



# Arbroath A Place for Everyone

## Project Update

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## Appendices

### Appendix A

#### Concept Design Development

# 1 Introduction

## 1.1 Introduction

### 1.1.1 Project Team

Angus Council has appointed Arcadis as Design Consultants for the Arbroath A Place for Everyone project. This nationally significant scheme is the first of its kind in Scotland to re-design the A92 dual-carriageway in Arbroath to make it more accessible and to promote active travel. The project is supported by Sustrans “Places for Everyone” programme, backed by Transport Scotland and the Scottish Government.

## 1.2 Scope of Work

### 1.2.1 Project Scope, Aims and Objectives

The aim of the Places for Everyone project is to create an exemplary walking and cycling route, accessible to all, connecting destinations throughout Arbroath. The route will improve accessibility in the town by restoring those areas and facilities disconnected by the current road and creating a seafront people want to use.

The benefits of the project are as follows:

- Reduce carbon emissions and air pollution, by enabling and encouraging a shift to alternatives to motor vehicle journeys.
- Enhance health and wellbeing through creating and encouraging opportunities for walking, cycling and wheeling, giving people access to good quality open space and creating opportunities for social interaction.
- Develop use of public transport and national walking and cycling routes that link the town to the wider area and support planned investment in seafront facilities.
- Increase footfall from locals and visitors on the High Street.
- Promote and enhance the coastal section of Angus Blue Green Network and green spaces, creating linked places for wildlife, leisure, access.

A selection of photos taken during 2021 from the Street Trial, at Ladyloan Primary School during the Active Travel Festival and from public consultation in the Abbeygate Shopping Centre are included on the following page.

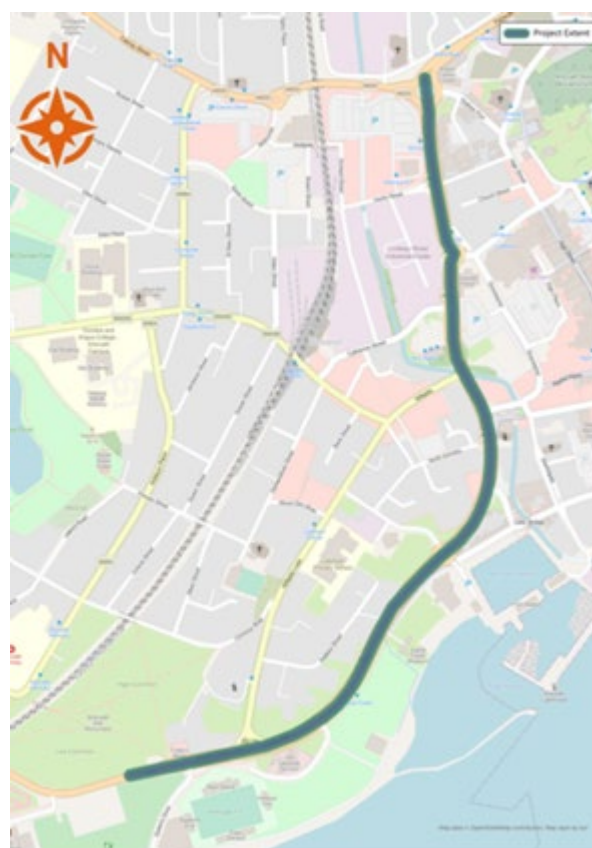


Figure 1: Project Area

Arbroath A Place for Everyone



## 2 Strategic Objectives

### 2.1 National Context

#### 2.1.1 National Transport Strategy 2 Delivery Plan, 2020-22

Scotland's National Transport Strategy 2 (NTS2) sets out an ambitious vision for the transport system for the next 20 years and outlines the four priorities which are: reduces inequalities; takes climate action; helps deliver inclusive economic growth; and improves our health and wellbeing.

This first NTS2 Delivery Plan sets out the broad actions the Scottish Government is taking to deliver on its vision and priorities out to end-March 2022, taking account of the impact of COVID-19. This encompasses actions being taken by Transport Scotland.

The NTS2 vision is “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”.

The vision is underpinned by four priorities:

- Reduces inequalities
- Takes climate action
- Helps deliver inclusive economic growth
- Improves our health and wellbeing

#### 2.1.2 Strategic Transport Projects Review 2, 2021

STPR2 is a Scotland-wide review of the strategic transport network across all transport modes, including walking, wheeling, cycling, bus, rail and car, as well as reviewing wider island and rural connectivity.

STPR2 will help to deliver the vision, priorities and outcomes for transport set out in the National Transport Strategy (NTS2) and will align with other national plans such as the Infrastructure Investment Plan, National Planning Framework (NPF4) and the Climate Change Plan.

As a result of the COVID-19 pandemic, STPR2 has a two Phased approach. Phase 1 reported to the original timescale of Winter 2020/21 while Phase 2 will report later in 2021 and will inform the Scottish Government's future investment plans and spending reviews.

The outcomes from STPR2 will:

- Enhance accessibility across Scotland for residents, visitors and businesses
- Create better connectivity with sustainable, smart and cleaner transport options
- Highlight the vital contribution that transport investment can play in enabling and sustaining Scotland's economic growth

#### 2.1.3 Infrastructure Investment Plan, 2021

The Infrastructure Investment Plan (IIP) for Scotland 2021 to 2026 provides additional detail to support the commitments made within the Programme for Government and sets the context of future investment in transport to deliver an effective response to the COVID-19 pandemic. It recognises the need to invest in the areas of the transport sector being considered through STPR2 Phase 1. It states that over £550 million will be invested over 5 years in active travel, including £50 million dedicated to Active Freeways.

