

Glasgow Liveable Neighbourhoods

Strategic Business Case

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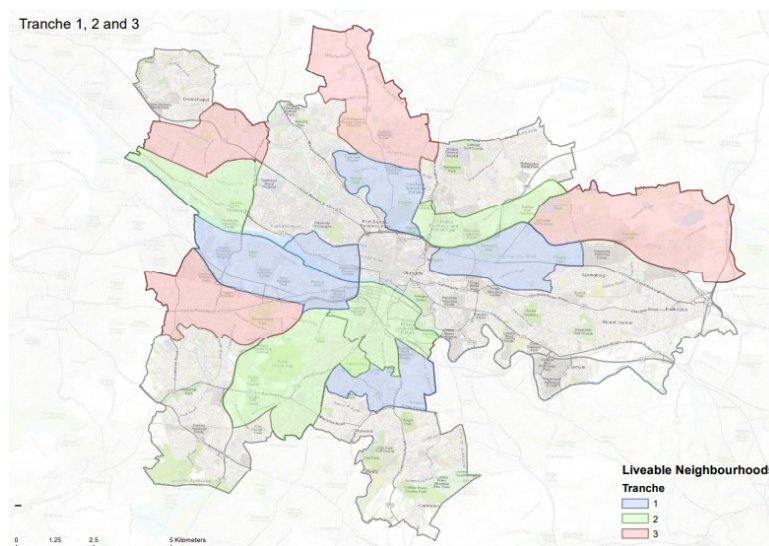
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1 Executive Summary

- 1.1.1 Glasgow is the biggest city in Scotland and is the economic engine and main commercial hub not only for the city region but also for the country. Almost 2.5 million people, half of Scotland's population live within an hour of the city¹. However, the City and the city-region suffer from a high level of car dependency. Journeys within Glasgow by walking, cycling and public transport are often prohibitive in terms of time and financial costs and the urban environment is not perceived as safe and accessible by all groups. This exacerbates inequalities based on income, age, gender and disability, with many of Glasgow's most deprived communities situated around the City's periphery and inner urban areas blighted by strategic roads infrastructure.
- 1.1.2 Glasgow is a world class city with a thriving and inclusive economy where everyone should be able to flourish and benefit from the City's success. This scheme comprises of the redevelopment of Glasgow to deliver Liveable Neighbourhoods across the City. These Liveable Neighbourhoods will transform the City's streets, spaces and neighbourhood areas ensuring everyday journeys made by active travel become the norm, allowing all citizens the equal opportunity to participate in the social and economic life of the City.
- 1.1.3 A wide range of information is presented outlining the objectives of developing Liveable Neighbourhoods within Glasgow and the types of measures expected to be put in place to achieve these aims. Glasgow's liveable neighbourhoods are designed to provide:
- Healthy more resilient places that allow people of all ages and abilities to thrive in their local area.
 - Accessible places where people can meet their daily needs and services in a sustained manner.
 - Better connect places helping to reduce the city's dependency on cars by making walking, cycling and public transport the first choice.
 - A sustainable and low carbon city

¹ Taken from 2011 census data

1.1.4 A range of local and national policies have been identified which closely align with objectives of the Liveable Neighbourhoods programme. These include Glasgow City's Strategic Plan and Development Plan from a local perspective as well as the National Planning Framework and National Transport Strategy from a national perspective alongside many others.

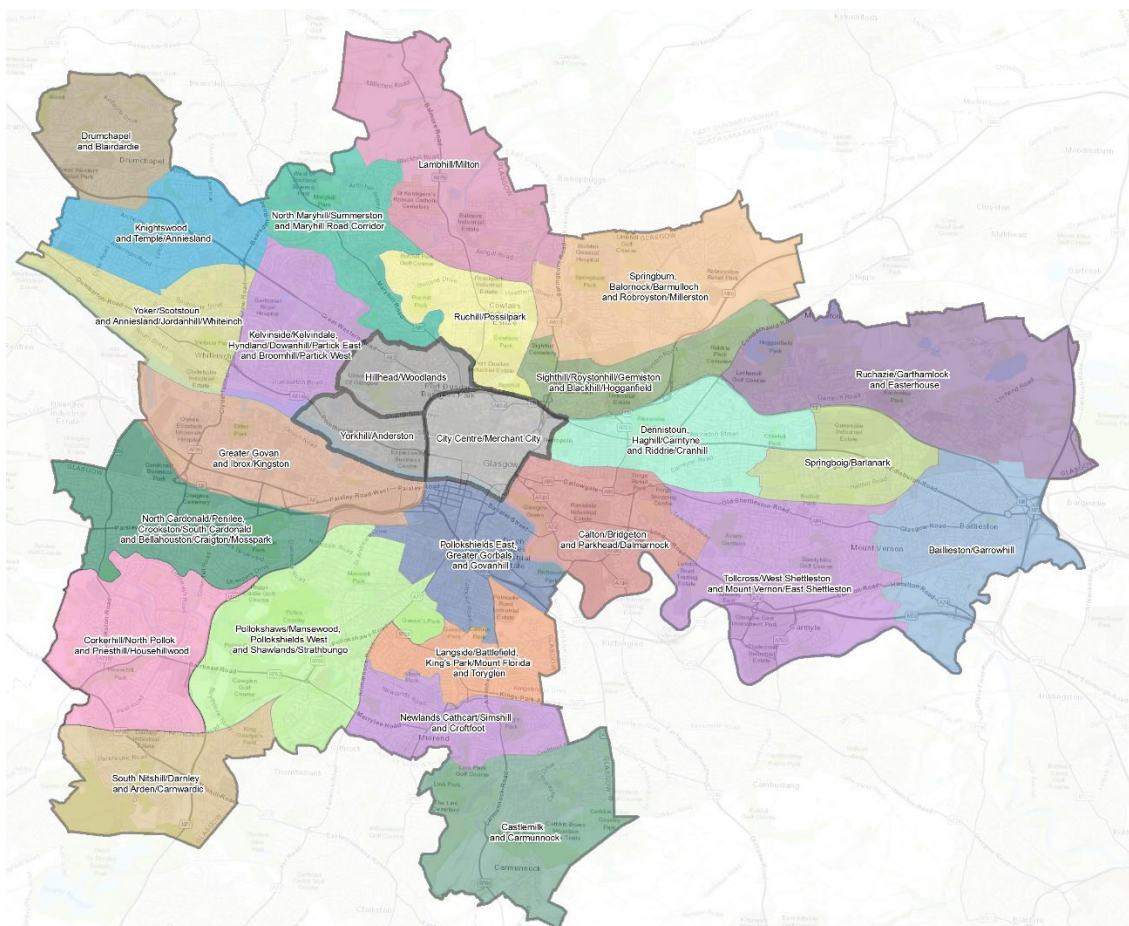


- 1.1.5 A key element of this is the contribution towards the Sustainable and Low Carbon City theme within Glasgow City Councils Strategic Plan (2017-2022). Each Liveable Neighbourhood will directly contribute to reducing the city's carbon footprint through encouraging a shift towards active modes and reducing the level of congestion within the city.
- 1.1.6 The Strategic Case provides a strong narrative for investment in the Liveable Neighbourhoods programme and outlines clearly the benefits that are expected to be realised by the local population alongside wider benefits that would accrue to the whole city.
- 1.1.7 Development of specific packages of interventions is currently underway for each of the initial four Liveable Neighbourhoods within Tranche 1 of the programme. As a result, the economic assessment of the scheme benefits has been undertaken for an indicative package of interventions to provide an idea of the magnitude of potential benefits.
- 1.1.8 A range of environmental, social and health benefits have been calculated as part of the indicative appraisal providing a comprehensive understanding of the impact of the scheme in terms of monetised benefits. Indicative costs have also been used to provide a benefit-cost ratio.
- 1.1.9 The benefit cost ratio for the Liveable Neighbourhoods scheme is expected to range between 5 and 13 suggesting a high to very high potential value for money category.

2 Introduction

2.1 Background

- 2.1.1 Glasgow City Council have commissioned Arcadis and David Simmonds Consultancy to develop Strategic Business Cases (SBC) for both Liveable Neighbourhoods and Active Travel across Glasgow. This business case will focus on the development of Liveable Neighbourhoods across the City which will be delivered in six tranches across distinct and diverse areas of Glasgow.
- 2.1.2 The economic appraisal presented in this report is based on the TELMoS18A model which is used with the permission of Transport Scotland. We accept full responsibility for the use made of this model and for the results obtained from it.



- 2.1.3 An SBC should provide a rationale for intervention and provide enough evidence for a scheme to proceed to development. It should detail the need for intervention and propose a variety of options with which to deal with the issues, in the context of Government objectives (or in some cases, as part of a wider strategic level assessment). As a minimum it should set out the Investment Objectives, and how they help meet Government strategy.

- 2.1.4 This stage of business case development will constitute the first version of the Strategic Case from the Five Case Model (making a robust case for change), which will be revisited in the Outline Business case (OBC) later in the project lifecycle. Typically, the SBC is presented to decision makers and if successful, may proceed to development.
- 2.1.5 The Liveable Neighbourhoods programme will make a significant contribution to several national and local policy objectives and particularly to the themes set out by Glasgow City Council in its Strategic Plan 2017 – 2022. Most notably the programme will make a major contribution to the Sustainable and Low Carbon City theme as each Liveable Neighbourhood will directly contribute to the desired outcomes of:
- The city is clean and public spaces are well maintained.
 - We have a low carbon footprint as a council and as a city.
 - We have more sustainable, integrated transport networks across the city and less congestion; and,
 - Citizens use active travel, including walking and cycling.
- 2.1.6 It will also make a major contribution towards the recommendations set out in Glasgow's climate Plan:
- **Recommendation 2** - Tree planting, peatland restoration, and green infrastructure; and
 - **Recommendation 4** - Improving Infrastructure for walking, cycling and remote working.
- 2.1.7 The details of how the LNP will help deliver these outcomes and contribute to wider government policies are set out in the following chapters.

