service cuts; and
- travel by car does not become the first choice again undoing investment and achievements thus far in achieving modal shift or the risk of widening equality gaps between those that have access to a car and those who don't.

The study prioritised delivery of options in timescales of 1-2 years, 2-4 years, and 5+ years set out in Table 5.1.

Table 5.1 - A944/A9119 Transport Corridor Options Delivery

1-2 Years	ACTO4: Identify and formalise a city centre cycle network PTO5: Changes to bus lane operational hours and enforcement PTO13: Develop Sustainable Transport Hubs ACTO8: Create cycle route on Old Lang Stracht	This initial set of options establishes a series of quick win projects. Identifying and formalising a cycle network is key before any work commences to ensure the correct and appropriate routes are identified and connections assessed. The cycle route along Old Lang Stracht will support the option identified by AECOM and provide direct links between Kingswells andA944 Lang Stracht and routing to A9119.
2-4 Years	ACTO2: Review of pedestrian desire lines and installation of pedestrian friendly crossing facilities to suit ACTO1: Programme of pavement maintenance and decluttering GTO2: Improve Wayfinding and Signage PTO10: Rebrand of Kingswells Park and Ride PTO11: Advanced VMS on AWPR PTO12: Establish a Bus Service Improvement Programme (BSIP)covering the A944 and A9119 corridors	These options provide a mix of quick wins and those which will take some time and complement the delivery of future options. The BSIP is crucial to the delivery of the investment required to deliver the infrastructure changes. Therefore, establishing this ahead of time then helps design and confirm the delivery of bus shelters and bus lanes, and subsequent cycle lanes.
5+ Years	PTO8: Reallocate all lay-by bus stops to on-street bus stops. PTO6: Bus Stop upgrade programme and stop rationalisation PTO3: Continuous Bus Lane from Westhill to Aberdeen via A944 PTO4: Continuous Bus Lane from Westhill to Aberdeen City Centre via A9119 ACTO7c: Replace and extend all existing advisory cycle routes with mandatory cycle lanes to provide a connected network, with the option of including light segregation PTO7: Bus Prioritisation / Pre-Signals at all signalised junctions on the corridors ACTO9: Provide advance stop lines or cycle by-passes at all signalised junctions ACTO3: Development of Green Corridors within the city centre and between development sites on the corridors PTO9a: Make Castle Street to Union terrace, bus, cycle and walk only	These remaining options will be delivered once the first two phases are complete. Bus and cycling infrastructure will be delivered in conjunction to maximise efficiencies in the works and to reduce costs. Development of green corridors and pedestrianisation of Castle Street will be programmed to coincide with the CCMP.

5.3. Aberdeen Sustainable Urban Mobility Plan (SUMP) 2019

The Sustainable Urban Mobility Plan (SUMP) was developed as part of the EU CIVITAS PORTIS programme. PORTIS (PortCities: Innovation for Sustainability) is a four-year project (2016-2020) testing innovative and sustainable urban mobility solutions in five European port cities (Aberdeen, Antwerp, Constanta, Klaipeda, and Trieste) with Ningbo in China as a follower city.

Aberdeen City Council (ACC) leads Aberdeen's involvement in the project, supported by partners Nestrans, Aberdeenshire Council, Aberdeen Harbour Board, the University of Aberdeen, and the Robert Gordon University.

This Sustainable Urban Mobility Plan (SUMP) was developed to:

- Identify interventions that will help realise the city centre elements of the revised roads hierarchy, in particular the principles of reducing the volume of through-traffic and improving accessibility and permeability of the area for people walking, cycling and using public transport;
- Complement, and further develop, the transport principles and proposed projects identified in the CCMP;
- Identify some enabling infrastructure that may be required to support the success of other proposed projects such as a city centre Low Emission Zone and bike hire scheme; and
- Reflecting its status as a CIVITAS PORTIS project, consider opportunities for improved active travel connections between the city centre and the new Aberdeen South Harbour (ASH).

