2018 is Scotland’s Year of Young People (YOYP), a year celebrating the positive contribution young people make to Scotland. It’s also a year in which the Scottish Government committed to making cities friendlier and safer spaces for pedestrians and cyclists by increasing investment that supports active travel from £40 million to £80 million per year, and the year in which the UN’s International Panel on Climate Change released a report detailing how, in order to minimise the catastrophic impacts of climate change, the rise in global temperatures must be limited to 1.5 °C, with sustainable cities playing a vital role in meeting this target.

With this in mind, this research project, funded by CSGN’s Young Persons Travel Grant (supported by Skyscanner), explores how five cities across northern Europe have involved young people in their sustainable urban design projects, how these efforts could be improved in the future, and what lessons can be applied in Scotland, with a particular focus on walking and cycling projects. By studying projects in Amsterdam, Nijmegen, Groningen, Copenhagen and Hamburg, this project aims to document and analyse how young people are shaping the built environment in European cities, in order to inspire and inform young people in Scotland in YOYP 2018, to contribute to the Scottish Government’s vision that by 2020 10% of everyday journeys will be by bicycle, and to ensure the success of projects that deliver a greener and healthier Scotland.

Methodology

Snowball sampling was conducted to reach a range of subject matter experts in target cities. This sampling technique uses a small number of initial participants to nominate, through their personal and professional networks, other participants who could potentially contribute to the study. Informal interviews were then conducted with participants, in which first-hand experience of project delivery and wider general reflections were discussed, generating a wealth of qualitative data. In addition, project sites were qualitatively assessed through direct observation, to analyse topics such as the successful legacy of projects in the built environment, or the success of engagement events.
Contents

Amsterdam ........................................ 3
AMS Institute
The Amsterdam Academy of Architecture
Junior Bicycle Mayor of Amsterdam
Groennet

Nijmegen .......................................... 5
European Green Capital 2018
Green Capital Challenges
Green Routes
European Mobility Week
Beleef de Waalbrug
Kinderraad
Fietshelden Designaton

Groningen ......................................... 7
SAC Groningen
City Challenges and Battle of Concepts

Copenhagen ........................................ 8
Tåsinge Plads
The Soul of Nørrebro
Gronne Cykelruter
Build Your City
Solskinstunnelen
Copenhagen’s Youth Council
Climate Ambassador Education Programme

Hamburg ............................................ 11
Klimawoche
European Research Night
HafenCity
Grünes Netz Hamburg

Conclusions ....................................... 13

Appendix A ......................................... 18
Appendix B .......................................... 20
Amsterdam

Amsterdam is known around the world for its historic canals, its fondness for bicycles, and as a major tourist destination. The city is home to approximately 850,000 people, and so is comparable in size to Scotland’s largest cities, Glasgow and Edinburgh. An estimated half of all city journeys in Amsterdam take place on two wheels. The city is also on average 2m below sea level, and so is well aware of the importance of robust stormwater management in the face of climate change. Young people are involved in a number of projects that are shaping the sustainable future of the Dutch capital.

The Amsterdam Institute for Advanced Metropolitan Solutions (AMS Institute) is an educational and research institute which was founded in 2014 as a partnership between educational, public and private organisations in the Netherlands. Students at the AMS Institute undertake a ‘living lab’ project as part of their studies, in which the city of Amsterdam is used as a testbed to apply the latest academic research to real life projects. A current living lab project is the Haven-Stad (Harbour City) development. The Haven-Stad is a large scale urban redevelopment project taking place at the old port to the north-west of the city centre. The municipality is aiming to build between 40,000 and 70,000 new homes which are attractive, accessible and sustainable. Students at the AMS Institute have been tasked with developing strategies that ensure the area is as sustainable as possible, considering everything from sustainable self-sufficient energy production, to future-proofing new buildings through circular economy principles and adaptable modular design. Previous AMS Institute student projects also include Park om de Hoek (‘Park around the corner’) and Rooftop Revolutions. For Park om de Hoek, students performed an extensive analysis of the city-scape using GIS to identify optimal sites for new parks. Factored into this optimisation was distance to existing parks, population density, current spatial zoning, groundwater levels, and other water issues. Rooftop Revolutions used a similar GIS analysis to identify optimal sites for green roofs in the city.

Projects such as these provide students with opportunities to work on, and have direct input into, live projects, all the while developing skills attractive to prospective employers. Equally, organisations which facilitate ‘living lab’ projects benefit from the combination of the direct involvement of young people in their projects with application of cutting edge research from the AMS Institute. The AMS Institute also offers several publicly available online learning modules on the topic of sustainable development, and is in the process of exploring, with the advice of students, how the institute’s ideas can be exported to other cities worldwide, in particular Sydney; both of these initiatives further increasing access for young people to be involved in shaping modern sustainable urban regions.

The Amsterdam Academy of Architecture uses a similar educational model to the AMS Institute, combining study with work experience. The city of Amsterdam serves as a laboratory for design assignments, and in 2017 masters students worked on the proposals for Amsterdam’s Sluisbuurt neighbourhood. The Sluisbuurt neighbourhood is a proposed large scale development on Zeeburgereiland, an island close to the city centre in the east. The aim is to create a green, sustainable new neighbourhood with 5,500 mixed new homes. The municipality’s initial 2016 proposals proved controversial with city residents; the envisioned tower blocks would contrast starkly with Amsterdam’s otherwise relatively flat
skyline. Following this controversy, further public consultation was undertaken at which the master students' proposals were displayed alongside the city’s proposals to inform an updated final design. One masters student proposed a ‘Bicycle Life’ unit, in which every flat within the block is connected to the street by an elevated winding cycle path.