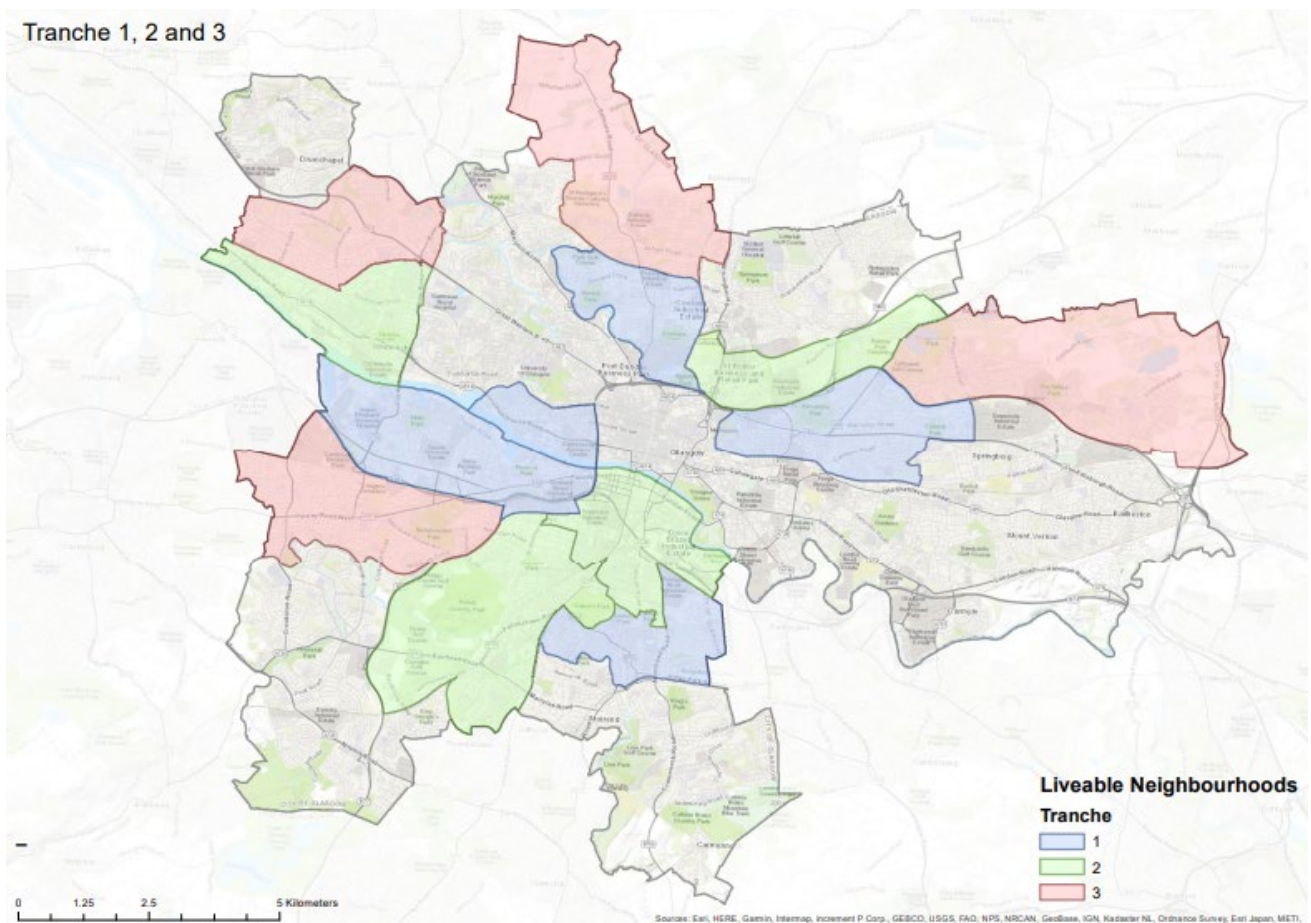
3 Strategic Case

3.1 Scheme Description

- 3.1.1 Glasgow is the biggest City in Scotland and is the economic engine and main commercial hub not only for the city region but also for the country. Almost 2.5 million people, half of Scotland's population live within an hour of the city². However, the City and the city-region suffer from a high level of car dependency. Journeys within Glasgow by walking, cycling and public transport are often prohibitive in terms of time and financial costs and the urban environment is not perceived as safe and accessible by all groups. This exacerbates inequalities based on income, age, gender and disability, with many of Glasgow's most deprived communities situated around the City's periphery and inner urban areas blighted by strategic roads infrastructure.
- 3.1.2 Glasgow is a world class city with a thriving and inclusive economy where everyone should be able to flourish and benefit from the City's success. This scheme comprises of the redevelopment of Glasgow to deliver Liveable Neighbourhoods across the City. These Liveable Neighbourhoods will transform the City's streets, spaces and neighbourhood areas ensuring everyday journeys made by active travel become the norm, allowing all citizens the equal opportunity to participate in the social and economic life of the City.
- 3.1.3 Glasgow's liveable neighbourhoods are designed to provide:
- Healthy more resilient places that allow people of all ages and abilities to thrive in their local area.
 - Accessible places where people can meet their daily needs and services in a sustained manner.
 - Better connect places helping to reduce the city's dependency on cars by making walking, cycling and public transport the first choice.
- 3.1.4 The first three Tranches of the Liveable Neighbourhoods Programme (LNP) are shown below in Figure 3.1.

² Taken from 2011 census data

Figure 3-1 – LNP – Tranches 1 - 3



3.1.5 Tranche 1 of the programme consists of four areas identified within Glasgow as key areas for regeneration through the introduction of Liveable Neighbourhoods:

- Ruchill, Hamiltonhill, Possilpark, Port Dundas and Cowlands.
- Langside, Battlefield, Mount Florida, King's Park and Toryglen.
- Greater Govan, Ibrox Cessnock, Kinning Park and Kingston.
- Dennistoun, Haghill, Riddrie, Carntyne and Cranhill.

3.1.6 As part of the Glasgow Transport Strategy (GTS) the Liveable Neighbourhoods Plan (LNP) for Glasgow aims to reduce the city's dependency on cars and make walking, cycling and public transport the first choice. It is essential that residents' benefit from safer, quieter streets that facilitate play, walking and cycling. Through an area-based approach, the LNP will help to limit the city's contribution to climate change and develop an inclusive network of accessible and revitalised neighbourhoods designed for the benefit of all, with integrated green infrastructure and enhanced public spaces.

- 3.1.7 The ambition of Scotland 2045 national strategy is for each part of Scotland can be planned and developed to create: **sustainable places**, where emissions are reduced and biodiversity is restored and better connected; **liveable places**, where everyone can live better, healthier lives; **productive places**, where there is a greener, fairer and more inclusive wellbeing economy; and **distinctive places**, where assets are recognised and enhanced.



- 3.1.8 The LNP is a programme with a requirement to achieve overarching outcomes for the city by delivering on LNP tranches of work packages delivering specific outputs (to be identified through communities). The LNP aims to transform streets, identified through meaningful engagement, into areas where people feel they are safe, pleasant and attractive environments. By encouraging active travel as the first choice of transport, these projects will benefit public health by increasing physical activity, reducing noise and air pollution. Liveable Neighbourhoods in Glasgow require that the infrastructure to be built in each area reflects the requirements and aspirations of people living within their local communities. To achieve this the project will identify interventions in LNP areas through community conversations and dialogue, with interventions grouped into four broad themes. This means that the output for each area will differ as they will be driven by collaboration and community empowerment, as well as by the specific physical, social and economic needs and opportunities of each location. The four themes are:

i. Local Town Centres

Glasgow's network of centres is a key characteristic of the city in moving towards creating more cohesive neighbourhoods. This enables residents to access most of the activities needed for good living within a short walk, cycle or public transport trip from their homes. Shops for everyday essentials, health and community facilities, education, parks and playgrounds and ideally employment should all be locally accessible to everyone without the need of a car. While there are major challenges created by retail competition and the shift to online shopping, there is a significant opportunity to strengthen the position of many local town centres in Glasgow. These mixed-use places are defined by a well-connected active travel network, improving ease of access, and a high-quality public realm, improving environmental quality, with good access to employment, essential services and community infrastructure. This local living encourages development that enhances both social interaction and a vibrant local economy through planning which is more vision-led.

ii. Everyday Journeys

A Liveable Neighbourhood includes more sustainable forms of transport for everyday journeys, such as the daily commute, the school run, or a trip to the shops. This brings activities and services to neighbourhoods rather than moving people to activities reducing the need for people to travel. Local focus contributes to greater economic viability at the local level, while also promising less time spent in traffic congestion, lower levels of noise pollution, reductions in greenhouse gas emissions and improvements in air quality. This is especially important as the transport sector is Scotland's major contributor of carbon emission.

There is sizeable scope for modal shift for shorter journeys in Glasgow as almost 50% of journeys are under 3km in length, and 70% are less than 5km. By improving the conditions for walking and cycling within neighbourhoods there is a significant opportunity to reduce carbon emissions and to provide more-active travel choices. This will bring health benefits and improvements in quality of life and more time and more opportunities for social connection. However, it is also recognised that the needs of different age groups, genders and physical abilities is crucial in designing suitable streets and infrastructure.

iii. Active Travel

There is a growing awareness of the need to change our transportation habits by reducing our use of cars and shifting to active travel, such as walking and cycling. An important aspect of Glasgow's LNs is ensuring there is adequate implementation of active travel networks within neighbourhoods, connecting them to the city network and helping to meet Glasgow's ambitious target to make walking, cycling and wheeling considered as first choice modes of travel. The Liveable Neighbourhoods approach will create the bridge between the front door and the city-wide segregated network.

iv. Streets for People

The final key theme relates to the promotion of a better balance between vehicles and people by working with local communities, learning from best practice elsewhere, and sharing design guidance.

During the 20th century, Glasgow's streets and public spaces became dominated by the needs of motorised transportation. City streets are increasingly used as spaces for testing a seemingly unstoppable flow of "disruptive" unsustainable transport, such as vehicle movement and parking. However, city streets are also spaces where key urban functions also take place, such as commerce and play, social interaction and leisure, creativity and politics.

International best practice has shown that as space is reallocated and vehicle speeds and flows are reduced, there is significant potential to improve the quality of street spaces. Data has shown rebalancing streets in this way has many benefits, including more people walking and cycling, higher usage and increased speed of public buses, neutral or positive effects on traffic flows, as well as an increase in retail sales and reduction in commercial vacancies due to increased foot fall. Streets for People creates opportunities to increase the range of people and activities that are on the street. It also creates space for increased green infrastructure, which is an important tool in climate adaptation and mitigation.

3.2 Scheme Objectives

- 3.2.1 The Liveable Neighbourhoods Programme has an ambitious city-wide vision, with a wide array of small-scale interventions planned to enable the desired transition to a more cohesive neighbourhood. To monitor the success of the scheme in establishing Liveable Neighbourhoods, objectives have been set out to outline what success looks like. These have been outlined in Table 3-1.

Table 3-1 – Liveable Neighbourhoods Plan Objectives

Objective No.	Theme	Objective	Target	Year
LN1	Active travel	Improvements in Sustainable transport and encouraging modal shift	TBC	TBC
LN2	Active travel	Provide safe, accessible and well-connected walking and cycling networks	TBC	TBC
LN3	Active travel	Raise awareness about the benefits of active travel	TBC	TBC
LN4	Streets for people	Reallocating road space for people and active travel	TBC	TBC
LN5	Streets for people	Re-imagine Glasgow's streets as highly social spaces, which have a positive function for water management and biodiversity	TBC	TBC
LN6	Streets for people	Improving safety, accessibility and legibility	TBC	TBC
LN7	Streets for people	Create inclusive streets prioritising the most vulnerable user	TBC	TBC
LN8	Streets for people	Develop street designs that are responsive to Glasgow's conditions of climate and seasonal light	TBC	TBC
LN9	Everyday journeys	Reduced emissions in local areas and contributing to carbon neutrality; discourage private car use	TBC	TBC

Objective No.	Theme	Objective	Target	Year
LN10	Everyday journeys	Improve health outcomes and wellbeing in Glasgow, by making active travel the first choice mode for everyday journeys	TBC	TBC
LN11	Everyday journeys	Facilitate and promote independent travel choices for all ages and abilities, particularly children	TBC	TBC
LN12	Everyday journeys	Ensure easy access to local centres, schools, open and green spaces	TBC	TBC
LN13	Everyday journeys	Build a network of urban movement, where walking and cycling are integral parts of the multi-modal system	TBC	TBC
LN14	Everyday journeys	Improve neighbourhood permeability for active travel and reduce road danger to make every street a good choice for walking and cycling	TBC	TBC
LN15	Local Town Centres	Strengthen the existing town centres / high streets to include multipurpose spaces with a range of uses, amenities and facilities	TBC	TBC
LN16	Local Town Centres	Enhance town centres as attractive destinations	TBC	TBC
LN17	Local Town Centres	Support the Glasgow Food Plan by enhancing access to food for all,	TBC	TBC

Objective No.	Theme	Objective	Target	Year
		including by cycle delivery networks		
LN18	Local Town Centres	Support local wellbeing economies, also with links to circular economy	TBC	TBC
LN19	Local Town Centres	Adequate access to quality local healthcare support and facilities	TBC	TBC
LN20	Local Town Centres	Work with communities and stakeholders to promote opportunities for local stewardship and management	TBC	TBC

Note: Specific measurable targets and dates for all objectives will be developed in the next stage of business case development.