The plan highlights a significant risk that the benefits of recent rail and road investment will gradually erode should steps to 'lock in' the benefits not be taken, particularly in terms of encouraging people to use this new infrastructure in an appropriate way, and taking advantage of available road capacity afforded by the opening of the Aberdeen Western Peripheral Route (AWPR) and other schemes to give more priority to sustainable modes of transport, particularly walking, cycling and public transport. There is a need for the opportunities to travel sustainably to be taken up if traffic should grow to fill the space that has been created, resulting in continued congestion, potentially worsening air quality and rising carbon dioxide (CO2) emissions.

A review of the city's roads hierarchy was commissioned by Aberdeen City Council and regional partners Nestrans, Aberdeenshire Council and the Strategic Development Planning Authority (SDPA) undertaken in 2018 is now complete.

One of the objectives of the review was to unlock the benefits of recent freed-up road capacity within the city with the opening of the Aberdeen Western Peripheral Route (AWPR) to give more priority to sustainable transport journeys with a particular focus on improving conditions for active travel and public transport. Physical improvements to the road network are now underway including reclassification and reprioritisation in line with the new North East Roads Hierarchy.

The document:

- Recognises a perception that accessibility to, travelling around and parking in the city centre by car is too easy and this discourages other modes of transport.
- makes a commitment to developing a revised Car Parking Framework for Aberdeen, giving consideration to the recommendations of the Strategic Car Parking Review.
- States that where SUMP projects result in the loss of on-street parking efforts will be made to minimise the impacts of this on local residents
- States one of its key principles is to lock in the benefits of the AWPR to prioritise the movement of active and sustainable travel through the reallocation of carriageway space and other prioritisation and traffic management measures. reallocation of carriageway space and other prioritisation and traffic management measures.

The SCPR (Strategic Car Parking Review) was completed in 2018 and identifies options for better managing city centre car parking in the context of CCMP and roads hierarchy aspirations, and to support the local economy. This is currently being developed into a Car Parking Framework by ACC separate to the SUMP.

6. National Policy Context

6.1. National Transport Strategy 2

National Transport Strategy 2 (NTS2) was published February 2020, and it identifies the strategic framework for Scotland's transport system for the next 20 years. It sets out priorities to support the vision for Scotland's transport system - reduces inequalities; takes climate action; helps deliver inclusive economic growth; improves our health and wellbeing.

The document states that transport accessibility will influence planning and future development, and will help ensure that communities are sustainable. It acknowledges the inter-dependency of its objectives, for example improving public health by increasing active travel use will also reduce carbon emissions.

The document defines its vision as follows:

"We will have a sustainable, inclusive, safe and accessible transport system, helping deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors."

It outlines four priorities, each with three associated outcomes:

- Reduces inequalities
  - Will provide fair access to services we need
  - Will be easy to use for all
  - Will be affordable for all
- Takes climate action
  - Will help deliver our net-zero target
  - Will adapt to the effects of climate change
  - Will promote greener, cleaner choices
- Helps deliver inclusive economic growth
  - Will get people and goods where they need to get to
  - Will be reliable, efficient and high quality
  - Will use beneficial innovation
- Improves our health and wellbeing
  - Will be safe and secure for all
  - Will enable us to make healthy travel choices
  - Will help make our communities great places to live

6.2. Strategic Transport Projects Review

The Strategic Transport Projects Review (STPR2) is a core part of the delivery plan for NTS2. It "provides an overview of transport investment, mainly infrastructure and other behaviour change recommendations" required to deliver the objectives identified in NTS2, and presents the Strategic Business Case for these recommendations.

The STPR2 recommendations are grouped as follows:

- Improving active travel infrastructure
- Influencing travel choices and behaviours
- Enhancing access to affordable public transport
- Decarbonising transport
- Increasing safety and resilience on the strategic transport network
- Strengthening strategic connections

7. Summary

The adopted North East Scotland Roads Hierarchy downgrades the street to one primarily for local access, albeit it will remain the primary access route for the hospital and other local destinations.