#### 2.1.4 Climate Change Delivery Plan 2018-2032, update December 2020

This document updates the 2018 Climate Change Plan and sets out the Scottish Government's Delivery Plan, identifying the high-level measures to meet the target to reduce emissions by 75% by 2030 (compared with 1990) and to net zero by 2045.

Ambitious transport actions have been set out to align with the NTS2 and importantly the update commits to reducing car kilometres by 20% by 2030.

The vision is that by 2032, the pendulum will have swung away from the dominance of private car use, particularly single occupancy, to a society which has embraced more walking, wheeling, cycling, public transport and shared transport options.

#### 2.1.5 Scotland's 4th National Planning Framework, Position Statement, 2020

The Scottish Government is preparing a new spatial plan for Scotland that will look ahead to 2050 to set out where future development can bring benefits for people, the economy and environment. The fourth National Planning Framework (NPF4) will show what Scotland, as a place, could and should look like in 2050 with the following four key outcomes:

- Net-zero emission
- A wellbeing economy
- Resilient communities
- Better, greener places

The aim of NPF4 is to help stimulate the green economy by facilitating innovation, greener design and place-based solutions.

Key opportunities set out in NPF4 to achieve this include:

- building 20 minute neighbourhoods;
- strengthening support for development in town centres and restricting out-of-town retail and leisure to help us transition away from car-dependent developments;
- stimulating new models of low carbon living in rural areas as well as towns and cities; and,
- removing the need for planning permission for active travel and electric vehicle charging points to ensure that new infrastructure can be implemented widely and quickly.

#### 2.1.6 Active Travel Framework, 2019

The Active Travel Framework brings together the key policy approaches for improving the uptake of walking and cycling in Scotland for travel. The Active Travel Vision is shown below.

The Active Travel Vision is accompanied by the following objectives that promote healthier, fairer, and more environmentally friendly choices while creating more pleasant, economically viable, safer and sustainable places:

- Cut carbon emissions and other pollution
- Deliver liveable, more pleasant communities
- Better health and safer travel for all
- Reduce inequalities - jobs, services, leisure
- Support delivery of sustainable economic growth

## 2.2 Local Context

### 2.2.1 Project History

The project has its roots within the community, having been identified during the Arbroath Charette as part of consultation for the update of the Local Development Plan. Following the A92 Corridor Accessibility Feasibility Study commissioned by Arbroath Community Council, the project objectives were established during the Arbroath Active Travel Active Town Community Links PLUS submission to Sustrans. This secured backing for the scheme under the Places for Everyone programme.

### 2.2.2 Aims and objectives

The aims and objectives identified during the Arbroath ATAT are as follows:

- To create an attractive, legible and safe place for people to walk and cycle through Arbroath. The route will focus on improving access along both the north to south route as well as at key crossing nodes from west to east to better connect Arbroath across the A92 corridor.
- To involve the Arbroath community in the shaping of the proposed Active Travel Route, including consultation and providing facilities that support local needs.
- To enhance the streetscape of the A92 with coastal style planting, specimen trees, high quality materials and interactive play/art features.
- To maximise the environmental benefit of the route by strengthening local biodiversity with large areas of dedicated planting. Planting will need to be resilient to the coastal climate and will also help to create micro-climates in areas that are currently exposed, improve amenity, provide increased drainage for surface water and improve local biodiversity.

## 2.3 Outline Delivery Programme

### 2.3.1 Project Programme

The overall project programme is represented in Figure 2.

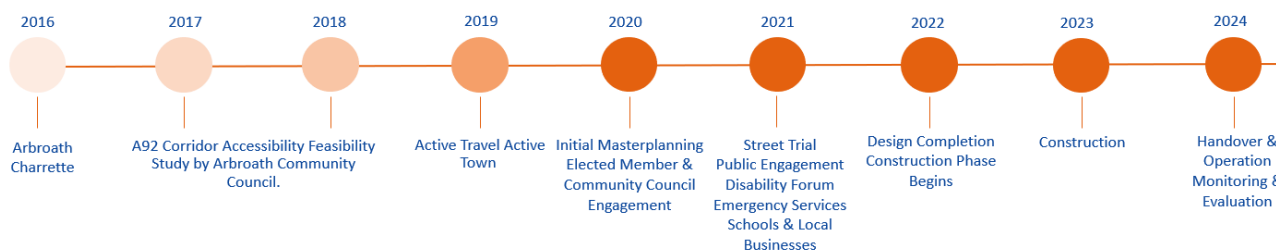


Figure 2: Project Timeline

### 2.3.2 Recent Activities

The focus during 2021 has been to advance scheme development and promotion with an extensive programme of public & stakeholder engagement, operated in cognisance of Covid-19 restrictions.

Detailed engagement and planning sessions with Angus Council Officers and Elected Members, the Community Council and Emergency Services were undertaken in preparation for the A92 Street Trial.



Feedback obtained during the Street Trial and Public Consultation Events has been reported to Elected Members.

Design development has been assisted through consultation with NatureScot and Angus Council Planning officers.

Project Governance has been strengthened with the establishment of a Project Steering Group and Advisory Group with representatives from Angus Council Senior Officers and Key Stakeholders.

### 2.3.3 Ongoing & Planned Activities

The initial focus during 2022 is on further development of the technical designs to deliver a compliant scheme which meets the objectives for accessibility, placemaking, promotes biodiversity whilst enabling and promoting behavioural change.

The intention is to complete the scheme design, procure a Contractor and commence construction works during 2022.