3.3 The Strategic Context

- 3.3.1 Since the expansion of the European Union (EU) in 2004, western European cities in particular have experienced a significant reduction in European grant funding and lack of investment into public realm infrastructure. This was followed by the full withdrawal of ERDF capital infrastructure funding in the case of many areas including Glasgow and most of western Scotland's city centres, following the end of the 2000-2006 Objective 2 Structural Funds Programme. This shift of resources towards the new Eastern European member states has had a substantial impact on the options for funding infrastructure in Glasgow.
- 3.3.2 This has been further exacerbated by significant and ongoing reductions in central government grants to local government which have impacted upon service provision and local regeneration initiatives, and reduced income from revenue-generating activities like Planning Services, or from developer contributions, due to the general development downturn.
- 3.3.3 This scheme will contribute to the following policy objectives and reverse the effects of reduction in public realm infrastructure funding, through improving access to healthy, more resilient, and better-connected places for Glasgow residents. This will in turn reduce the city's dependency on car and stimulate local economic centres.

Local / National Policies


- 3.3.4 To determine how well the proposed scheme meets both local and national policy objectives, an overview of the national policies impacted by the scheme are provided in Table 3-2 with more detailed information provided in Table 3-3.

Table 3-2 - Summary of scheme impact on key local and national policies

Policy	Overview of Scheme Impact
Glasgow Strategic Plan 2017 to 2022	The city-wide Liveable neighbourhoods programme will contribute to several of the themes of the strategic plan, in particular to the Sustainable and Low Carbon City theme through reductions in car travel both in terms of transfer to active modes and reductions in journey length as local communities become increasingly self-contained, increased urban greening through pocket parklets and increased tree planting will also make a contribution to carbon reduction.
Glasgow City Development Plan	The LNP will contribute towards the aims of sustainability and reducing non-essential car travel through encouraging active travel and the development of sustainable communities.
Glasgow City Region Economic Strategy	The Liveable Neighbourhoods scheme aims to create more cohesive local areas with better connections to help deliver economic growth. It will increase the attractiveness of Glasgow's neighbourhoods and help attract an increased labour pool.
Glasgow's Open Space Strategy	The introduction of pocket parks, parklets and improvements to existing public parks and spaces as part of the LNP will help to improve open spaces in Glasgow in-line with the Open Space Strategy.
Glasgow's Active Travel Strategy 2022-2031	The LNP will deliver both the environment and, if required, the infrastructure to encourage active travel within neighbourhoods. It is complementary to the city wide active travel network and is likely to enhance the benefits of this strategy.
Glasgow's Liveable Neighbourhoods	Glasgow's Liveable Neighbourhoods will be accessible and healthy places that allow people, of all ages and abilities, out to play and socialise in their local area. Neighbourhoods should perform in such a way that maximises the social, economic and environmental benefits of the area through interventions that improve localities and place and help to reduce the city's dependency on cars by making walking, cycling and public transport first choice.
Glasgow's Climate Action Plan	The LNP will make a significant contribution towards Glasgow's climate emergency. It will help transformation the city and achieve its carbon goals through reductions in car travel and increased urban greening and the development of sustainable communities.
Glasgow's Road Safety Plan 2020 - 2030	This plan sets out the city's vision of no-one being killed or seriously injured in road accidents by 2030. Reducing car-based traffic, particularly on short to medium journeys at peak times is an objective closely aligned with the expected outcomes of this scheme.

Scottish Government National Plans, Policies and Strategies	Scotland 2045. Fourth National Planning Framework – NPF4 (Draft)	Focuses on the creation of sustainable, liveable, productive and distinctive places. A key objective of the project is to create more cohesive living spaces through the introduction of liveable neighbourhoods.
	Scotland's Digital Future (2011)	Digital infrastructure is one of the potential interventions as part of the Liveable Neighbourhoods Plan. Making Neighbourhoods more data driven aligns with many aspects of the Scotland's Digital Future policy document.
	2020 Challenge for Scotland's Biodiversity	Green Wildlife Corridors, Parklets and Pocket Parks are examples of the numerous biodiversity impacts that will be undertaken as a result of the Liveable Neighbourhoods.
	Climate Ready Scotland (2019)	Sustainability is at the heart of liveable Neighbourhoods with interventions such as tree planting and EV charging points contributing to the carbon agenda.
	Regeneration Strategy (2011)	One of the key aims of the Liveable Neighbourhoods is the regeneration of neighbourhoods throughout Glasgow.
	National Transport Strategy 2 (2020)	Vision for a sustainable, inclusive, safe and accessible transport system. One of the aims of creating Liveable Neighbourhoods is to provide safe and inclusive travel across the neighbourhood allow easier access to amenities.

Table 3-3 - Impact of scheme on local and national policy

Policy	Overview of Scheme Impact
Glasgow Strategic Plan 2017 to 2022 	<p>This plan sets out the priority themes and commitments that will be delivered over the next five years by the council, its services and arm's length organisations. It will deliver a step change in how we:</p> <ul style="list-style-type: none"> Promote human rights and reduce inequalities across Glasgow. Improve the life chances and choices for all our citizens. Embed social justice in our policy making. Empower our citizens, giving them a stake, and a say, in what happens in their local communities and communities of interest. <p>The plan will be delivered on a thematic basis across seven cross cutting themes: a thriving economy; a vibrant city; a healthier city; excellent and inclusive education; a sustainable and low carbon city; resilient and empowered neighbourhoods and a well governed city that listens and responds.</p> <p>Glasgow continues to face challenges in addressing the impact of poverty, deprivation, inequality and the impact that it has on our citizens' health. There is a specific focus in this plan to address health to ensure that everyone can reach their full potential and take part in all the city has to offer in terms of job opportunities and good quality neighbourhoods.</p>

Glasgow aims to become a sustainable low carbon city. This is a long-term goal; however, there are actions and strategies that can be put in place now to deliver this ambition. Litter, the environment and transport remain high on the list of priorities for our citizens and businesses and this plan focuses on delivering improvement in these areas.

Having clean, sociable, accessible and safe neighbourhoods for people to live and work in is a key driver for the delivery of Glasgow's commitment to reduce inequalities. Living in quality neighbourhoods, where you feel a sense of ownership over the decisions made in it, improves the health and wellbeing of Glasgow's people.

Glasgow City Development Plan

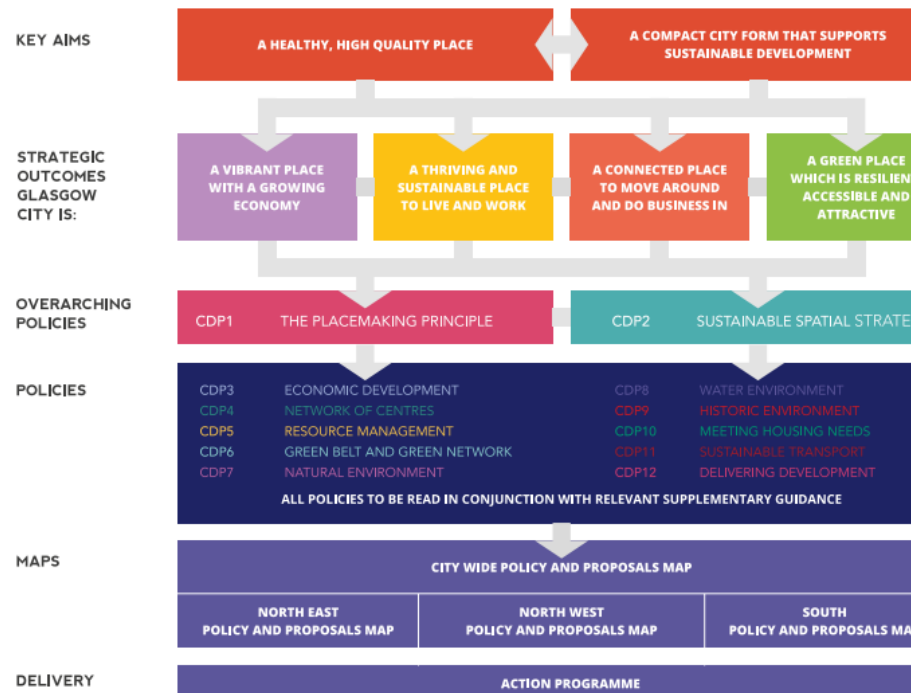


This Plan for the City of Glasgow sets out a clear 10 year planning framework, including a spatial strategy, policies and proposals for the future use of land and infrastructure. The plan has two key aims: a healthy, high-quality place; and a compact city form that supports sustainable development. Within these aims are four key outcomes:

There are key issues which are highlighted in the plan relating to the city profile and context in terms of the social, economic and environmental aspects.

Social: Issues include accommodating the rising population and household numbers, as well as addressing health levels and levels of health inequality.

Economic: Issues include growing the city's considerable economic contribution and benefitting from the significant potential of the available employment pool and further and higher education sectors, while challenging levels of unemployment and deprivation in the city.



Environment: Issues includes enhancing the city's compact and sustainable form by addressing the significant areas of vacant and

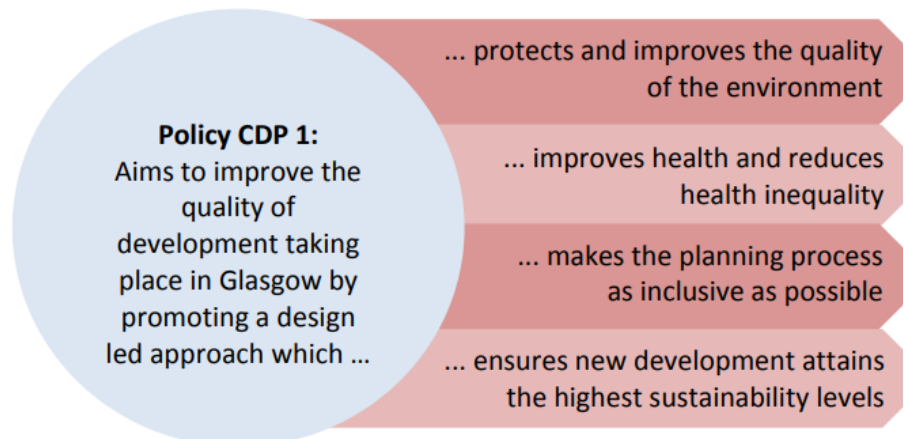
Policy

Overview of Scheme Impact

derelict land; delivering access to better quality open spaces; addressing the significant number of car journeys and promoting active and reducing the need to travel. Also ensuring that the city is in a resilient position to respond to environmental and water management challenges in coming years.

The Development Plan introduces two overarching policies: the Placemaking Principle and the Sustainable Spatial Strategy.

Placemaking Principle:



Sustainable Spatial Strategy: The plan identifies priority areas where a strategic approach is needed to co-ordinate development activity, direct investment and address emerging opportunities.

The Plan introduces 12 policies, several which the scheme contributes to. For example, City Development Policy (CDP) 1 – The Placemaking Principle; CDP 4 – Network of Centres; CDP 11 – Sustainable Transport; CDP 2 – Delivering Development.

Glasgow City Region Economic Strategy

GLASGOW CITY REGION
ECONOMIC STRATEGY



The Glasgow City Region Economic Strategy sets out an evidence base of our economy today and the future challenges we collectively face, identifying key opportunities that must be grasped.

The document introduces:

- The Region's Economy – this focuses on how the economy functions, key data, and some of its key strengths.
- Our Grand Challenges and Opportunities – this outlines the Grand Challenges from the Baseline and seven key opportunities to transform the economy.
- What We Will Do – the vision, mission and strategy priorities.