Adopted policies point towards a future direction for Aberdeen of more walking, cycling, bus travel and improved accessibility as well as local priorities for places where people activities have greater prominence.

Proposals for the Berryden Road corridor improvements, at an advanced stage of delivery planning, will provide improved cycling and walking facilities for people to access the city centre.

Combined, this presents an opportunity for the street. The opportunity is to reduce the speed and volume of vehicular traffic using the route and to increase the space given over to people accessing destinations for walking, cycling, wheeling and local residential and local economic and community activities.

Table 7.1 summarises the relevant aims of each of the reviewed local and regional policy documents and highlights how they support the strategic aims of Ashgrove Connects.

Table 7.1 – Policy Document Summary

Document	Summary of policy	Synergy with Ashgrove Connects
Local Outcome Improvement Plan 2016 to 2026 (2017, refreshed 2021)	The LOIP is a document which sets out how Community Planning Aberdeen will improve outcomes for and with local people and communities. The vision set out in the LOIP is that Aberdeen will be 'a place where all people can prosper' by 2026.	Links reduced car usage with various issues such as net zero, connectivity, and employment Sets percentage targets for increasing walking and cycling as main mode of travel by 2026
Climate Change Plan (2021)	The purpose of the Council climate change plan is to set out the Council's approach, pathway and actions towards net zero and climate resilient Council assets and operations, by 2045. The plan sets out the scope of the City Council's ambitions with net zero and interim targets for a reduction in carbon emissions.	Sets out scope of ACC's net zero ambitions, with interim targets Note that Council General Fund Revenue Budget and Capital Programme has funding commitment for initiatives that will support development of net zero
NESTRANS Regional Transport Strategy for the North East of Scotland (2021).	The RTS for the NESTRANS area is a statutory document covering Aberdeen City and Aberdeenshire Council areas. The RTS focusses less on the provision of new infrastructure and more on optimising infrastructure to influencing behaviours.	Aims include enhancing travel opportunities, reducing number and severity and casualties, increasing use of active travel, reducing proportion of journeys by car
NE Scotland Roads Hierarchy Study (2019)	The purpose of this document was to develop options for the updated roads hierarchy and to identify possible levels of intervention that could be implemented to support the delivery of the updated hierarchy.	Led to the reclassifying Ashgrove Road West as a C-class road / tertiary route
Local Transport Strategy (2016-2024) (2016)	The vision for the Local Transport Strategy (LTS) is to develop "a sustainable transport system that is fit for the 21st Century, accessible to all, supports a vibrant economy, facilitates healthy living and minimises the impact on our environment"	Increase no. people walking / cycling / using public transport Improve public realm by prioritising pedestrians, cyclists, public transport
Aberdeen City Central Locality Plan 2021-26 (2021)	The plan links to the re-fresh of the City's Local Outcome Improvement Plan (LOIP)	Identifies Ashgrove and Stockethill as priority neighbourhoods. Aims include

	which highlights the breadth of work taking place and aims to utilise our assets to their full potential by working together.	creating employment opportunities, improving access to services, create opportunities for people to connect and increase physical activity
Aberdeen Active Travel Action Plan 2017-2021 (2017)	This Action Plan identifies the policies and design principles that Aberdeen City Council will abide by and a series of actions and interventions that will be pursued in order to increase the proportion of journeys undertaken in our City by active travel.	Delivers on the Council's commitment to "identify and implement projects that prioritise sustainable transport movements in the City" and "ensure that new cycling infrastructure adheres to best practice guidelines"
Aberdeen Sustainable Urban Mobility Plan (2019)	Aberdeen City Council has developed a Sustainable Urban Mobility Plan (SUMP) for the city centre. A SUMP is a transport strategy for a specific area which identifies projects that could be delivered by the Council and partners to enable and encourage users of that area to travel on foot, bike, public transport, or other low-emission forms of transport more often.	Key principle is to lock in benefits of AWPR to prioritise movement of active and sustainable travel through the reallocation of carriageway space and other prioritisation and traffic management measures