The first Junior Bicycle Mayor of Amsterdam, Lotta Crok, was elected in July 2018. Lotta, who is eight years old, is also the first junior bicycle mayor in the world. The bicycle mayor programme, coordinated by BYCS, an Amsterdam-based social enterprise, aims to create both a global network of change-makers and provide cities with a facilitator to connect the public with politicians and municipalities. By appointing a Junior Bicycle Mayor, Amsterdam has empowered a young person to implement ideas and initiatives that inspire and encourage more children across the Dutch capital to cycle every day.

In 2017, the municipality of Amsterdam launched its multi-year plan for bicycles 2017-2022. Contained in this document is a vision for a suite of routes known as the Groennet (the Green Network). Once completed, the Groennet will consist of comfortable traffic-free routes that pass through attractive green environments. It will be implemented in three phases: firstly, the quality of existing routes will be upgraded by improving comfort and signage. Secondly, key links between routes will be implemented, with a capital investment of approximately €2.5m. Finally, the third phase will implement potential routes that can only be developed over longer timescales in tandem with other large investments going on in the area; for example, major maintenance works, or area-wide regeneration projects. Once complete, the Groennet will form a key part of Amsterdam’s extensive active travel network. By creating direct cohesive green routes that integrate into an existing active travel network, the Groennet will benefit the thousands of people who use it for their everyday active journeys. The benefits to young people of this style of green infrastructure (which include opportunities to learn about nature, increased levels of physical activity, and as a means to stimulate creativity) are well recognised by the city of Amsterdam, having been highlighted in the municipality’s publication ‘Plan Amsterdam’. However, the municipality has not yet to combined these ideas, and so opportunities for young people to influence the development of the Groennet are limited.
Nijmegen

Nijmegen is the European Green Capital 2018 and is the first Dutch city to hold the title. Situated close to the German border to the south-east of Amsterdam, Nijmegen has produced a year-long programme of events relating to sustainability, ranging from festivals and symposiums to led walks and exhibitions.

In addition to attending these events, citizens of Nijmegen are taking part in the Green Capital Challenges throughout the year. For example, Nijmegeners have been challenged to collectively cycle a total of 1,000,000 kilometres throughout 2018. Citizens are able to track their cycled miles using an app, and they can then ‘donate’ these miles to the Nijmegen food bank. If the challenge of 1,000,000 kilometres is met, a total of €30,000 will have been raised for the foodbank. While not specifically aimed at young people, these Green Capital Challenges facilitate grassroots civic engagement across the many different communities of Nijmegen.

As part of Nijmegen’s title of European Green Capital 2018, the municipality has also produced a set of Green Routes. Rather than an investment in green infrastructure, these routes map existing infrastructure and destinations loosely connected by an environmental theme. While beneficial to leisure users looking to explore the city and the attractions it offers, in practice these green routes will provide minimal benefits to city residents as they go about their day-to-day journeys.

European Mobility Week (16 - 22 September 2018) is a crucial week in Nijmegen’s European Green Capital calendar of sustainable events. European Mobility Week is a pan-European initiative that started in 2002 with the aim of improving public health and quality of life through sustainable urban transport. The campaign aims to give people the chance to explore the role of city streets, and to experiment with practical solutions to tackle urban challenges, such as air pollution.

Kicking off Nijmegen’s week of mobility-related events was Beleef de Waalbrug (‘Experience the Waal Bridge’). The Waal Bridge is a four-lane road bridge that carries over 50,000 vehicles daily, and is famous for its iconic role in Richard Attenborough’s 1977 film A Bridge Too Far. Beleef de Waalbrug saw the bridge temporarily closed to traffic and opened up to residents. The event started at noon, with a free picnic for 1,000 people on the bridge itself, consisting of locally produced and prepared food.

This was followed by dozens of events and activities on the bridge, including: stunt displays and workshops by the local skatepark; bicycle-controlled arcade video games; funfair attractions such as ‘looping bikes’; live music from local bands and DJs; a ‘cycling circus’; a silent disco; a competitive slow bike race; and many more. In addition, the city’s annual triathlon was taking place adjacent to the bridge, to maximize the use of the traffic-free roads. Conceptually, Beleef de Waalbrug was a ‘car free day’: using a temporary road closure for a mobility-focussed civic event. However, the huge range of activities and high number of attendees meant that the event surpassed this basic aim, and became a large scale community party with a carnival atmosphere - an event that will no doubt be remembered fondly by the young people in attendance.
Another key event in Nijmegen’s European Mobility Week was **Kinderraad: Kinderen Bespreken Verkeersprobleem** (‘Children’s Council: Children Discuss Traffic Issues’). In this event, 160 school children filled the debating chamber of the Nijmegen municipality, and took turns to pitch their ideas to an expert political panel, who gave feedback and recorded the children’s ideas to feed into future transport initiatives. Ideas ranged from incentivising active travel through rewards for young people in the form of V-Bucks, the in-game currency of the popular online video game Fortnite, to introducing a ban on mobile phone use while cycling, a piece of legislation which, since the event but not directly attributable to it, is something Dutch government is presently considering. The Kinderraad regularly presents ideas in the council debating chamber, and this particular event was transport focussed to tie in with European Mobility Week. By holding sessions such as these, young people understand where and how political processes that affect areas such as transport are made, and politicians gain new insights and access to innovative and creative solutions to civic issues.