## 3 Public & Stakeholder Engagement

### 3.1 Public & Community Engagement

#### 3.1.1 Communications Strategy

A variety of means of engagement has been used to enable participation by the whole community. Virtual participation has been the main means of communication, however, since relaxation of the Covid-19 restrictions, face to face public consultation has been possible with 5 drop in events during 2021 and more planned during 2022. Intercept surveys within the town have been regularly undertaken. Written and telephone feedback has enabled all to participate.

The Council's Social Pinpoint website has been updated and embedded within a virtual consultation hub created specifically for the project. This is the primary source of project information, hosting drawings, FAQs, surveys and interactive mapping.

The strategy is based on the National Standards for Community Engagement produced by the Scottish Community Development Centre. Community engagement is a way to build and sustain relationships between public services and community groups - helping them both to understand and take action on the needs or issues that communities experience.

#### 3.1.2 Project Feedback

Since the inception of the project, to date we have received over 1270 separate pieces of feedback on the Street Trial, Concept Design and Design Development.

Feedback has been received on online surveys via the virtual consultation hub, drop-in events, the Active Travel Festival and the Street Trial.

- 298 responses to the online Street Trial Survey
- 325 comments and suggestions on the Street Trial via the online consultation hub
- 51 feedback forms on the Concept Design
- 97 online survey responses on the concept design
- 42 Route User Intercept Survey Responses
- 61 pieces of feedback at the Harbour Visitor Centre Drop-in event
- 111 online survey responses on the Design Development

Based on analysis of the feedback received from the latest design development consultation, the following key data has been extracted:

- On average, 90% of consultees live in Arbroath
- 88% liked the design
- 90% believe the design would improve accessibility for people of all abilities
- 84% believe the design would improve safety
- 90% agreed the design has sufficient space dedicated to walking and cycling infrastructure
- 89% agreed the design makes it easier to cross the road on foot
- 89% agreed the crossing points are in suitable locations
- 89% agreed the design improves green space and the appearance of the area.

This feedback has been incorporated into the design process to guide the development of scheme proposals.

## 3.2 Elected Members

### 3.2.1 Elected Member & Community Council Consultation

Engagement with Angus Council Elected Members and Arbroath Community Council has been possible throughout the design development phase via regular meetings using MS Teams. This enabled sharing of plans for the street trial and allowed members to ask the project team questions and be updated as the project progresses.

Initial meetings were undertaken in November 2020, further meetings took place in February, May and August 2021 in line with development of the design. Dates of future meetings will occur in line with the production of the detailed design.

## 3.3 Emergency Services

### 3.3.1 Emergency Services Briefings

Regular meetings with representatives of Police, Fire, Ambulance Services and the RNLI were initiated prior to the Street Trial and will continue during the scheme progression. These have been very useful to obtain feedback on the Street Trial, to discuss aspects of the scheme design and maintain two-way communication during scheme development.

The Police reported they were pleased with the reduction in speeding on Burnside Drive and Ladyloan during the street trial. Both the Ambulance and Fire Services reported no issues affecting their operations. We understand the RNLI responded to 4 call outs during the operation of the street trial with no problems reported. The proposed design has been adapted to allow space for emergency vehicles to pass between vehicles on either side. Collectively, this evidence helps build confidence in the traffic modelling to ensure that sufficient capacity of the road is maintained following the switch from dual to single carriageway.

## 3.4 Equalities Impact Assessment

### 3.4.1 Advance Consultation

Meetings were held in advance of the EqIA workshop with representatives of Angus Disabilities Forum. This provided insight to better understand the needs and lived experience of people living with a disability. This first-hand evidence helped guide the development of junctions, road crossings and the relationship between cyclists, pedestrians and other wheeled users. This reflects the hierarchy of road users defined in the National Transport Strategy 2 to encourage walking, wheeling, cycling, public transport and shared transport.

### 3.4.2 EqIA Workshop

An Equalities Impact Assessment workshop was held on 15 November 2021 to seek feedback on the proposals, providing an opportunity to incorporate comments and suggestions. Organisations represented at the meeting were as follows:

- Angus Disabilities Forum
- Arbroath and District Community Council
- Angus Alive
- Parliamentary Adviser for Royal National Institute for the Blind (RNIB)
- Sustrans Senior Evaluation Officer

- Sustrans Project Officer

The meeting was designed to discuss the Arbroath project from the perspective of vulnerable populations, identifying those groups who had the potential to be adversely affected by the project as well as how groups might be affected and what actions, recommendations and monitoring measures might be appropriate. Key groups identified included children, young people, older people, people with mobility restrictions, people with sensory impairments, people from different socio-economic backgrounds, women and carers.

Key outcomes included:

- the need to accommodate potential user conflict (for example perceptions of safety for children and older people who are more likely to be pedestrians)
- consideration needs to be given to the importance of kerb demarcation / use of an upstand for visually impaired and long cane users in particular
- the importance of allowing dropped kerbs at the right locations
- recommendations for reducing street clutter – for example having a logical place for bins and ensuring they are fixed so that people can ‘learn’ where they are
- the importance of appropriate lighting for vulnerable groups such as women
- incorporation of aspects which may make things easier for people with learning disabilities or dyslexia (for example the use of colour in signage)
- importance of remembering the needs of carers and regular visitors – how can we get them to travel more actively and facilitate their travel needs too
- significant concern for people will be around how long any construction period might be and the length of time the area is in transition / how it will be changing

## 4 Accessibility & Connectivity

### 4.1 Existing Environment

#### 4.1.1 A92 Corridor

The A92 dual carriageway was constructed early in the 1970's. It provides a direct link from Ladyloan via Burnside Drive to Guthrie Port where it continues to Montrose as single carriageway. This was progressed in parallel with modernisation of housing stock and resulted in major changes affecting connectivity between the Westport and Town centre. Most obviously, the dual carriageway creates a physical barrier to pedestrians, the route severed East-West links, required significant alteration to existing streets. A sophisticated one-way system now operates within Westport and the town centre.