How We Will Deliver the Strategy – the action plan including priority programmes, the approach to delivery, how we will work with investors, government and the private sector.

Glasgow's Open Space Strategy

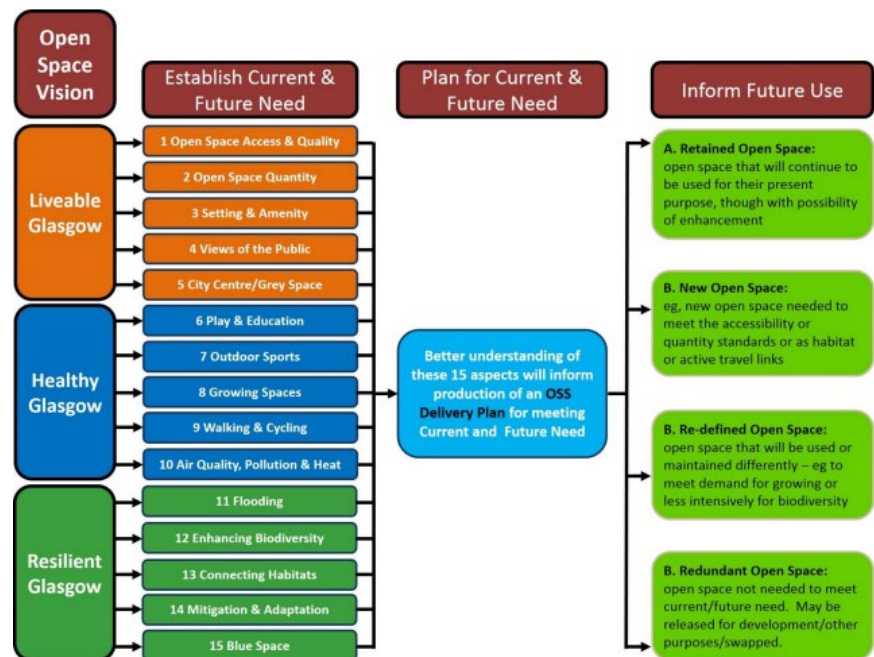
This strategy sets out a long-term vision for Glasgow's open spaces to ensure that they meet the City's needs in the years to come. The Open Space Vision is: "To ensure Glasgow continues to be a "dear green place" for both residents and visitors alike by integrating open space into all aspects of the city's activities in ways that promote sustainability, equality and enhance quality of life".

Policy



Overview of Scheme Impact

LES also has responsibility for the management and maintenance of Glasgow's parks and open spaces, which includes 91 Parks (covering 3,160 hectares), 1,029 hectares of woodlands and 24 hectares dedicated to allotments. In Glasgow there is a long tradition in the pursuit of a high-quality built environment and public realm, and this continues with the vision for delivering a high-quality environment that supports economic vitality, improves the health of Glasgow's residents, provides opportunities for low carbon movement, builds resilience to climate change, supports ecological networks and encourages community cohesion. However, a significant amount of open space in the form of playing fields is managed on behalf of the council by Glasgow Life, and the city's Open Space Strategy is owned by Development and Regeneration Services.



Glasgow's Active Travel Strategy 2022-2031



Glasgow's active strategy has a fundamental role to play in achieving a successful transition to a carbon neutral, clean and sustainable city; tackling poverty, improving health and reducing inequality; contributes to inclusive economic success and creates place where all can thrive regardless of mobility or income. The strategy sets out the vision to make active travel first choice and to increase walking, wheeling and cycling across Glasgow for those who can.

Walking, cycling and wheeling must be facilitated in ways that complement one another, and equally importantly, provide seamless links with local public transport services. This strategy places active travel as a meaningful and crucial element of our daily journeys and will contribute to Glasgow's health, economy, connectivity and wellbeing as well as helping to deliver on climate commitments.

Accessibility and inclusion are core to this strategy. Active travel can reduce transport inequalities and offer residents greater independence to move around Glasgow. The proposed City Network will provide safe active travel at all times of day, for people of all abilities. Walking and wheeling infrastructure and public spaces must

provide easy access for everyone, so that nobody feels disconnected from public transport, local services and their community.

It addresses the barriers to cycling, but also, and perhaps more importantly, the barriers that prevent people from taking up cycling in the first place. In conjunction with the Liveable Neighbourhoods Plan, it will help to make streets feel safer to walk, wheel, play and spend time in.

Glasgow's Liveable Neighbourhoods



Glasgow's Liveable Neighbourhoods will be accessible and healthy places that allow people, of all ages and abilities, out to play and socialise in their local area. Neighbourhoods should perform in such a way that maximises the social, economic and environmental benefits of the area through interventions that improve localities and place and help to reduce the city's dependency on cars by making walking, cycling and public transport first choice.

It is possible to rebalance the way streets are designed and used, to make them more people friendly and better for socialising and improving commercial activity. To also place active travel and public transport as a first choice whilst maintaining the transport needs of the city. Glasgow is adopting the 20-minute neighbourhood approach by establishing the Liveable Neighbourhoods Plan. The publication of this toolkit is the first stage of a 10-year programme that will focus on enabling communities and people of all abilities to improve their neighbourhoods.

The four key themes of a liveable neighbourhood are:

1. Local Town centres - enable communities to meet their everyday needs locally and bring vibrancy, activity and jobs.
2. Everyday journeys - short journeys are made by car that could happen on foot or by bike: for example, to school, childcare, shops, or family and friends.
3. Active Travel - Walking, cycling and moving around on your own helps health, wellbeing and carbon emissions.
4. Streets for people - achieves a better balance between vehicles and people by working with local communities, learning from best practice elsewhere, and sharing design guidance.

Glasgow's Climate Plan



Glasgow looks to become one of the most sustainable cities in Europe. The city has already achieved (and exceeded) its target of reducing CO2 emissions by 30% by 2020, achieving this goal by 2015, through a combination of energy efficiency and local generation. But this also means that many of the quick wins have been realised. In this light, the city recognises that there needs to be a sharp increase in the scope, scale, and intensity of delivery of projects to set Glasgow on course to achieving its net zero carbon goal for 2030.

The most recent data (2018) for city emissions highlights that Glasgow's total area wide emissions is 2,591 kilo-tonnes (ktCO2). This represents a 37% reduction on the city's baseline data (2006) and the total emissions which will have to be mitigated by avoiding,

reducing and offsetting activities, in that order. Transport emissions are the biggest challenge for the city, as the sector has seen slower reductions than in other sectors such as Domestic and Commercial & Industrial. However, the COVID 19 pandemic may have had an impact on the city's emissions, particularly in the transport sector. Data published by Google Environmental Insights for 2020 suggests that transportation-based emissions in Glasgow decreased by 39% in 2020. The city will strive to maintain that reduction and further reduce transport sector emissions. The city's ambition is to reduce emission through direct mitigation, while also adapting to the impacts of climate change and addressing the ecological emergency, all of which will provide carbon offsetting opportunities, whilst also improving quality of life and place in the city.

To achieve the level of change that is required to respond to the Climate Emergency, the city commits to action within five main themes. They are:

1. Communication and community empowerment – engage with communities about climate change, foster participation and collaboration and enable local action
2. Just and inclusive place – ensure that the transition to a net-zero society is a catalyst for building a fairer, healthier, prosperous, resilient and greener city for all, Empower and invigorate our communities, strengthening local economies
3. Well connected and thriving city – support decarbonisation of transport systems by helping to improve infrastructure for walking, cycling, wheeling and reducing the need to travel.
4. Health and wellbeing – support creation and maintenance of good quality, multifunctional open space to help reconnect communities with nature
5. Green recovery - Supporting improved infrastructure for walking, cycling and remote working

Key Actions that Liveable Neighbourhoods will support are:

- Action 56 – reduce the need to own and use a car through measures in the City Development plan, Glasgow Transport Strategy and Liveable Neighbourhoods
- Action 51 – deliver a comprehensive active travel network, incorporating the spaces for people measures and enabling 20-minute neighbourhoods through the liveable neighbourhood plan.
- Action 59 – work with partners in the city to accelerate the transition of Glasgow's economy from linear to circular, making it more inclusive and sustainable

Glasgow's Road Safety Plan 2020 - 2030

This plan sets out the city's vision of no-one being killed or seriously injured in road accidents by 2030. The Plan sets out a number of actions to achieve this target, which include prioritising active travel across the city.

A significant step towards shifting that balance to active travel is by implementing a city wide 20mph speed limit. Slowing vehicle speeds

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opens up opportunities to walk and cycle more journeys, improving the environment we all live in

Reducing car-based traffic, particularly on short to medium journeys at peak times, is just one of the key elements to reducing road casualties in Glasgow. We need to encourage safe sustainable active travel such as walking, cycling and wheeling and explore and support new methods of travel such as e-bikes and scooters. We also need to ensure our public transport system is an affordable and reliable option for everyone, and that it provides good access to healthcare, services and employment.

Education, training and publicity is also a vital component in the safe-systems approach, to ensure all road users are risk aware, not only for themselves, but for other road users.

Scotland 2045. Fourth National Planning Framework – NPF4 (Draft)



The draft NPF4 sets out a vision for how Scotland's places will change in the future. It reflects priorities across Scottish Government portfolios and brings together a wide range of plans, programmes and policies. It explains how they will work together to build sustainable, liveable, productive and distinctive places. The

draft highlights six qualities of successful places in order to do so:

1. Designed for lifelong health and wellbeing: supporting safety and improving mental and physical health.
2. Safe and pleasant: supporting safe, pleasant and welcoming natural and built spaces.
3. Well-connected and easy to move around: supporting networks of all scales.
4. Distinctive: supporting attention to local architectural styles and natural landscapes.
5. Sustainable: supporting net zero, nature-positive and climate-resilient places.
6. Adaptable: supporting commitment to investing in the long-term value of buildings, streets and spaces.

This proposed interventions within this scheme contribute to several objectives highlighted within the framework, these being:

- Sustainable Places
- Liveable Places
- Productive Places
- Distinctive Places

Scotland's Digital Future (2011)

Digital technologies are widely recognised as an enabler of productivity and a driver of innovation and international trade, helping to boost jobs and export income. This strategy sets out in detail how the SG intends to achieve their digital ambition. It summarises what they are already doing, and what further actions they propose to take, in four key areas of public service delivery: the digital economy; digital participation; and broadband connectivity. In doing so, the strategy

Policy

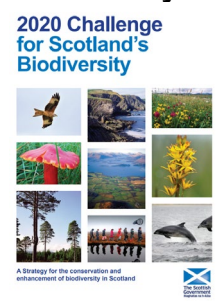
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will ensure that Scotland is positioned to take full advantage of the opportunities offered by the digital age.

Technological change can make contributions to both improving outcomes and reducing costs. It is already clear that technology will play a key role in delivering health and social services in many countries throughout the world in the 21st century. However, broadband use is lowest amongst older people, those with health difficulties, and those on low incomes.