Nijmegen also hosted a **Fietshelden Designaton** (‘Bicycle Hero Designathon’) as part of European Mobility Week. In this event, children identify a transport issue they face, and then rapidly prototype a solution out of craft materials. These solutions, which have ranged from saddles with in-built mobile phone storage, to flying bikes, are then presented to the municipality. Through events such as these, young people not only have an opportunity to identify barriers to sustainable transport, but are also empowered to craft and create solutions to those barriers, with a tangible physical output at the end of the session. Attendees are also likely to speak with the parents and carers about events such as these, further increasing the depth of engagement activities like this.
Groningen is a city in the north of the Netherlands, and with an average inhabitant age of 36.4 years, claims the title of ‘youngest’ city in the Netherlands. In part, this is due to the large student populations of the University of Groningen and the Hanze University of Applied Sciences. The Student Advisory Council of Groningen (SAC) was established in 2013 by four students who conducted a research project studying students’ commuting behaviour. Since then, the SAC has grown and is strategically positioned to facilitate collaboration between students, academics and practitioners. By working with Groningen Bereikbaar (‘Accessible Groningen’) and the Faculty of Spatial Sciences at the University of Groningen, the SAC is able to pursue three concurrent aims: conducting research, consulting, and fostering collaboration.

Through collaboration with the Faculty of Spatial Sciences, the SAC is positioned to be involved with the latest spatial planning research, and acts as a forum for the sharing of innovation and best practice amongst students. This knowledge can then be applied to live projects by the SAC, when parties such as the municipality of Groningen employ them as a consultant on a project. As the organisation is made up of students, the SAC are also in a strong position to survey the student population to take account of the broader student view, should a project require it. Through this collaboration, the SAC creates a win-win situation similar to that created by the AMS Institute; students have an opportunity to apply latest research to live projects, and the municipality gains direct access to innovative solutions influenced and designed by young people. Recent projects undertaken by the SAC include an analysis of the success of a pilot e-bike scheme, an accessibility survey for Alfa College (a vocational college on the outskirts of the city), and organising collaborative sessions with 60 students from the Faculty of Spatial Planning in the University of Groningen to explore the potential effects on travel patterns caused by the construction of a new ring-road.

Groningen is also one many dutch cities that participates in City Challenges and Battle of Concepts. These are both web platforms that invite students and young people to submit competing solutions to problems faced by both the public and private sector. There are a multitude of prizes for winning entrants, ranging from all-expenses-paid trips, to significant financial investment in order to further progress successful concepts. While the challenges on these platforms are set by the public and private sector (without necessarily engaging young people in identifying those challenges), these sites enable anyone with web access to theoretically submit solutions.
Copenhagen

In July 2011, 150mm of rain fell in Denmark’s capital in just 2 hours, in an event known as a ‘cloudburst’, resulting in an estimated 80,000 flooded homes. Then, in January 2017, Copenhagen experienced an even more severe ‘100-year’ flood event; levels of rain so extreme that they are predicted to occur only once every century. However, such extreme weather events are becoming the norm in Copenhagen, thanks to the effects of climate change. In response to this, the municipality of Copenhagen has taken steps to defend against future extreme weather events, a process known as climate adaptation. The municipality of Copenhagen has identified more than 300 climate adaptation projects, which they plan to implement over the next twenty years. The driving forces behind these projects are economic: the municipality have calculated that if no action is taken, the resultant stormwater damage will cost the city DKK 16 billion. The cost of expanding the sewer network to cope with the stormwater will total at least DKK 20 billion. However, if stormwater and rainwater are instead managed through climate adaptation projects across the city’s surface, the total cost will be DKK 11 billion.

One of the first of these climate adaptation projects to be completed is Tåsinge Plads, a public square in Østerbro, north of the city centre. Tåsinge Plads used to be nothing out of the ordinary; a reasonably standard streetscape made up of a triangle of wide city roads and a small inaccessible green space at its centre (known locally for being a toilet for dogs, rather than a park). The redundant carriageway space and underused green space was identified by the municipality as a potential opportunity, both for local residents and for the city’s climate adaptation goals. By working in close dialogue with the local residents, the municipality drew up a set of designs that would benefit the community by creating a high quality public space, and also that would meet the climate needs of the district by managing the rainwater of a surrounding area of approximately 8,000m².

Tåsinge Plads challenges the idea that excess water is a burden, and instead presents it as an asset. The central plaza contains sculptures of rain parasols and water drops. The water drop sculptures reflect the sky and their surroundings with their bright metallic surface and invite people to climb on them. Rainwater from the surrounding roof surfaces is collected and diverted to tanks beneath the water drop sculptures. By using two manual pumps, which are designed as playground equipment, water is pumped out of the largest water drop, where it flows across the surface of the plaza into the nearby rain garden, which acts as a retention basin. In doing so, not only does this project reclaim carriageway space for the use of walking and cycling, it provides an opportunity for young people to engage and interact with their environment and to understand the effects of climate change.