The requirement for the dual carriageway was lessened following construction of the A90 Dundee-Aberdeen dual carriageway, which subsequently allowed this section of the A92 to be de-trunked. This has created the opportunity to replace the dual carriageway with a single carriageway road, to improve crossing points between key pedestrian routes and facilitate creation of an Active Travel route.

### 4.2 Role of the Cycle Network

#### 4.2.1 Existing Cycle Network

National Cycle Network Route 1 connects the Forth Road Bridge at North Queensferry to Aberdeen. It runs through Angus along the coast from Monifieth passing through Arbroath, heading north to Montrose. This route is available to view on the Sustrans website.

Angus Council already has an extensive network throughout the region which is electronically mapped, in part, on the Council's GIS system. The network is expanded every year through internal and external funding.

Over the 12 months Angus Council propose to create an online public accessible map showing the existing and planned active travel footway/cycleway and core path networks routes in Angus. The map will also show existing cycle parking locations, bike shops and businesses that participate in the Cyclist Welcome scheme. The location of e-bike hire stations may also be included in the future. The website will also share up-to-date information setting out plans to improve active travel networks and facilities to 2030 using a robust evidence-led approach to network planning.

#### 4.2.2 Angus Active and Sustainable Travel Strategy

Approved by Angus Councils Communities Committee on 23 February 2021, this report and appendices underpins all aspects of active travel, the various funding streams that are available and it also includes details of the pipeline of Active Travel projects which we aim to progress through Angus.

Arbroath A Place for Everyone will be an exemplar project and hopefully the first of many as Angus Council then seeks to deliver the forthcoming pipeline of projects and action plan.

The report and appendices can be found via the following links:

[https://www.angus.gov.uk/media/agenda\\_item\\_no\\_6\\_report\\_no\\_4321\\_angus\\_active\\_sustainable\\_travel\\_strategy](https://www.angus.gov.uk/media/agenda_item_no_6_report_no_4321_angus_active_sustainable_travel_strategy)

[https://www.angus.gov.uk/media/agenda\\_item\\_no\\_6\\_report\\_no\\_4321\\_angus\\_active\\_sustainable\\_travel\\_strategy\\_app\\_1](https://www.angus.gov.uk/media/agenda_item_no_6_report_no_4321_angus_active_sustainable_travel_strategy_app_1)

[https://www.angus.gov.uk/media/agenda\\_item\\_no\\_6\\_report\\_no\\_4321\\_angus\\_active\\_sustainable\\_travel\\_strategy\\_app\\_2](https://www.angus.gov.uk/media/agenda_item_no_6_report_no_4321_angus_active_sustainable_travel_strategy_app_2)

[https://www.angus.gov.uk/media/agenda\\_item\\_no\\_6\\_report\\_no\\_4321\\_angus\\_active\\_sustainable\\_travel\\_strategy\\_app\\_3](https://www.angus.gov.uk/media/agenda_item_no_6_report_no_4321_angus_active_sustainable_travel_strategy_app_3)

[https://www.angus.gov.uk/media/agenda\\_item\\_no\\_6\\_report\\_no\\_4321\\_angus\\_active\\_sustainable\\_travel\\_strategy\\_app\\_4](https://www.angus.gov.uk/media/agenda_item_no_6_report_no_4321_angus_active_sustainable_travel_strategy_app_4)

## 4.3 Changes to the Roads Network

### 4.3.1 Road Design

The preferred option is to replace the existing southbound dual carriageway with the new cycleway and convert the northbound lanes to a two-way single carriageway. The project will also improve accessibility across town by connecting the High Street and West Port and providing clearer links to the train and bus stations and the seafront.

Associated improvements to each of the junctions will be required to accommodate the cycleway. This will include reduction in the size of the Guthrie Port roundabout and replacement of roundabouts at Lordburn and East Mary Street/Harbour with new signalised junctions.

### 4.3.2 Cycleway Design

A 3m wide bi-directional segregated cycleway is proposed, with a coloured permeable surface compatible with the SUDs design. The cycleway will take cognisance of the latest recommendations by Transport Scotland in their Cycling by Design guide: "Cycling by Design provides guidance for permanent 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."

The scheme proposals incorporate cycle priority crossings and parallel pedestrian and cycleway crossings designed in cognisance with Cycling by Design and TSM Chapter 6:

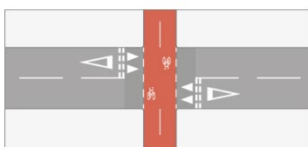
#### 4.6 Cycle priority crossings

Cycle routes may be given priority over lightly-trafficked roads in situations where motor traffic speeds are low. This arrangement incorporates standard give-way markings on the road (for TSRGD Diagram 1003A), requiring motor traffic to give-way to cycle users. A layout is illustrated in Figure 4.12.

Opportunities to provide cycle user priority are most likely to arise in new developments and in situations where a cycle track has been taken off-line at a junction to cross a side road.

In situations where cycle users are assigned priority, it is vital that drivers are clearly aware of the facility, and that motor traffic speeds approaching the crossing are not excessive. The visibility of the cycle track from the road is defined by a conventional visibility splay using X and Y dimensions.