2020 Challenge for Scotland's Biodiversity



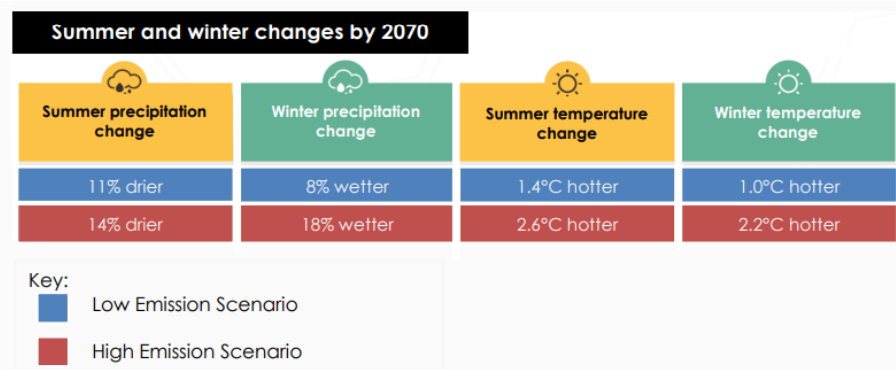
Scotland is defined by its rich nature of native animals, plants and vibrant landscapes. Biodiversity plays an essential role in meeting the SG's vision of a smart, sustainable and successful Scotland, and lies at the heart of their economic strategy, specifically when it comes to the additional variety it adds to urban green spaces, as well as providing health and well-being benefits.

Previously, the long-standing approach to environmental health has focused on the minimisation of environmental "bads", such as air or water pollution. Today, however, there is new extra emphasis placed on environmental "goods". The natural environment is now recognised as an important resource for promoting physical and mental health, improving educational outcomes, and supporting community development and regeneration. These benefits will be enhanced by the tree planning, urban greening and temporary greening of vacant and derelict land as a part of the Liveable Neighbourhood developments.

Climate Ready Scotland (2019)



Climate change adaptation is about responding to the changes that we have seen in our climate over the last few decades and preparing for the challenges that will face as our climate continues to change.



There are a range of outcomes highlighted in this strategy. There are three which relate directly to this scheme and its objectives. Outcome 1, for example, emphasises that Scotland's communities are inclusive, empowered, resilient and safe in response to the changing climate. Several of the proposed interventions will directly impact this outcome by enhancing social sustainability indicators such as social cohesion and interaction, attractive public realm and sustainable urban design (amongst others) (Dempsey *et al.*, 2011). Outcome 2 states how the people in Scotland who are most vulnerable to climate

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Regeneration Strategy (2011)



change can adapt and climate justice is embedded in climate change adaptation policy. Finally, Outcome 5 says that Scotland's natural environment is valued, enjoyed, protected and enhanced and has increased resilience to climate change.

This Strategy responds to the challenges faced by Scotland's most disadvantaged communities to help create a Scotland where all places are sustainable, and where people want to live, work and invest. Regeneration of Scotland's most disadvantaged areas and strengthening of local communities are key priorities for the Scottish Government. Future generation activity must put communities first, make connections between the physical, social and economic dimensions, focus on the safety and quality of places and tailor interventions to address unemployment.

This strategy doesn't seek to change viable development models but looks to build on previous success and encourage innovative ways of working where this can support progress. Key to success will be:

- Reforming the way in which mainstream resources are used to support vulnerable communities.
- A stronger focus on community-led regeneration.
- Realising the economic potential of Scotland's communities through focussed funding and other support mechanisms.

This links directly to this scheme, particularly due to enhanced health outcomes through active and sustainable public transport and urban greening in four deprived areas of Glasgow.

National Transport Strategy 2 (2020)



This strategy sets out the vision for Scotland's transport system for the next 20 years. It will help to create a sustainable, inclusive, safe and accessible transport system, helping to deliver a healthier, fairer and more prosperous Scotland for communities, businesses and visitors. It sets out four key priorities:



Reduces inequalities

- Will provide fair access to services we need
- Will be easy to use for all
- Will be affordable for all



Takes climate action

- Will help deliver our net-zero target
- Will adapt to the effects of climate change
- Will promote greener, cleaner choices



Helps deliver inclusive economic growth

- Will get people and goods where they need to get to
- Will be reliable, efficient and high quality
- Will use beneficial innovation



Improves our health and wellbeing

- Will be safe and secure for all
- Will enable us to make healthy travel choices
- Will help make our communities great places to live

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The scheme directly links to this strategy through each theme highlighted within the Liveable Neighbourhoods:

Local Town Centres: This enables residents to access most of the activities needed for good living within a 20-minute walk, cycle or public transport trip from their homes.

Everyday Journeys: By improving the conditions for walking and cycling within neighbourhoods there is a significant opportunity to reduce carbon emissions and to provide more-active travel choices, which enhance health outcomes.

Active Travel: An important aspect of Glasgow's LNs is ensuring there is adequate implementation of active travel networks within neighbourhoods, connecting them to the city network and helping to meet Glasgow's ambitious target to make walking, cycling and wheeling considered as first choice modes of travel.

Streets for People: This focuses on the rebalancing of streets from being less car-centric to more people-centric. It creates opportunities to increase the range of people and activities that are on the street, while removing space for motorised vehicles, contributing to a sustainable travel network. It also creates space for increased green infrastructure, which is an important tool in climate adaptation and mitigation.

Glasgow Strategic Plan 2017 to 2022



This plan sets out the priority themes and commitments that will be delivered over the next five years by the council, its services and arm's length organisations. It will deliver a step change in how we:

- Promote human rights and reduce inequalities across Glasgow.
- Improve the life chances and choices for all our citizens.
- Embed social justice in our policy making.
- Empower our citizens, giving them a stake, and a say, in what happens in their local communities and communities of interest.

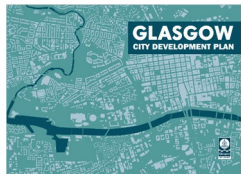
The plan will be delivered on a thematic basis across seven cross cutting themes: a thriving economy; a vibrant city; a healthier city; excellent and inclusive education; a sustainable and low carbon city; resilient and empowered neighbourhoods and a well governed city that listens and responds.

Glasgow continues to face challenges in addressing the impact of poverty, deprivation, inequality and the impact that it has on our citizens' health. There is a specific focus in this plan to address health to ensure that everyone can reach their full potential and take part in all the city has to offer in terms of job opportunities and good quality neighbourhoods.

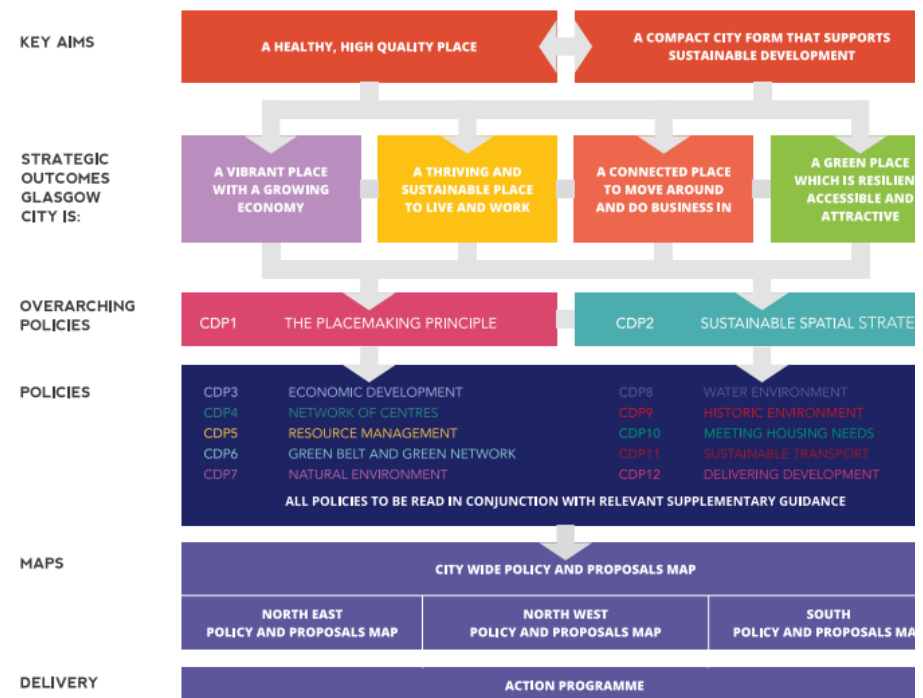
Glasgow aims to become a sustainable low carbon city. This is a long-term goal; however there are actions and strategies that can be put in place now to deliver this ambition. Litter, the environment and transport remain high on the list of priorities for our citizens and businesses and this plan focuses on delivering improvement in these areas.

Having clean, sociable, accessible and safe neighbourhoods for people to live and work in is a key driver for the delivery of Glasgow's commitment to reduce inequalities. Living in quality neighbourhoods, where you feel a sense of ownership over the decisions made in it, improves the health and wellbeing of Glasgow's people.

Glasgow City Development Plan



This Plan for the City of Glasgow sets out a clear 10 year planning framework, including a spatial strategy, policies and proposals for the future use of land and infrastructure. The plan has two key aims: a healthy, high-quality place; and a compact city form that supports sustainable development. Within these aims are four key outcomes:



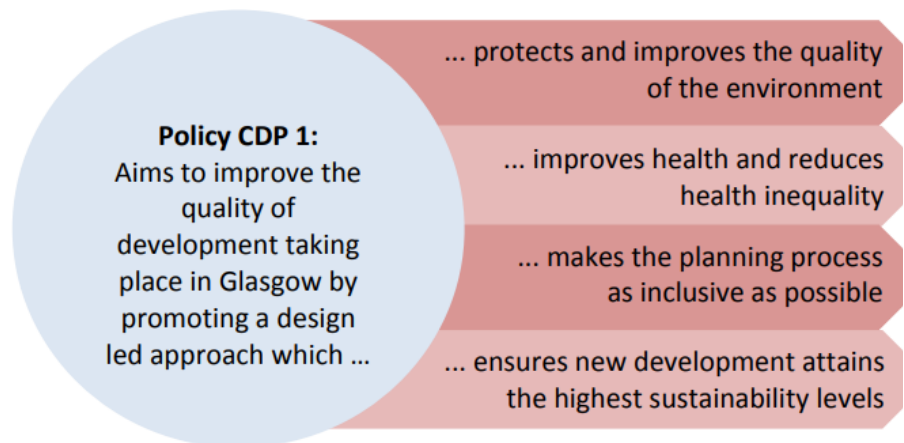
There are key issues which are highlighted in the plan relating to the city profile and context in terms of the social, economic and environmental aspects.

Social: Issues include accommodating the rising population and household numbers, as well as addressing health levels and levels of health inequality.

Economic: Issues include growing the city's considerable economic contribution and benefitting from the significant potential of the available employment pool and further and higher education sectors, while challenging levels of unemployment and deprivation in the city.

Environment: Issues includes enhancing the city's compact and sustainable form by addressing the significant areas of vacant and derelict land; delivering access to better quality open spaces; addressing the significant number of car journeys and promoting active and reducing the need to travel. Also ensuring that the city is in a resilient position to respond to environmental and water management challenges in coming years.

The Development Plan introduces two overarching policies: the Placemaking Principle and the Sustainable Spatial Strategy.

Placemaking Principle:

Sustainable Spatial Strategy: The plan identifies priority areas where a strategic approach is needed to co-ordinate development activity, direct investment and address emerging opportunities.

- The Plan introduces 12 policies, several which the scheme contributes to. For example, City Development Policy (CDP) 1 – The Placemaking Principle; CDP 4 – Network of Centres; CDP 11 – Sustainable Transport; CDP 2 – Delivering Development.

Glasgow City Region Economic Strategy

GLASGOW CITY REGION
ECONOMIC STRATEGY



The Glasgow City Region Economic Strategy sets out an evidence base of our economy today and the future challenges we collectively face, identifying key opportunities that must be grasped.

The document introduces:

- The Region's Economy – this focuses on how the economy functions, key data, and some of its key strengths.
- Our Grand Challenges and Opportunities – this outlines the Grand Challenges from the Baseline and seven key opportunities to transform the economy.
- What We Will Do – the vision, mission and strategy priorities.