Tåsinge Plads also provides an interesting model on how to fund such innovative green infrastructure projects. The first important source of funding was Copenhagen’s utility company; the utility company’s involvement makes clear the economic prudence of investing in this green infrastructure now in order to save money in the medium- and long-term. The second important source of funding was Østerbro’s Områdefornyelse. Several Områdefornyelse budgets have been allocated across the city of Copenhagen,
and they broadly translate as ‘local area renewal’ budgets; areas that have been identified by the municipality as a priority for investment, and which could be viewed as an equivalent to Glasgow’s ‘Transformational Regeneration Areas’ or Edinburgh’s ‘Area Regeneration’ projects. By harnessing area regeneration budgets, the project manager’s of Tåsinge Plads were able create a process of successful citizen driven urban renewal.

The lessons from Tåsinge Plads have been taken forward into future larger climate adaptation projects, in particular the regeneration of Hans Tavsens Park and Korsgade, a project dubbed ‘The Soul of Nørrebro’. Like Tåsinge Plads, this project aims to alleviate stormwater issues by managing and retaining 18,000 m³ of water, and directing any water beyond this down the street of Korsgade and into Peblinge Lake. This project is also financed by Copenhagen’s utility company, and Områdefornyelse Nørrebro. However, the budget has also been supplemented by winning the Nordic Built Cities Challenge (a flagship competition between six Nordic nations aiming to fund innovative solutions to contemporary urban challenges). The Soul of Nørrebro is still in project development. Extensive community consultation is ongoing and the municipality has capitalised on the two schools that are positioned at the strategic centre of the project, by involving pupils throughout the process, including using the necessity to excavate sections of Hans Tavsens Park as an opportunity to explore and learn from the archaeological remains that lie beneath.

At either end of The Soul of Nørrebro’s project boundaries lie two of Copenhagen’s Grønne Cykelruter (‘Green Cycle Routes’). There are 24 existing and planned routes across the city that, when complete, will span some 115km. Currently, just over half of these routes have been implemented, providing cyclists with calmer, greener, wider routes through the city, away from traffic. The Green Cycle Routes use various greenspaces, parklands and harbour fronts to navigate the city and are popular with commuters and recreational cyclists alike. The main opportunity observed for young people to be involved in shaping the Green Cycle Routes lay in incidental projects, usually funded by Områdefornyelse, that form key parts of the routes, such as the famous Superkilen park (supported by Områdefornyelse Mimersgadekvarteret), Sønder Boulevard (supported by Områdefornyelse Centrale Vesterbro) and perhaps the existing Green Route that runs through the heart of Kulbane Park (which is due for imminent regeneration through Områdefornyelse Kulbanekvarteret).

Projects in other areas of Copenhagen have also made use of the funds made available by Områdefornyelse to engage young people with active travel and sustainable infrastructure. The municipality’s Build Your City initiative allows elementary school children to map their local area, interview citizens to identify urban interventions and develop and design ideas using the popular video game Minecraft. The elementary pupils then work with older students of vocational courses such as carpentry to construct near full-scale models of their ideas. These are then presented to citizens, and the Områdefornyelse project team takes the favourite ideas through to construction. This powerful model for youth engagement has been running for two years, and simultaneously meets a number of complementary aims. First and foremost, young people are engaged in influencing the urban environment around them, using contemporary technologies to do so. In addition to this, elementary school children gain insight and experience of what it’s like to study a vocational course, an educational route the municipality wants to
encourage. Finally, in constructing projects designed by local school children, the changes made by the Områdefornyelse are more likely to garner ongoing community support and ownership, contributing to the long-term success of the investment.

Another example in which young people have influenced active travel in their local area thanks to Områdefornyelse is Solskinstunnelen (‘Sunshine Tunnel’). In this project, hundreds of school children collaborated with a visual artist and elderly residents in the community to create a mural that transforms a previously neglected active travel underpass. The underpass, which forms a key link to Peder Lykke School, bypasses a road which is difficult to cross, and the bright colours and community ownership of the mural help reinforce a sense of safety in what was once an undesirable shortcut.

Various other projects in Copenhagen reinforce young people’s engagement with active travel which, although they don’t result in physical interventions, still contribute to young people’s involvement in the field.

One such example is the concept of ‘Cycling Games’, developed by the Danish Cyclists’ Federation. These games, such as “Catching Bobbles” (in which children compete to chase and catch soap bubbles while riding their bikes) create a positive association for Danish children with cycling, all the while developing their cycling skills, so that they are more confident to travel across the city.

Another example is Copenhagen’s Youth Council, in which 35 young people meet every second week to discuss a broad spectrum of political issues. The Youth Council can draft political documents for the consideration of the city council, and the city council can go to the Youth Council for ideas and input.