Where pedestrians are to be accommodated, the Sustainable Travel Hierarchy should be considered. Parallel crossings may provide a more suitable alternative where pedestrians and cycle users are required to cross together.



- 4.6.1 Cycle priority crossings should not be provided where the speed limit on the road is greater than 30 mph.
- 4.6.2 A visibility envelope is required in accordance with Section 4.3, with the cycle track defined as the through route, and therefore ensuring visibility of the cycle track from the road.
- 4.6.3 A speed table with ramps not exceeding 1:10 may be applied, to control the speed of motor traffic and reduce the change in level for cycle users as they cross the road.
- 4.6.4 The cycle track surface material and colour should continue across the crossing to visually emphasise priority.
- 4.6.5 SLOW markings on the cycle track may be used to warn cycle users of the interaction ahead.

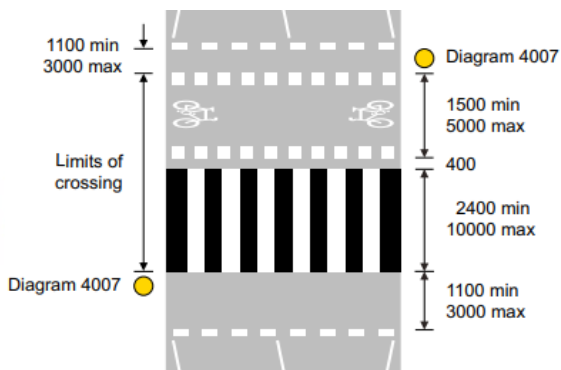


Figure 3 Extracts from Cycling by Design and TSM Chapter 6

### 4.3.3 Footpaths & Pedestrian Crossings

A number of interventions are proposed to improve pedestrian connectivity within Arbroath for people of all abilities:

- Identifying pedestrian desire lines connecting destinations along the A92 corridor
- Simplifying existing crossing points for the new single carriageway
- Introducing new crossings where none currently exist
- Optimising pedestrian crossing times outwith peak traffic times
- Better utilisation of space to remove pinch points on the footpaths
- Improving junction visibility
- Reducing the width of intersecting roads to reduce crossing time

### 4.3.4 Street Trial

A full scale street trial was successfully operated during June and July 2021. The timing of the street trial was delayed due to the impact of Covid 19 until relaxations allowed the event to proceed safely. This was promoted alongside the Active Travel Festival and helped demonstrate the potential benefits of the scheme. In addition to providing a safe car-free cycle lane on either side of the A92 at Ladyloan and Burnside Drive, it allowed for remote monitoring of traffic, cyclist and pedestrian movements during the scheme. This helped provide verification of the single carriageway as a viable option, with traffic volumes maintained during the street trial.

## 4.4 Construction

### 4.4.1 Construction

Construction is planned to commence later this year and is anticipated to take around 18 months. The works will be planned to mitigate traffic impacts during construction. This will require advance preparation of detailed proposals to be agreed with the contractor for temporary works and traffic management proposals.

Angus Council are currently reviewing their preferred procurement strategy for the works.

## 5 Landscape & Environmental Improvements

### 5.1 Existing Environment

#### 5.1.1 Existing Conditions

The A92 is framed by a mix of residential and leisure to the south; with the introduction of more amenities and destinations such as the bus station and large supermarkets, towards the centre and north of the scheme.

Glimpses of the conservation area to the east and some heritage influence is present along the scheme, but generally there is a lack of character and identity of the spaces along the A92.

The existing conditions of the area limit active travel possibilities in the north to south direction, but also in an east to west direction. Links from the bus station and train station towards the city centre are poor and a project aim is to encourage easy access to the city centre on foot, as well as to create safe and pleasant walking and cycling routes around Arbroath.

Large swathes of green space occupy the south of the scheme, although they have low ecological value. With the exception of Brothock water and associated vegetation, the scheme lacks biodiversity or successful amenity space, this is something that the scheme will seek to address.

### 5.2 Landscape & Environmental proposals

#### 5.2.1 Design Intent

The design intention is to generate easy and accessible active travel opportunities, improve public realm at key nodes and to introduce biodiversity into the scheme.

A key aim of the scheme is also to enhance biodiversity along the north south corridor, with a variety of amenity spaces, SuDs interventions, coastal biodiversity planting and avenues of trees; all of which will not only bring nature into the town but will create pleasant and diverse pedestrian and cycle journeys and encourage people to spend time outdoors in vibrant surroundings. Biodiversity interventions within the scheme will link up with surrounding green spaces and integrate into the wider green network.

Active travel interventions, such as improved crossings and new directional signage, will encourage pedestrian links east and west (from bus and train stations into the town centre), as well as north and south.

#### 5.2.2 Design Development

The creation of attractive, high quality public spaces along the scheme at key points will create dwell spaces and diversity of experience along the A92 and wider town. This is evidenced in the flythrough video produced showing the new proposals: <https://youtu.be/24VNMSp-nQo>





Figure 4 Still taken from the flythrough at Lordburn

## 5.3 Planning Consultation

### 5.3.1 Initial Consultation

Initial consultation with Angus Council's Planning service indicates that much of the project will be covered under permitted development rights where it falls within the extent of the Adopted Road, or in adjacent land where it is necessary for the maintenance and improvement of the Adopted Road. Sections of the scheme south of East Grimsby are within the conservation zone, where the boundary has been extended to the centreline of the dual carriageway. Land ownership of isolated areas potentially affected by the scheme outside the extent of the Adopted Road are being investigated with the assistance of Angus Council's Legal service.