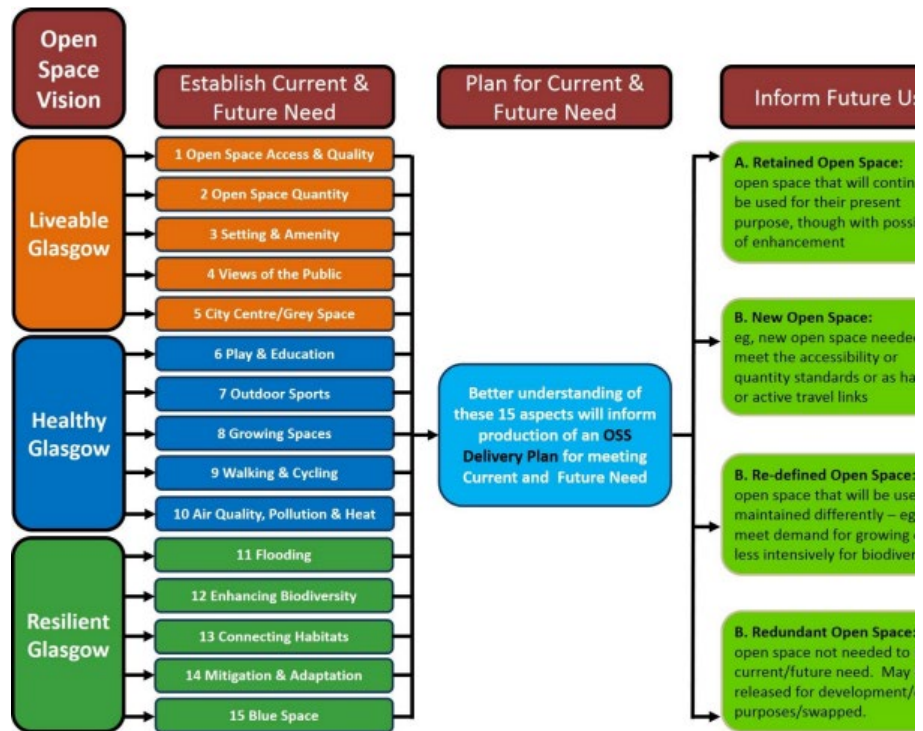
How We Will Deliver the Strategy – the action plan including priority programmes, the approach to delivery, how we will work with investors, government and the private sector.

Glasgow's Open Space Strategy

This strategy sets out a long-term vision for Glasgow's open spaces to ensure that they meet the City's needs in the years to come. The Open Space Vision is: "To ensure Glasgow continues to be a "dear green place" for both residents and visitors alike by integrating open space into all aspects of the city's activities in ways that promote sustainability, equality and enhance quality of life".

LES also has responsibility for the management and maintenance of Glasgow's parks and open spaces, which includes 91 Parks (covering 3,160 hectares), 1,029 hectares of woodlands and 24 hectares dedicated to allotments. In Glasgow there is a long tradition in the pursuit of a high-quality built environment and public realm, and this continues with the vision for delivering a high-quality environment that

supports economic vitality, improves the health of Glasgow's residents, provides opportunities for low carbon movement, builds resilience to climate change, supports ecological networks and encourages community cohesion. However, a significant amount of open space in the form of playing fields is managed on behalf of the council by Glasgow Life, and the city's Open Space Strategy is owned by Development and Regeneration Services.



Glasgow's Active Travel Strategy 2022-2031



Glasgow's active strategy has a fundamental role to play in achieving a successful transition to a carbon neutral, clean and sustainable city; tackling poverty, improving health and reducing inequality; contributes to inclusive economic success and creates place where all can thrive regardless of mobility or income. The strategy sets out the vision to make active travel first choice and to increase walking, wheeling and cycling across Glasgow for those who can.

Walking, cycling and wheeling must be facilitated in ways that complement one another, and equally importantly, provide seamless links with local public transport services. This strategy places active travel as a meaningful and crucial element of our daily journeys and will contribute to Glasgow's health, economy, connectivity and wellbeing as well as helping to deliver on climate commitments.

Accessibility and inclusion are core to this strategy. Active travel can reduce transport inequalities and offer residents greater independence to move around Glasgow. The proposed City Network will provide safe active travel at all times of day, for people of all abilities. Walking and wheeling infrastructure and public spaces must provide easy access for everyone, so that nobody feels disconnected from public transport, local services and their community.

It addresses the barriers to cycling, but also, and perhaps more importantly, the barriers that prevent people from taking up cycling in

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the first place. In conjunction with the Liveable Neighbourhoods Plan, it will help to make streets feel safer to walk, wheel, play and spend time in.

Glasgow's Liveable Neighbourhoods



Glasgow's Liveable Neighbourhoods will be accessible and healthy places that allow people, of all ages and abilities, out to play and socialise in their local area. Neighbourhoods should perform in such a way that maximises the social, economic and environmental benefits of the area through interventions that improve localities and place and help to reduce the city's dependency on cars by making walking, cycling and public transport first choice.

It is possible to rebalance the way streets are designed and used, to make them more people friendly and better for socialising and improving commercial activity. To also place active travel and public transport as a first choice whilst maintaining the transport needs of the city. Glasgow is adopting the 20-minute neighbourhood approach by establishing the Liveable Neighbourhoods Plan. The publication of this toolkit is the first stage of a 10-year programme that will focus on enabling communities and people of all abilities to improve their neighbourhoods.

The four key themes of a liveable neighbourhood are:

1. Local Town centres - enable communities to meet their everyday needs locally and bring vibrancy, activity and jobs.
2. Everyday journeys - short journeys are made by car that could happen on foot or by bike: for example, to school, childcare, shops, or family and friends.
3. Active Travel - Walking, cycling and moving around on your own helps' health, wellbeing and carbon emissions.
4. Streets for people - achieves a better balance between vehicles and people by working with local communities, learning from best practice elsewhere, and sharing design guidance.

20-Minute Neighbourhoods

- 3.3.5 The Government's National Planning Framework 4 statement highlights the '20-minute neighbourhood' as the number one opportunity for making our streets and neighbourhoods more liveable. This is a complementary policy idea alongside the Liveable Neighbourhoods Plan.
- 3.3.6 The Scottish Government has already made commitments to deliver a net zero society and green long-term investments that will transform our society and build a wellbeing economy. These policy shifts have highlighted the importance of neighbourhoods and place with this being evident in the Government's National Planning Framework 4 position statement highlighting the '20-minute neighbourhood' as the number one opportunity for making our streets and neighbourhoods more liveable. This is a method of achieving connected and compact neighbourhoods designed in such a way that all people can meet the

majority of their daily needs within a reasonable walk, wheel or cycle (within approx. 800m) of their home.

- 3.3.7 The issues that will be addressed such as the spatial imbalance of vehicles over people and the priority of vehicles movement over people movement will bring together initiatives such as car free zones around schools and the active travel strategy for the city. This will also assist in working towards the city's target to be carbon neutral by 2030.



*Taken from '20-minute neighbourhoods' (planning.vic.gov.au)

Scottish Index of Multiple Deprivation

- 3.3.8 The indices of multiple deprivation are commonly used as a guide to identify areas of low socio-economic performance. This is key information in understanding the current and future potential for economic growth.
- 3.3.9 Glasgow lies within Scotland's Central Belt and is the country's largest city and only metropolitan region. Over the last 30 years, Glasgow has transformed from a city scarred by rapid industrial decline to a vibrant global destination city. The city centre is a major contributor to the national economy and remains a focus for knowledge, culture, creativity, innovation and prosperity. The City Centre is also a place where people increasingly choose to live.
- 3.3.10 The Glasgow City Centre Strategic Development Framework outlines the following vision for 2050 the city centre:

*The City Centre will be a vibrant, inclusive, sustainable and liveable place. A green, attractive and walkable City Centre will ensure a people friendly place that is climate resilient, fosters creativity and opportunity and promotes social cohesion, health and wellbeing and economic prosperity.*³

3.3.11 Some areas outside the city centre are deprived and have lower employment rates and higher poverty rates compared to the city centre whilst others are more prosperous but would also benefit from improvements in sustainability and inclusivity. These areas have the potential to become a series of vibrant, diverse and inclusive neighbourhoods that bring life to the whole city. This will necessitate the provision of supporting social infrastructure and a step change in the quality of the physical environment to become more people focussed.

3.3.12 Public realm investment in Tranche 1 of this scheme will help to alleviate the social and economic deprivation and poverty rates detailed in this section. Tranches 2 and 3 have also been confirmed as:

Tranche 2

- Pollokshaws, Mansewood, Pollokshields West, Shawlands and Strathbungo LN
- Greater Gorbals, Govanhill and Pollokshields East LN
- Sighthill, Roystonhill, Germiston, Blackhill and Hogganfield LN
- Yoker, Scotstoun, Jordanhill and Whiteinch LN

Tranche 3

- North Cardonald, Pennilee, Crookston, South Cardonald, Bellahouston, Craigton and Mossbank LN
- Knightswood, Temple and Anniesland LN
- Lambhill and Milton LN
- Easterhouse, Ruchazie and Garthamlock LN

3.3.13 Tranches 4, 5 and 6 locations are in the process of being confirmed.

3.3.14 Figure 3-2 shows the Index of Multiple Deprivation across Glasgow City in 2020 and key statistics detailed in Table 3-4. It shows that the majority of Glasgow City and outlying areas fall into the most deprived 30% of the country. Of those of a working age, there is a high proportion of income and employment deprived people in Glasgow. The city also has a relatively young population, with almost three-quarters of the population at working age.

³ City Centre Strategic Development Framework. Glasgow City Council. May 2021.