The municipality of Copenhagen also runs a Climate Ambassador Education programme for young people. Young people apply to this programme, and if they are successful, they are taken out of their normal school day once every couple of weeks for a period of twelve months to work on a real life climate-related challenge. The programme starts with a presentation from a local politician, describing a particular sustainability related issue. Over the course of a year, young people work to develop solutions to this issue, and after honing a final presentation at ‘climate camp’, the young people present their solutions back to the municipality. Previous Climate Ambassadors have attended the United Nations Climate Change Conference (also known as COP) through this initiative.
Hamburg

Germany’s second city, Hamburg, celebrated its tenth Klimawoche (Climate Week) in 2018. This is the largest European climate communication event, and is underpinned by the 17 Sustainable Development Goals of the United Nations. Its tenth iteration saw a programme of over 200 events, including lectures, exhibitions, workshops, film screenings and more, from a range of organisations. Several events in the programme related to youth engagement and sustainable transport. Greenpeace ran workshops with local school pupils discussing the future of sustainable mobility, exploring issues such as car dominance in German cities, the impact of delivery traffic, and autonomous vehicles. The local public transport provider, HVV, participated in climate week by producing classroom resources for teachers and a downloadable app that explores the history of the bus and train network in Hamburg from the 19th Century. And the U-Bahn operator, Hochbahn, ran a ‘hackathon’ on the theme of urban mobility, an event in which teams rapidly prototype solutions to contemporary transport issues and pitch their ideas to a panel of judges.

Coinciding with Hamburg’s Klimawoche was European Research Night a European Commission funded initiative which aims to raise public awareness of the positive role of research in society, especially among young people. Hamburg’s unique spin on this initiative was to run a ‘Research Ride, Science Slam’; participants boarded the U-Bahn and were witness to three 15-minute lectures covering a range of scientific topics, while the train toured a circular route of the city, arriving back at the original station after the final lecture finished.

Hamburg is also home to Europe’s largest urban redevelopment project by landmass, HafenCity. Located in Hamburg’s former port area in the heart of the city, HafenCity will, upon completion, be home to approximately 12,000 people and the workplace of 40,000 people. Young people have been involved in shaping aspects of the urban fabric of HafenCity. Of particular note is Baakenpark, a civic green space and geographical centre of the new neighbourhood of Baakenhafen. To design this important greenspace, the municipality worked with local school children to create cardboard-and-glue models of what the space should contain. Aspects of these models were then used to inform the final design of Baakenpark. HafenCity is also home to HafenCity University Hamburg, a university specialising in architecture, planning and urban design. Students at HafenCity University Hamburg are able to stroll the very streets and neighbourhoods surrounding their lecture theatres as examples of modern sustainable planning in practice. The university is also part of CityScienceLab, a collaborative programme with the Massachusetts Institute of Technology in Cambridge, USA, which fosters international dialogue between young people and students to share issues relating to modern urbanism.

Like Amsterdam’s Groennet and Copenhagen’s Grønne Cykelruter, Hamburg also has a network of green cycleways known as Grünes Netz Hamburg (Green Network Hamburg). Compared to Amsterdam and Copenhagen, Hamburg’s Green Network is much older, owing its creation to city planner Fritz Schumacher who in 1919 proposed an ‘axial concept’ for the city of Hamburg. This idea involved creating several landscape axes; green arms that reach from the city centre to the outskirts, providing residents with easy access to nature. This concept was solidified with the two green rings that radially connect the axes, the first
ring close to the city centre, and the second ring 8 km further out, creating a network of green space that itself looks similar to a bicycle wheel, with its outer tyre, spokes and inner hub. Today, Hamburg recognises 12 of these landscape axes, which in practice create a connected band of foliage, but which don’t have a connecting path network for Hamburg residents to be able to enjoy the greenery. The exception to this is the second outer ring, which has a signed 100km circular route, connecting some of Hamburg’s larger parks which lie north of the river. The result of having: a singular signed route far from the city centre; a lack of access for residents along the 12 axes; and a lack of coherent integration with a wider extensive active travel network, is a green network that fails to deliver its full potential in terms of benefits to residents of Hamburg.
Themes, trends and takeaways

In the three Dutch cities, I found that collaboration with students is key to young people’s involvement in sustainable urban projects. Through initiatives such as the Kinderraad, Fietshelden Designaton and Junior Bicycle Mayor programme, students from a young age are encouraged to create their own solutions to the urban problems they face, all the while gaining first hand experience and knowledge of the political process. This engagement is continued throughout further and higher education as students grow older, with organisations such as The Student Advisory Council of Groningen, the Amsterdam Institute for Advanced Metropolitan Solutions, and the Amsterdam Academy of Architecture which enable student groups to work on real life projects and act as consultancies. This creates a win-win situation; students have an opportunity to apply latest research to live projects, and the municipality gains direct access to innovative solutions influenced and designed by young people.

In Copenhagen, I found that collaboration with local area renewal plans (Områdefornyelse) is at the heart of young people’s engagement with urban sustainability. Organisations and initiatives are able to successfully use local area renewal budgets as a stimulus and resource for a wide range of engagement activities, such as the Build Your City initiative, the Solskinstunnelen, and large scale climate adaptation projects, such as Tåsinge Plads.

In Hamburg, I found that innovative collaboration between the private and public sector is what unlocks opportunities for young people to participate in the shaping of sustainable cities. The teaming up of a public transport agency with private software companies created a mobility themed hackathon, the collaboration between Greenpeace and Klimawoche resulted in workshops with students discussing sustainable mobility, and the large scale HafenCity development has created opportunities for students at HafenCity University to study contemporary planning in practice.