Stage 3 preliminary design proposals will be submitted to the Planning Authority early in 2022.

## 5.4 Landownership

### 5.4.1 Legal Services Consultation

Advice has been sought to identify relevant landowners potentially affected by the scheme. This affects isolated areas outside the limits of the adopted road, a small pocket at East Grimsby next to the takeaway for example. Similarly there are very few private vehicle accesses directly off the A92. Consultation and agreement will be sought with the relevant landowners to resolve any potential issues. This work is ongoing at this time.

Much of the frontage of the town is held under the common good. This provides a practical constraint on the scheme due to the difficulty in seeking agreement on any changes to the landscape, for instance to support bio-diversity planting. For this reason, any improvements here are excluded from the scope and may be progressed as part of a future scheme.

## 6 Management & Maintenance

### 6.1 Existing Environment

#### 6.1.1 A92 Dual Carriageway

The adopted road extends the full width of the dual carriageway including the footpaths on either side of the road. Angus Council Roads & Transportation Service has maintenance responsibility for the dual carriageway and associated transport infrastructure including footpaths, road drainage, streetlighting, structures such as the Brothock Bridge, traffic signs and signals, road markings, pedestrian guardrails and street furniture, all contained within the limits of the adopted road.

Additionally, Angus Council is responsible for ground maintenance and landscaping both within the adopted road and also for the adjacent properties under Council management.

Some sections of privately owned land exist, for example at East Grimsby and alongside the Brothock Burn. Maintenance responsibility here is with the landowner and agreement will need to be sought prior to implementing any change.

### 6.2 Future Maintenance

#### 6.2.1 Roads & Landscaping

Generally, materials are to be readily available, of good quality to meet operational requirements whilst reflecting the high calibre of the project.

The proposals substantially reduce the area occupied by the road. The southbound carriageway will be replaced by the 3m wide two-way cycleway incorporating permeable surfacing to reduce surface water run-off, connecting to a SUDs system.



Figure 5 Still taken from the flythrough at Inchcape Park

Streetlighting columns will be retained on the Northbound carriageway with upgraded lighting units to improve efficiency. Replacement lighting will be installed along the new cycleway and in connection with landscaping improvements.

Investment in the creation of attractive green spaces will enhance biodiversity, with appropriately selected low-maintenance plants which strike a balance for ongoing maintenance.

## 7 Cost Assessment

### 7.1 Cost Estimate

#### 7.1.1 Budget Review

A cost estimate was included in the April 2019 Community Links PLUS Submission. The cost estimate excluded issues relating to landownership and public utilities. A high-level review of likely costs is included in the following pages which indicates that the existing overall project estimate (£13.2M) remains valid. This will be verified in Stage 4 Technical Design.

A significant component of the cost of the works is associated with the management of temporary works and traffic management during each phase of the works. This can be estimated through early consultation with potential Contractors. It may be possible to identify opportunities for value engineering, for example through recycling road surfacing arising from removal of the southbound lane.

Table 1 Cost Estimate Review

Section	Stage 2 Proposal	Stage 3 Preliminary Design	Stage 2 Estimate £000	Stage 3 RAG
A92 Burnside Drive/Guthrie Port Roundabout	Roundabout removed, construction of 4-way signalised junction	Roundabout diameter reduced for cycleway, approach road junction improvements and new crossings	800-1,200	Note 1
Guthrie Port to Hume Street (115m)	Single carriageway with reconfigured bus stops and crossings	Design developed to broaden the carriageway. Protection/ avoidance of SSEN HV cables.	150-220	Note 2
Hume Street junction	Modifications to incorporate right turn	Design developed in line with Stage 2 proposal	180-220	
Hume Street to Lordburn (80m)	Reconfiguration of road and bus stops	Design developed in line with Stage 2 proposal. Protection/ avoidance of SSEN HV cables.	100-150	Note 2
Lordburn Roundabout	Roundabout replaced with traffic-controlled crossing	In line with Stage 2. Traffic controlled junction with stacking lanes and new crossings	500-650	
Lordburn to Catherine Street (55m)	Reconfiguration of carriageway	Design developed in line with Stage 2 proposal. Protection/ avoidance of SSEN HV cables.	80-100	
Catherine Street junction	Reconfiguration of carriageway and signals upgrading	Design developed in line with Stage 2 proposal	275-350	
Catherine Street to Millgate (80m)	Reconfiguration of carriageway	In line with Stage 2 proposal with improvements to crossings. Protection/ avoidance of SSEN HV cables.	130-150	Note 2
Millgate junction	Reconfiguration of carriageway and signals upgrading	In line with Stage 2 proposal with improvements to crossings.	275-350	
Millgate to Brothock Bridge (55m)	Reconfiguration of carriageway	Design developed in line with Stage 2 proposal. Protection/ avoidance of SSEN HV cables.	80-100	Note 2
Brothock Bridge junction	Reconfiguration of carriageway and signals upgrading	In line with Stage 2 proposal with improvements to crossings.	275-350	
Brothock Bridge Public Realm Improvements	Not included	Improvements to public realm & connections to the town centre. Protection/ avoidance of SSEN HV cables.	Nil	Note 3 £500k-£650k
Brothock Bridge to East Mary Street/ Harbour Roundabout (230m)	Includes reconfiguration of East Grimsby	Road and cycleway design in line with Stage 2 proposals	325-425*	
East Grimsby Junction		Realignment of junction with 4-way signalised crossing. Gateway to the town centre. Public realm & parking upgrades	175-225* *500-650 combined	Note 4