Figure 3-2 – Scottish Index of Multiple Deprivation 2020 – Glasgow City

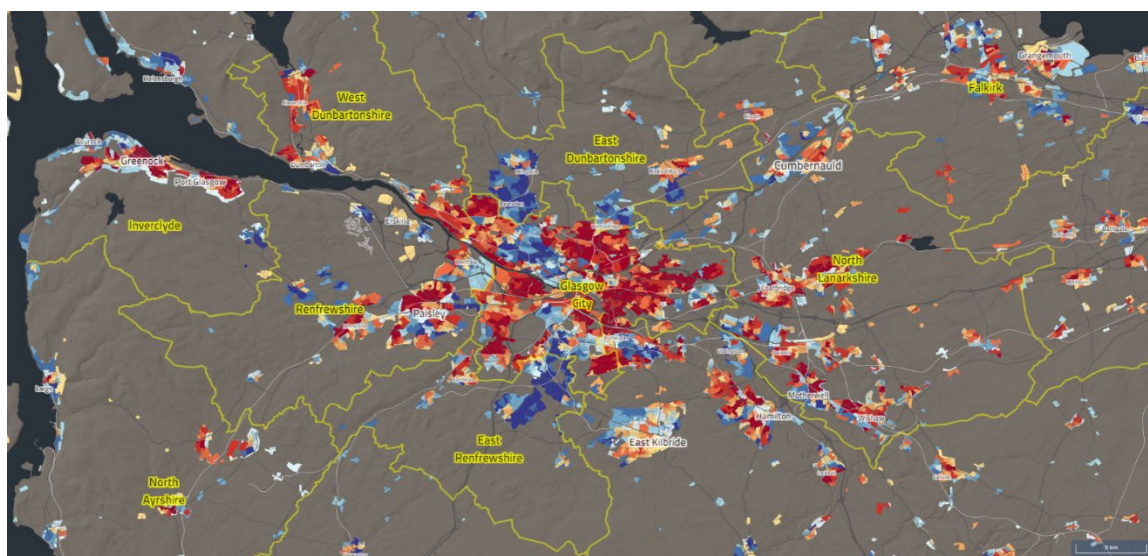
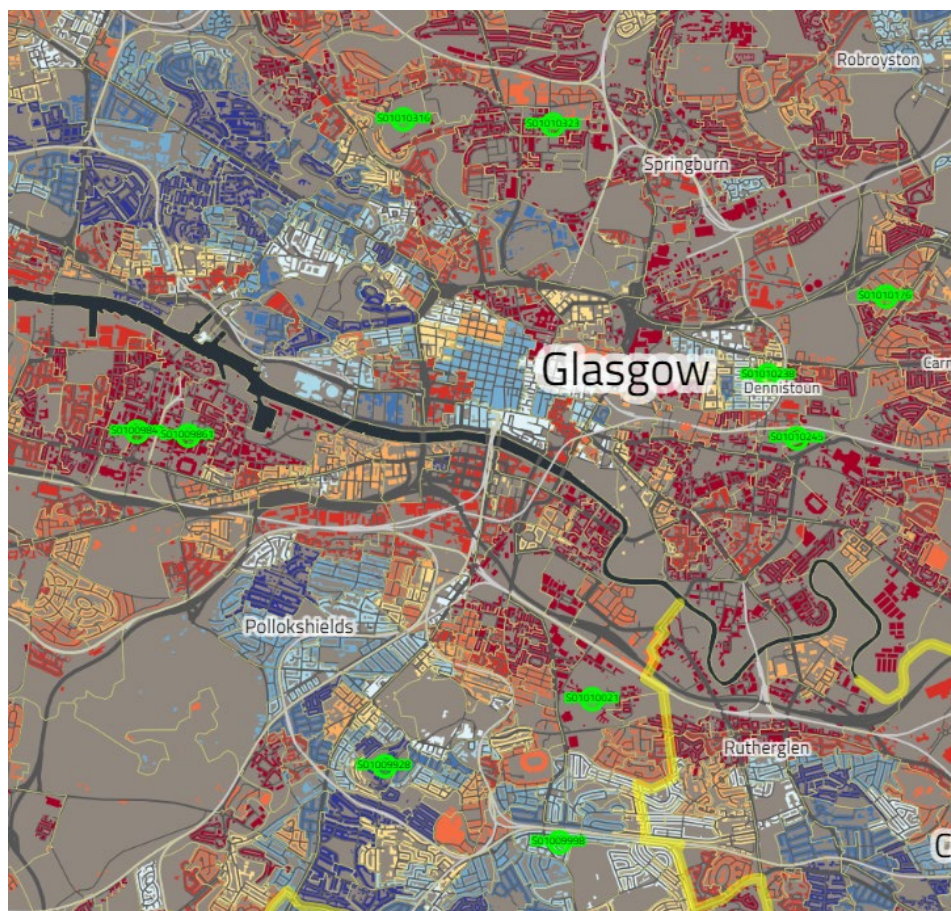


Table 3-4 – Scottish Index of Multiple Deprivation 2020

Indicator	IMD (2020)
Total Population	621,020
Working Age	71%
Income Deprived	19%
Employment Deprived	9%
No qualifications (working age)	18%

3.3.15 In comparison with Figure 3-2, Figure 3-3 demonstrates the Index of Multiple Deprivation in Glasgow in 2020 focussing on the areas within each liveable neighbourhood (shown by green place markers). The map demonstrates that the majority of the study areas fall into the most deprived areas of the city.

Figure 3-3 – Scottish Index of Multiple Deprivation 2020 – Liveable Neighbourhoods



3.3.16 As shown in Table 3-5, 50% of the areas in question fell within the most deprived 10% of Glasgow's population in 2020, and the majority fell within the most deprived 30% of the population. Langside/Battlefield and King's Park/Mount Florida were within the least deprived 30%.

Table 3-5 – Scottish Index of Multiple Deprivation 2020

	Scottish Index of Multiple Deprivation (2020)								
	North West	North East			South West		South East		
	Ruchill/Possilpark	Dennistoun	Haghill/Carntyne	Riddrie/Cranhill	Greater Govan	Ibrox/Kingston	Langside/Battlefield	King's Park/Mount Florida	Toryglen
Total population	10,737	11,305	8,978	11,233	13,509	12,220	13,673	9,430	4,475
Working age (%)	67%	77%	67%	64%	69%	78%	78%	70%	64%
Income Deprived	33%	13%	51%	18%	42%	28%	3%	8%	29%
Employment Deprived	16%	6%	29%	8%	21%	15%	2%	4%	11%
Decile	1	5	1	3	1	1	10	7	1
Quintile	1	3	1	2	1	1	5	4	1

*Population data taken from the 2012 Glasgow indicators project

3.3.17 The working age population and employment rate for each area is shown in Table 3-6 which demonstrates that Langside/Battlefield, King's Park/Mount Florida and Dennistoun all have the highest employment rates despite having some of the lowest proportions of working age population. However, most areas have

significantly lower employment rates compare to the average for Glasgow (69.3%⁴) between July 2020 to June 2021.

Table 3-6 - Employment Rate (Glasgow Indicators Project 2012)

Area	Total Population	Working Age Population	Employment Rate
Ruchill/Possilpark	10,737	67%	47%
Dennistoun	11,305	77%	63%
Haghill/Carntyne	8,978	67%	53%
Riddrie/Cranhill	11,233	64%	45%
Greater Govan	13,509	69%	54%
Ibrox/Kingston	12,220	78%	58%
Langside/Battlefield	13,673	78%	75%
King's Park/Mount Florida	9,430	70%	67%
Toryglen	4,475	64%	51%
Ruchill/Possilpark	10,737	67%	47%

Conclusions

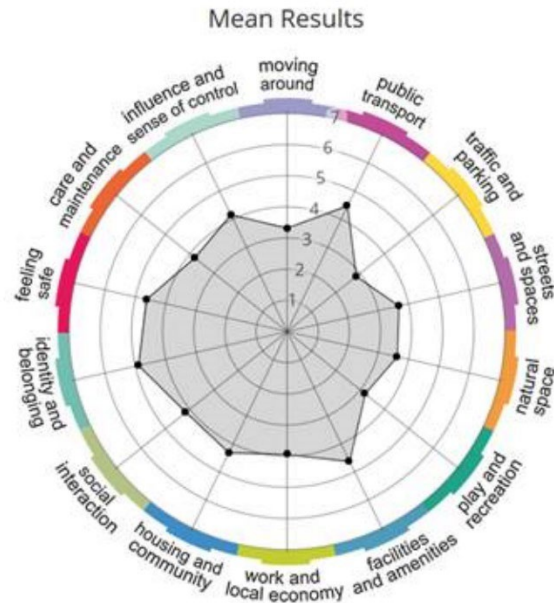
- 3.3.18 Analysis of data from the Scottish Indices of Deprivation demonstrates that in general, the four Liveable Neighbourhoods areas that form tranche 1 of this scheme are more deprived compared to the Glasgow average. The majority of the areas within each neighbourhood have lower life expectancy, higher levels of child poverty, lower levels of children and young people in education, and higher unemployment claimant rates for out of work benefits.
- 3.3.19 Investment in public realm infrastructure through the Liveable Neighbourhood scheme has the potential to improve deprivation levels in Tranche 1 areas through providing improved access to healthier, more resilient places which are better connected to the rest of the city and stimulate local centres' economies. The scheme would also encourage mixed-use development in the Liveable Neighbourhoods, which would help to improve the current socio-economic situation.

⁴ Nomis Labour Market Statistics <https://www.nomisweb.co.uk/reports/lmp/la/1946157420/printable.aspx>

3.4 Consultation

- 3.4.1 An in-depth and comprehensive stakeholder engagement process has been undertaken by Glasgow City Council. This has included extensive engagement with the public to develop the Liveable Neighbourhood concept.
- 3.4.2 Events were held at a series of venues in the communities which make up the Liveable Neighbourhoods to explore ideas and help generate options. There was a focus on local community groups and community representatives, with each event focusing on a specific community. Some of the key observations included:
- Community involvement in the design of areas should happen more often.
 - Greenspace is vital for mental wellbeing, so give people places to sit and enjoy nature.
 - Plants, flowerbeds and colour all enhance an area – the flowerbeds on Saracen Street were cited as an example.
 - The 20-minute Liveable Neighbourhood idea would increase quality of life.
 - Create wider more accessible pavements, making them easier to navigate for everybody, families with children / buggies; people in wheelchairs.
 - Use parklets and planting to transform busy roads, get more greenery/planters on the streets, and also benches, basically just bring more life to Glasgow's streets and get rid of cars / traffic.
- 3.4.3 Glasgow City Council has also launched a digital platform called 'Commonplace' for each area within the first tranche of proposed Liveable Neighbourhoods. This allows people to comment and propose interventions in their area based on the themes of the intervention (see 3.1.8 for further details). The information gathered on the online platform will be used to help formulate specific interventions within each of the proposed areas. This information is used within a 'Place Standard toolkit to analyse the requirements of an area, an example of this for Langside to Toryglen is provided in Figure 3-4.

Figure 3-4 – Place Standard tool for Langside to Toryglen



3.4.4 Live consultations were also held, at each event there was the opportunity for any current grassroots projects to present their ideas and in between activities to feed into the option generation process. The image below shows a consultation event at Carntyne, where members of the community used blocks and other items to map out important hubs (red blocks represented important buildings, while yellow blocks were churches) as well as potential new developments (the green post-it notes, for example, represent new allotments, while the green straws represent strengthened pedestrian/cycle routes). After all of the ten events have been finished, we will be producing diagrams based on these large-scale maps and the story boards.



- 3.4.5 Stakeholder engagement is a key facet of the Liveable Neighbourhoods Plan. Liveable Neighbourhoods should be designed with the needs of the local community in mind and be specially tailored to the specific needs of the local population. Requirements are likely to differ for each individual neighbourhood underlining the emphasis for considered stakeholder engagement.
- 3.4.6 The engagement undertaken to date alongside future proposed events and the digital 'Commonplace' will all play significant roles in developing the Liveable Neighbourhoods scheme and ensure views of stakeholders are represented in the final deliverables. There was general consensus from stakeholders that the introduction of Liveable Neighbourhoods would be beneficial given that the interventions were targeted and specific to each area. The introduction of pocket parks and more green spaces were seen as particularly beneficial by many of those consulted.
- 3.4.7 The ongoing stakeholder engagement and the central role it plays in the development of specific options for each of the areas in all tranches of the Liveable Neighbourhoods programme will ensure that there is widespread support for the scheme as it moves forward through the project development phases.

3.5 External Impacts

Brexit

- 3.5.1 The impact of Brexit on Glasgow and on the scheme poses many challenges, however, Glasgow has proved itself to be resilient when faced with other economic challenges. The consensus of opinion is that the UK and Scottish economies will weaken in the short to medium term as a direct result of the uncertainty generated following the UK vote to leave the EU. On balance, all the key short to medium term macroeconomic impacts of Brexit will likely be negative.
- 3.5.2 In response to Brexit, the Scottish and UK Governments have been asked to commit to the following actions⁵:
- Maintaining a structural funds programme prioritising urban areas where the vast majority of Scotland's economic output is generated and its population live.
 - Accelerate City Deal capital infrastructure works.
 - The transfer of surplus land holdings to Glasgow City Council to enable their inclusion in the city's Strategic Housing Investment Plan.
 - To develop more effective collaborations across agencies and with Glasgow to support higher levels of city competitiveness, innovation and economic growth.

⁵ Brexit and the Glasgow economy: impacts, actions and asks. (2016)
<https://www.glasgow.gov.uk/CHttpHandler.ashx?id=35550&p=0>



COVID-19

- 3.5.3 The global climate crisis as well as the COVID-19 pandemic has had a significant impact on local neighbourhoods and town centres highlighting the importance of local public space within our city and the need to re-prioritise the balance of our streets.