Four out of the five cities I studied also promoted green routes. Each of the green route schemes I studied was unique to its city, and varied in scope, ambition and quality. The most successful green route schemes were those that seamlessly integrated into an existing extensive active travel network. In these cases, citizens needn’t choose to go out of their way to follow a specified green route. Instead, the benefits of such nature-filled paths are at their doorstep. Citizens use the green routes by default, as they’re the most direct option, winding their way through the heart of the cities and towns. Some of these successful green routes also provided an opportunity for combining investment with climate-adapted infrastructure, capable of handling increased incidences of extreme stormwater. This contrasts with less successful green route schemes, in which specialised signposted routes were created, linking up existing green space without necessarily considering the day-to-day trips that people need to make. While this style of green route catered to some leisure journeys, the potential of the routes was not fully realised, as citizens had to seek out the routes, rather than just using them naturally. As a result, far fewer people used these routes, and so much of the benefit to citizens of travelling actively through greenery was lost.
Conclusion and recommendations, lessons for Scotland

In all the cities I visited, the most important recurring theme was that of collaboration. Cities, and the challenges they face, are inherently complex. No single person, team or organisation can solve modern urban problems; a variety of perspectives, specialties and approaches is required. Partnership and collaborative working, when done successfully, add value and result in projects that are greater than the sum of their parts.

Examples of innovative collaborations were evident across all the cities I visited, from Living Labs in Amsterdam, to Science Slams in Hamburg. Collaborations such as these spark new ideas, create opportunity, and enable a diverse range of people to contribute to the solutions of contemporary civic issues.

In the central Scottish context, eleven examples of what this organisational collaboration might look like are:

1. Students of Landscape Architecture at the Edinburgh College of Art collaborating with the City of Edinburgh Council to develop ideas for new public spaces delivered under the City Centre Transformation.
2. Young Urbanists from the Academy of Urbanism collaborating with Clyde Gateway, to develop regeneration plans for derelict sites in east Glasgow.
3. The Central Scotland Green Network Trust and Scottish Towns Partnership collaboratively hosting a workshop event, as part of the Fire Starter Festival, exploring the topic of how young people can help with the greening of Scottish towns in the central belt through the John Muir way.
4. Living Streets and Glasgow Eco Trust partnering with Junior Road Safety Officers, to measure and rank the air quality surrounding Glaswegian schools.
5. Scottish Youth Parliament collaborating with Public Contracts Scotland to explore ways in which public procurement can ensure the needs of young people are met.
6. Young Scot collaborating with Glasgow City Region City Deal and Sustrans Scotland to co-design aspects of public space being delivered as part of Transformational Regeneration Areas, such as Sighthill.
7. Young Enterprise Scotland collaborating with Glasgow Centre for Population Health on a youth-led project developing mechanisms for the GCPH’s research to reach new audiences.
8. Forth Environment Link collaborating with nextbike Stirling to pilot a bike share scheme with smaller bikes for young people.
9. RSPB Phoenix Groups collaborating with the Scottish Wildlife Trust and artists commissioned with the advice of Creative Carbon Scotland to create a ‘Soundscape In The City’ performance, highlighting the sounds of wildlife (current and former) in Edinburgh, presented as part of the Edinburgh International Science Festival.

10. Soulkids and Sustrans Scotland collaborating and leading a tour of young people on a bike ride around south Glasgow, discussing what infrastructure improvements in the area would encourage young people to cycle more often.

11. Stirling Council collaborating with 2050 Climate Group, where 2050 Climate Group act as a young-person led consultancy to Stirling Council, informing policy and built environment decisions.

A longer list of potential organisational collaborators is contained in Appendix A. This list is not exhaustive, but is intended to inspire readers with ideas of potential partnerships.

The second recurring theme from my trip concerns green routes. I found that the most successful green routes were those in which greenery, wildlife and climate adapted infrastructure had been embedded into the heart of existing direct active travel networks, rather than those green routes that were created as standalone routes separate to active travel networks. Embedding green routes into existing active travel networks maximises their use by the public, and so also maximises their benefits.

In the context of delivering embedded green routes in Scottish central belt local authorities, I would recommend that organisations advocating for such green infrastructure (for example, CSGNT, Sustrans Scotland and SNH) work together to create a robust tailored economic case for each local authority area. I would recommend that each of these economic cases is presented in a clear way that persuasively communicates to all levels of council employees, from council leaders to council officers, so that policymakers and project delivery teams alike are aware of the benefits of green infrastructure.

In practice, these economic cases might consist of shareable digital and printed media covering four key topics:

**Financial Opportunity**
First and foremost, it must be demonstrated in plain numbers that investing in green routes now creates huge returns on investment in the medium and long term (in terms of mitigated climate-associated damage), saving councils significant sums of money.

**Local Precedence**
To strengthen the financial argument, examples of existing adaptation infrastructure should be given. Preferably these examples should be within, or as close to, the local council in question as possible.
Minimal Maintenance

Next, it should be highlighted that carefully designed green infrastructure can have lower maintenance costs than equivalent grey infrastructure, to demonstrate that green routes can alleviate burden on stretched council revenue budgets.

Co-benefits

Finally, the co-benefits of such green infrastructure should be briefly covered. This would include improved air and water quality, improved public physical and mental health, increased biodiversity, and reduced congestion.