Arbroath A Place for Everyone

Section	Stage 2 Proposal	Stage 3 Preliminary Design	Stage 2 Estimate £000	Stage 3 RAG
East Mary Street/ Harbour Roundabout	Roundabout removed, construction of 4-way signalised junction	In line with Stage 2 proposal with on-demand traffic controls. Amenity improvements opposite Primary School	500-600	
Harbour to Millgate Loan (440m)	Reconfiguration of road and bus stops, access to Signal Tower Museum and Inchcape Park	Design developed in line with Stage 2 proposal	800-1000	
Millgate Loan Junction	Reconfiguration of carriageway to tighten the junction with priority controls	Design developed in line with Stage 2 proposal	250-350	
Millgate Loan to Single Carriageway (250m)	Reconfiguration of road with new pedestrian crossings	Design developed in line with Stage 2 proposal	450-550	
Wider area	Active Travel Signage	Scope to be agreed	10-20	Note 5
Wider area	Cycle Parking	Locations identified at key junctions	25-50	Note 6
Wider area	Accessibility Improvements		200	
A92 Route	Public Art/Local Interest/Historic Info		50-75	
Street Trial	Street Trial	Delivered	30-50	Complete
Traffic Signals	Signal and software upgrades		200-300	Note 7
Note 1	Peak traffic flows in three directions, on the A92 Burnside Drive-Fishacre and Guthrie Port leading to the Westway, favour a roundabout rather than a large 4-way signalised junction incorporating filter lanes. Reducing the size of the roundabout allows controlled crossing points on the main routes, with cyclists and pedestrians given priority on Guthrie Port (East) leading to Arbroath Abbey.			
Note 2	The A92 is an important route for emergency vehicles. Providing a slightly wider 7.9m carriageway allows blue light vehicles to pass stationary vehicles on either side. Existing underground power cables may need protection/diversion.			
Note 3	Inclusion of placemaking improvements to create a welcoming connection leading pedestrians and cyclists into the town centre. These proposals were not specifically allowed for in the Stage 2 estimate (estimate £500k-£600k based on similar scheme costs)			
Note 4	Improvements to East Grimsby junction included within original £500k-£650k combined estimate. The current proposals are further developed to create a gateway to the Fit O'the Toon, Harbour and town centre.			
Note 5	Budget for Active Travel Signage to be confirmed.			
Note 6	Specific Allowance for cycle Parking to be confirmed.			
Note 7	Costs for Traffic Signal upgrade to be confirmed during Stage 4 Technical Design.			

## 8 Risk Assessment

### 8.1 Risk Management

#### 8.1.1 The Construction (Design and Management) Regulations 2015

Angus Council has appointed Arcadis as Principal Designer for the scheme. As such, Arcadis' quality assured PCRA (Produce, Check, Review, Approve) process complements the general obligations set out by the HSE:

"Principal designers must:

- plan, manage, monitor and coordinate health and safety in the pre-construction phase. In doing so they must take account of relevant information (such as an existing health and safety file) that might affect design work carried out both before and after the construction phase has started
- help and advise the client in bringing together pre-construction information, and provide the information designers and contractors need to carry out their duties
- work with any other designers on the project to eliminate foreseeable health and safety risks to anyone affected by the work and, where that is not possible, take steps to reduce or control those risks
- ensure that everyone involved in the pre-construction phase communicates and cooperates, coordinating their work wherever required
- liaise with the principal contractor, keeping them informed of any risks that need to be controlled during the construction phase"

#### 8.1.2 Risk Management Meetings

The Project Risk Register is regularly reviewed by senior officers from Angus Council's delivery team together with Arcadis Project Manager during monthly Risk Management Meetings. This open forum provides a mechanism for discussing any aspect which may have the potential to affect the scheme and allow for appropriate mitigation measures to be taken.

#### 8.1.3 Designer Risk Assessment

A Designer's Risk Assessment communicates residual risks for incorporation in the Pre-Tender Information pack. A GIS enabled risk assessment application has been developed specifically for this project. This allows risks to be identified at the location where they occur. The data-collection wizard populates the Designer's Risk Assessment and enables them to be cross-referenced on the project drawings. This will form the basis for risk management during the construction phase as part of the handover to the Contractor.

#### 8.1.4 Road Safety Audit

Design of the scheme is guided by the findings of independent Road Safety Audits at regular points during scheme development and following construction during the implementation stage.

## 9 Monitoring & Evaluation

### 9.1 Monitoring Proposals

#### 9.1.1 Monitoring and Evaluation Plan

Arcadis has been liaising with Angus Council and Sustrans to develop a comprehensive Monitoring and Evaluation Plan as part of the project’s requirements.

At the **design** stage, the focus is on completing the baseline monitoring and the success of the street trial to capture pre-intervention context i.e. the use of space and stakeholders views.

Following **construction and handover**, follow-up monitoring will capture changes resulting from the project, including a comparison with the baseline monitoring information.

When the project is **in use**, monitoring will be ongoing, and lessons learnt from the monitoring process will be shared in order to improve future projects and designs.

The proposed outcomes and methodology to meet the objectives are detailed in Table 1.

*Table 2 Outcomes and Methodology*

Outcome	Methodology
<b>Active Travel</b>	
Increased levels of active travel	<ul style="list-style-type: none"> <li>• Automatic counters</li> <li>• Video manual counts</li> <li>• Route user intercept survey (RUIS) question: trip frequency</li> </ul>
Driving replaced by active travel	<ul style="list-style-type: none"> <li>• Postal survey question: number of trips by each mode over last two days</li> <li>• Hands up school survey (HUSS)</li> <li>• Workplace survey</li> <li>• Access to station survey</li> <li>• RUIS question: could you have used a car?</li> </ul>
Increase in purposeful trips	<ul style="list-style-type: none"> <li>• RUIS question: trip purpose</li> <li>• Video manual count; retail vitality survey</li> </ul>
Increase in levels of physical activity	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Postal survey</li> </ul>
Improved attitudes towards walking and cycling	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Postal survey</li> </ul>
<b>Communities Collaborative Design</b>	
Community engagement	<ul style="list-style-type: none"> <li>• Communications</li> <li>• Receiving documents</li> </ul>
Extensive, representative and diverse community engagement	<ul style="list-style-type: none"> <li>• Engagement activity logs</li> <li>• Census data</li> <li>• Postal survey</li> </ul>



Meaningful community consultation	<ul style="list-style-type: none"> <li>• Qualitative review of engagement activities</li> <li>• Compare consultation output vs scheme design</li> <li>• Focus group with engaged individuals/groups</li> </ul>
Deliver community-orientated infrastructure	<ul style="list-style-type: none"> <li>• Postal survey &amp; RUIS</li> <li>• Focus group</li> </ul>
<b>Enjoyable, Comfortable Spaces</b>	
Improve the quality and comfort of space	<ul style="list-style-type: none"> <li>• Before and after inventory &amp; summary of space design and layout, guided by Gehl Public Life Tools (quality criteria, place inventory, social space survey)</li> </ul>
Improve the enjoyment and usage of the space	<ul style="list-style-type: none"> <li>• Gehl public life tool</li> <li>• Video analysis</li> <li>• RUIS</li> <li>• Postal survey</li> <li>• Walking/cycling focus group</li> </ul>
Improve the sociability of space	<ul style="list-style-type: none"> <li>• Gehl public life tool</li> <li>• RUIS</li> <li>• Postal survey</li> <li>• Walking/cycling focus group</li> </ul>
Improve safety	<ul style="list-style-type: none"> <li>• KPI</li> <li>• Video analysis</li> <li>• RUIS</li> <li>• Postal survey</li> <li>• Walking/cycling focus group</li> </ul>
<b>Reallocation of road space</b>	
Reallocation of road space	<ul style="list-style-type: none"> <li>• Construction data</li> </ul>
Reduced vehicle dominance	<ul style="list-style-type: none"> <li>• Traffic speed and volume</li> <li>• DfT road traffic counts</li> </ul>
Increased priority for active travellers; reduced severance	<ul style="list-style-type: none"> <li>• Video analysis</li> <li>• Walking/cycling focus group</li> <li>• RUIS</li> </ul>
<b>Facilitate independent walking, cycling and wheeling for everyone</b>	
Accessible for everyone	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Accessibility audit</li> </ul>
Accessible for disabled people	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Walking/wheeling focus group</li> </ul>
Independent mobility for children and young people	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• HUSS</li> <li>• Before and after inventory and summary of space</li> </ul>
Gender equality	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Video manual counts</li> </ul>

Socio-economic inclusivity	<ul style="list-style-type: none"> <li>• RUIS</li> <li>• Postcodes</li> </ul>
Cycle friendly	<ul style="list-style-type: none"> <li>• RUIS</li> </ul>

### 9.1.2 Evaluation Criteria

The Monitoring and Evaluation Plan builds on the Plan developed by Sustrans' Research and Monitoring Unit (RMU). It aims to evaluate the scheme against the general Places for Everyone objectives which are listed below.

- **Active Travel** – Increase the number of people and trips for walking, cycling and wheeling for everyday journeys
- **Communities Collaborative Design** – Ensure communities are proactively engaged in project development and decision making
- **Enjoyable, Comfortable Spaces** – Improve the quality of place, green infrastructure, provide dedicated, safe spaces for people to walk, cycle and wheel through
- **Reallocation of Road Space**
- **Facilitate independent walking, cycling and wheeling for everyone** – Improve accessibility for people with protected characteristics

## 9.2 Benefits Realisation

### 9.2.1 Potential Benefits

There are a number of wider benefits that are likely to be experienced post-completion of the new active travel route. These may include:

- Wider economic impacts including land value uplift and direct and indirect jobs as a result of the construction of the route and place making effects post-construction
- Decongestion for other highway trips due to reduced number of motor vehicles on dual carriageway
- Journey time benefits for both highways trips and local active travel trips due to improved road junctions
- Reduction in speeding and aggressive driving behaviour on dual carriageway sections
- Improvements in air quality and reduction in emissions due to reduced congestion along dual carriageway
- Health benefits of active modes due to new active travel links
- A reduction in parking demand in the towns centre could result in land use changed and potentially land value uplift and regeneration potential and
- Innovation and place making.

## 10 Conclusions

### 10.1 Conclusions

#### 10.1.1 Design Development

Positive progress has been made with the Developed Design during Stage 3B. This has involved an extended period of widespread and significant amount of engagement by Angus Council, Sustrans and Arcadis with elected members and the public to build support for the project aims and objectives. This process has also allowed for public feedback, learning from the street trial and output from the Equalities Impact Assessment workshop to inform the proposed designs for the road, path and cycle way alignments and landscaped areas.

A visualisation of the proposed design showing the realignment and use of available public space is available at the following link:

<https://youtu.be/24VNMSP-nQo>

#### 10.1.2 Next steps

The design proposals are now at an advanced stage to allow planning consultation and detailed technical design to progress and benefit from early contractor engagement, subject to agreement.

## **Appendix A**

### **Concept Design Development**

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