By covering the above four topics, such economic cases could also create the additional benefit of maximising funding streams by appealing to other statutory stakeholders, for example utility companies (such as Scottish Water), environmental and conservation bodies (such as SEPA and HES), and of course the Scottish Government.

Combining the two recurring themes of collaboration and green routes as outlined above leads to a final point: **investing in high quality green active travel routes influenced by young people through innovative collaboration presents a huge opportunity for Scotland.**

Doing so simultaneously realises all five Scottish government priorities highlighted in the 2018/19 Programme for Government:

<table>
<thead>
<tr>
<th>A Healthy and Active Nation</th>
<th>High quality green active travel routes will encourage more people to walk and cycle for their everyday journeys, which in turn improves health outcomes through increased activity levels.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Creative, Open And Connected Nation</td>
<td>Innovative and creative organisational collaborations and connections, in particular through Scotland’s cultural institutions, would unlock opportunities for young people to be involved with urban sustainability projects.</td>
</tr>
<tr>
<td>The Best Place to Grow Up and Learn</td>
<td>These innovative organisational collaborations as outlined above would create unique world-class educational opportunities for Scotland’s young people.</td>
</tr>
<tr>
<td>An Empowered, Equal and Safe Scotland</td>
<td>The unique educational opportunities would empower young people to influence their built environment, and shape the sustainable future of Scotland. Additionally, regarding safety, nations with high levels of active travel such as the Netherlands have fewer road fatality rates particularly among young people, which is especially relevant considering considering that traffic accidents are one of the leading causes of death for this demographic.</td>
</tr>
</tbody>
</table>
Build a Globally Competitive, Sustainable and Inclusive Economy.

Through innovative collaborations and unique educational opportunities, Scotland’s young people would be equipped with the skills, knowledge and expertise in the emerging field of people-focused climate-adapted active travel infrastructure, skills which contribute to a more sustainable world and ones which will be in high demand as the wider impacts of climate change are felt across the globe in future years.

Realising all these huge benefits will require sustained long term investment and political backing. Therefore, I would urge the Scottish Government to fully appraise the potential of investing in high quality green active travel routes influenced by young people through innovative collaboration; as in Copenhagen, the result of this appraisal would likely lead to a robust economic case for investment, which would then inform national transport and planning policy.

I would urge Scottish Local Authorities to foster innovative organisational collaborations and to diversify funding streams for active travel infrastructure to budgets such as regeneration, public health, and stormwater management.

I would urge professionals working in this field, such as CSGNT, to create and provide as much evidence as possible expounding the benefits of green active travel infrastructure, with a particular focus on the economic case.

And finally I would urge people living in Scotland to consider the kind of country they want to create: one that’s first and foremost an enjoyable one to live in and move around, one that’s resilient to the effects of climate change, and one that values the contribution of young people.
Appendix A: Potential organisational collaborators

<table>
<thead>
<tr>
<th><strong>Educational Institutions</strong></th>
<th><strong>Cultural Institutions</strong></th>
<th><strong>Local Authorities</strong></th>
<th><strong>Transport Organisations</strong></th>
<th><strong>Professional Institutions</strong></th>
<th><strong>Political Organisations</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Edinburgh College of Art</td>
<td>Creative Carbon Scotland</td>
<td>City of Edinburgh Council</td>
<td>Cycling Scotland</td>
<td>Academy of Urbanism</td>
<td>Conservative Future Scotland</td>
</tr>
<tr>
<td>Edinburgh Napier University</td>
<td>Dynamic Earth</td>
<td>Clyde Gateway</td>
<td>Living Streets</td>
<td>The Chartered Institution of Highways &amp; Transportation</td>
<td>Scottish Young Greens</td>
</tr>
<tr>
<td>Glasgow School of Art</td>
<td>Edinburgh Festival Fringe</td>
<td>East and Renfrewshire Councils</td>
<td>Path For All</td>
<td>Chartered Institute of Logistics and Transport</td>
<td>Scottish Young Labour</td>
</tr>
<tr>
<td>Heriot-Watt University</td>
<td>Edinburgh Festival of Cycling</td>
<td>East and West Dunbartonshire Councils</td>
<td>Scottish Cycling</td>
<td>Institution of Civil Engineers</td>
<td>Scottish Young Liberals</td>
</tr>
<tr>
<td>Manchester Centre for Youth Studies</td>
<td>Edinburgh, Glasgow and Kirkintilloch Canal Festivals</td>
<td>East and West Lothian Councils</td>
<td>Sustrans Scotland</td>
<td>The Institute of Highway Engineers</td>
<td>Scottish Youth Parliament</td>
</tr>
<tr>
<td>The Open University</td>
<td>Edinburgh International Children's Festival - Imaginate</td>
<td>Edinburgh and South East Scotland City Region Deal</td>
<td>Transform Scotland</td>
<td>Institute of Transport Administration</td>
<td>Scottish Government</td>
</tr>
<tr>
<td>Schools and colleges across central Scotland</td>
<td>Edinburgh International Festival</td>
<td>Edinburgh's Regeneration Areas</td>
<td>Transport for Edinburgh</td>
<td>Landscape Institute</td>
<td>SNP Students</td>
</tr>
<tr>
<td>Scotland’s Rural College</td>
<td>Edinburgh International Science Festival</td>
<td>Falkirk Council</td>
<td>Transport Scotland</td>
<td>Royal Town Planning Institute</td>
<td>Young Scots for Independence</td>
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<tr>
<td>University of Edinburgh</td>
<td>Festivals Edinburgh</td>
<td>Glasgow City Council</td>
<td></td>
<td>Scottish Towns Partnership</td>
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<tr>
<td>University of Glasgow</td>
<td>Libraries across central Scotland</td>
<td>Glasgow City Region City Deal</td>
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<tr>
<td>University of Stirling</td>
<td>Riverside Museum - Glasgow Museum of Transport</td>
<td>Glasgow’s eight Transformational Regeneration Areas</td>
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<td>University of Strathclyde</td>
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<td>Inverclyde Council</td>
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<td></td>
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<td>Midlothian Council</td>
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<td>North Lanarkshire Council</td>
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<td>Stirling Council</td>
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<thead>
<tr>
<th>National and International initiatives</th>
<th>Environmental Organisations</th>
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<tbody>
<tr>
<td>Clean Air Day</td>
<td>Adaptation Scotland</td>
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<tr>
<td>Earth Day and Hour</td>
<td>Central Scotland Green Network Trust</td>
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<tr>
<td>European Day of Sustainable Communities</td>
<td>Climate Ready Clyde</td>
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<tr>
<td>European Sustainable Development Week</td>
<td>Forth Environment Link</td>
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<tr>
<td>European Mobility Week</td>
<td>Friends of the Earth</td>
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<tr>
<td>Green Transport Week</td>
<td>Glasgow &amp; Clyde Valley Green Network Partnership</td>
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<tr>
<td>International Walk to School Month</td>
<td>Glasgow Eco Trust</td>
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<tr>
<td>Mental Health Awareness Week</td>
<td>Greenpeace</td>
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<tr>
<td>NHS Sustainability Day</td>
<td>Keep Scotland Beautiful</td>
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<tr>
<td>Road Safety Week</td>
<td>RSPB</td>
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<tr>
<td>UN World Bicycle Day</td>
<td>Scottish Environmental Protection Agency</td>
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<tr>
<td>Velo-city</td>
<td>Scottish Forum on Natural Capital</td>
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<tr>
<td>World Cities Day</td>
<td>Scottish Natural Heritage</td>
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<td>World Urbanism Day</td>
<td>Scottish Wildlife Trust</td>
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<td>World Environmental Health Day</td>
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<td>World Environment Day</td>
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<th>Civic Statutory Bodies</th>
<th>Entrepreneurial Organisations</th>
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<td>Scottish Canals</td>
<td>Climathon</td>
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<td>Scottish Power</td>
<td>CycleHack</td>
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<tr>
<td>Scottish Water</td>
<td>Fire Starter Festival</td>
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<td>SGN</td>
<td>Product Forge</td>
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<tr>
<td></td>
<td>Walk Hack</td>
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<td>Young Enterprise Scotland</td>
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<th>Youth Focused Organisations</th>
<th>Social Enterprises</th>
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<tr>
<td>2050 Climate Group</td>
<td>Bike for Good</td>
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<tr>
<td>Army Cadet Force</td>
<td>The Bike Station</td>
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<tr>
<td>Girlguiding Scotland</td>
<td>Soul Riders (Soulkids)</td>
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<tr>
<td>Scouts Scotland</td>
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<tr>
<td>Young Scot</td>
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<td>Youth Link</td>
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<tr>
<td>Glasgow Centre for Population Health</td>
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<tr>
<td>NHS Greater Glasgow and Clyde</td>
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<tr>
<td>NHS Forth Valley</td>
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<tr>
<td>NHS Lothian</td>
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Appendix B: Image Descriptions

Page 1  Low-traffic street design, Amsterdam
Page 2  Map tiles by Stamen Design, under CC BY 3.0. Data by OpenStreetMap, under CC BY SA.
Page 3  Dutch windmills at Zaanse Schans, near Amsterdam
Page 4  Green trams and cycle paths, Amsterdam
Page 5  ‘The Little Green One’ (background), Nijmegen
        European Green Capital (top right), Nijmegen
        Beleef de Waalbrug, a picnic for a thousand people (upper middle right), Nijmegen
        Kinderraad, the debating chamber (lower middle right), Nijmegen
        Green Capital Challenges (bottom right), Nijmegen
Page 6  Traffic-free town centre (top right), Nijmegen
        A group ride next to ‘the little green one’ (middle right), Nijmegen
        The Waalbrug (bottom), Nijmegen
Page 7  Cycling the streets (background and right), Groningen
        Cycle parking outside the university (bottom left), Groningen
Page 8  Eriksen's Statue of the Little Mermaid, Copenhagen
Page 9  Superkilen, Copenhagen
Page 10  Cirkelbroen, Copenhagen
Page 11  Riding the Grünes Netz (background), Hamburg
        Signposting the Grüner Ring (top right), Hamburg
Page 12  Hamburg's Mobility Hackathon (middle right), Hamburg
        The indirect routing of the Grünes Netz (bottom right), Hamburg
Page 13  New development, old mistakes in the HafenCity, Hamburg
Page 14  Tåsinge Plads, Copenhagen
Page 15  Rush hour, Copenhagen
Page 16  Strolling in Hans Tavsens Park, Copenhagen
Page 17  The Lakes, Copenhagen
Page 18  Our planet, Copenhagen