4 Economic Case

4.1 Long List of Options

- 4.1.1 Early-stage work is ongoing to develop specific options as part of the Liveable Neighbourhoods Plan. The options will be worked up in more detail as they are developed along with the critical success factors that will be used to sift from the long list of options down to a short list for appraisal.
- 4.1.2 The options assessment at the current SBC stage of the business case development process will provide a high-level overview of a range of interventions that could be undertaken in each neighbourhood. Workshops have been undertaken in collaboration with the Glasgow City Council to assess which interventions are to be taken forward according to their fit with the overarching project objectives. A list of intervention types has been provided in Table 4-1.

Table 4-1 – List of potential interventions

	Quick Wins – Short Term		Medium Term		Long Term	
	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
Active Travel	Active Travel Routes	Connecting residents to transport hubs, local centres and community hubs.	Active Travel Routes	Connecting residents to transport hubs, local centres and community hubs in line with Active Travel design guidance		
	Improved Footpaths	Resurfacing of footpaths, as necessary, and use of high-quality and distinct materials on high streets and in town centres.	New Active Travel Bridges	Improve bridges especially the points they ‘touch down’		
	Secure Covered Bike Rack	Suitable car parking spaces identified to be replaced with secure covered bike rack.				
Local Centres	Community Food Growing Opportunities	Community garden/space helping communities explore new places and grow their own food.	Improving Heritage Asset	New development in Conservation Areas should seek to protect and enhance the historic character – façade improvements, repairs and restoration as required	Digital Infrastructure	Digital infrastructure will help cities correlate data from multiple sources to generate new value and efficiencies.
	Digital Infrastructure	Digital infrastructure will help cities correlate data	Creative Industry Hubs		Improving Heritage Assets	New development in Conservation Areas

Quick Wins – Short Term		Medium Term		Long Term	
<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
	from multiple sources to generate new value and efficiencies, such as wi-fi integrated seating / lighting; digital information boards at transport hubs; digital (smart) bus stops				should seek to protect and enhance the historic character – façade improvements, repairs and restoration as required
Innovative Lighting and Wayfinding	Activation through lighting art installations, urban art and digital wayfinding totems – for increased sense of safety, simulating interest and legibility.	Digital Infrastructure	Digital infrastructure will help cities correlate data from multiple sources to generate new value and efficiencies.	Innovative Lighting and Wayfinding	Enhances sense of place and safety within the neighbourhoods. Activation through lighting art installations, urban art and digital wayfinding totems – for increased sense of safety, simulating interest and legibility
Meanwhile Uses	The temporary use of an underutilised space or site, whether this public, private, in town centres or brownfield sites.	Innovative Lighting and Wayfinding	Enhances sense of place and safety within the neighbourhoods. Activation through lighting art installations, urban art and digital wayfinding totems – for increased sense of safety,	Mixed Use Regeneration Schemes on Vacant and Derelict Land	Mixed use developments to deliver housing, local retail, live-work-units, increased cycle parking and car club schemes, reduced car parking, open spaces and community facilities

Quick Wins – Short Term				Medium Term		Long Term	
<i>Proposal</i>		<i>Description</i>		<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
EV					simulating interest and legibility		
	Pop-Up Cafes		Temporary café serving the communities		Meanwhile Uses	The temporary use of an underutilised space or site, whether this public, private, in town centres or brownfield sites.	
	Skate Park and Play Spaces		Formal play spaces within 400m / 5 minutes walking radius Informal play spaces within 100m / 1 min walking radius		Housing Allocations	Deliver medium density housing on strategic sites	
					New Public Spaces	Consideration of play spaces, public squares, plazas and amenity spaces	
					Strengthening Local Centres	Promote neighbourhood focal points that provide good quality small scale shops, services, community facilities and active travel connections	
	School Free Zone	Car	Limiting traffic in the streets surrounding		At Grade Crossings and	At-grade crossings at junctions, zebra	Multi-Modal Transport Hubs

Quick Wins – Short Term		Medium Term		Long Term	
<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
	schools at key times, creating a predominantly car free zone	Signalised Junctions	crossings, puffin crossings, toucan crossings – in line with inclusive design principles and active travel guidance		
EV Charging Points	As per the Glasgow Transport Strategy (GTS), implementation of on-street EV charging points on high streets, residential streets, in proximity to railway stations or station car parking areas and in town centres	Integrated Ticketing Systems (City Wide Initiative)	Ease of access for Mobility as a Service (MaaS).		
At Grade Crossings and Signalised Junctions	At-grade crossings at junctions, zebra crossings, puffin crossings, toucan crossings – in line with inclusive design principles and active travel guidance				
Streets for On-Street Parking Management	Creation of dedicated (unallocated) car parking zones on streets	Parklet	A small seating area or green space created as a public amenity on or alongside a pavement.	River Activation	Provision of blue outdoor space for public use.

Quick Wins – Short Term		Medium Term		Long Term	
<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
Parklet	Replacement of the car parking space in front of a local café or restaurant to create seating with planters and / or cycle parking spaces. These can be both temporary and permanent.	One Way Street	Transforming residential lanes and streets to accommodate lower traffic through filtered permeability	Urban Art	Street art and art installations to activate spaces at public transport stops, tunnels, gable ends along prominent vistas, public spaces, as part of wayfinding.
Pocket Parks	Underutilised corner spaces at junctions turned into small parks	Green Wildlife Corridors	Area of habitat connecting wildlife populations that would otherwise be separated by human activities or structures to increase biodiversity, habitat enhancement and protection		
Temporary Greening of Vacant and Derelict Land	Wildflower planting and other native planting measures to increase biodiversity and promote habitat protection.	Sustainable Drainage Systems	Water management practices that align modern drainage systems with natural water processes such as bioswales, rain gardens, bio-retention beds and permeable paving.		

Quick Wins – Short Term		Medium Term		Long Term	
<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>	<i>Proposal</i>	<i>Description</i>
Tree Planting and Urban Greening	Increased and appropriate tree planting and planted edges on primary and secondary streets, where possible. Trees / planters / planted chicanes can be used as traffic calming measures on tertiary streets and residential lanes.				
Improving existing public parks and open spaces	Active community involvement to improve existing spaces including litter picks.				

- 4.1.3 A more detailed options assessment will be undertaken at the commencement of RIBA Stage 2. The generation of the long list of options and sifting down to the short list will be undertaken then and included within the next iteration of the business case.
- 4.1.4 As part of the SBC submission, an appraisal of an indicative package of interventions will be provided to give an approximate view of what the benefits of the scheme might look like.
- 4.1.5 Critical Success Factors (CSFs) are defined as part of the options appraisal process to help rank and sift options to identify the better performing options and identify the preferred way forward. These will be worked up in the next iteration of the business case to inform the option testing process.

4.2 Appraisal Methodology

Direct, indirect and opportunity benefits: definitions

- 4.2.1 We suggest a three-way categorisation of benefits.
- 4.2.2 **Direct benefits** are those that flow directly from the LN investments, either:
 - Inherently through planting and maintaining, a tree will achieve some carbon benefits; or
 - So long as people continue to do what they're doing now (or, more precisely, in the relevant year(s) of the Base Case) e.g. walking along the High Street, in which case they may get the benefit of a quieter, cleaner, safer environment, and be healthier as a results
- 4.2.3 If the benefits are inherent, they can be considered directly from the design of the scheme. If they depend on people continuing to do the same as without the scheme, then we need some estimates of how many people are doing that – which will require some data and some forecasting.
- 4.2.4 Indirect benefits will arise only if people change their behaviour, e.g. by walking instead of driving to the shops (whether the same shops or different ones). In these cases, there will often be benefits both:
 - The people who make different decisions (if they make different decisions because some of the alternatives, they choose between have improved, it is axiomatic that they do so because they benefit; if they make different decisions because some alternatives have been made worse or eliminated altogether, then they will be worse off).
 - Other people affected by those decisions i.e. those affected by externalities such as benefitting from reduced air pollution because other people choose to drive less. These could also be negative – if for example people who already cycled to a certain destination now find that the cycle parking there is too congested.

- 4.2.5 Indirect benefits clearly depend on some form of forecasting to predict the changes in behaviour.
- 4.2.6 **Opportunity benefits** are those which depend on another public sector decision and, in particular, those that would depend on the commitment of further public expenditure. (These may also be described as option values.)

4.3 Environmental benefits

- 4.3.1 These are benefits to the environment itself i.e. “looking after the planet”. Benefits which are more about “looking after people” are in the health, social or economic categories.

Table 4-2 Environmental benefits: initial assessment

Benefit	Comments: achievement	Comments: appraisal
Air quality: urban greening, such as the introduction of street trees, can also help to improve air quality	Local effect (particularly removal of particulates)	Value per tree (to draw from literature). If this a value of reduced pollution in terms of health improvements, move to health category.
	Global effect (sequestration of carbon)	Value per tree (to draw from literature) or carbon absorbed per tree (within the appraisal period) valued by standard (CCC) value
Climate ⁶ : shorter journeys and more use of active modes will reduce carbon emissions and increase climate resilience by reducing urban heat island effect	Correct if increased active travel abstracts from car use rather than from PT use	Carbon reduction effects: standard emission calculations and carbon values applied to car flows. NB a study indicating that Glasgow does not display “heat island” characteristics was mentioned on 24/11, though it was also mentioned that Glasgow is starting to have heat issues on some summer days
Mitigation of climate change	Increase in unpaved area and improvements to drainage will reduce risk of surface water flooding	
Energy efficiency: walkable environments provide opportunities to develop community district heating systems and zero-carbon homes.	Link is through higher densities and energy-efficient building forms. Full exploitation may require redevelopment of old, less efficient homes, but that needs to be done using low- or zero-carbon-emission building materials (e.g. avoiding cement and concrete)	

⁶ Also to pick up Derek Dunsire’s own work – or updates – on value of carbon sequestration by trees

Biodiversity: opportunities to improve biodiversity, particularly through connectivity of habitats	Depends on detailed design and maintenance (or deliberate lack of maintenance activity, such as not mowing edges of parks and gardens)
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Source: “Benefit” originally from TCPA (2021), edited and extended; other columns added (including notes from 24/11/21 meeting)

4.4 Health and wellbeing benefits

4.4.1 The equivalent table for benefits to individuals’ health and wellbeing is shown below. ‘Wellbeing’ included to make it slightly wider than conventional ‘health’ including for example reduced exposure to noise.

Table 4-3 Health benefits: Initial assessment

Benefit	Comments: achievement	Comments: appraisal
Physical and mental health: health benefits of regular physical activity are well established; time spent walking in green spaces contributes directly to mental health and recovery	Depends on who switches from what to walking or cycling; health benefit may be small if they are already fit or adopt these modes instead of taking other exercise. Need to consider visits to parks etc as well as walking to get to or from a destination	Queensland research provides a value of benefits per additional km walked or cycled (with a distinction depending on the previous level of activity of the walker/cyclist). To adapt to Glasgow – and to clarify what is the perceived benefit to the individual, what is the saving in healthcare costs
Healthcare costs: improved health from increased activity should relieve health service costs	As above	
Noise reduction	Reduction in car traffic and reduction in speeds	Standard noise calculations are more detailed and not appropriate at this stage.
Accessible healthcare: conventional healthcare services, voluntary groups, nurseries, and libraries can be co-located in accessible locations	Will depend on provision and take-up of suitable space. Increased rents may work against such co-location especially by voluntary groups	Treat as an opportunity (option) value

Healthy diet: improving the local food environment in a walkable neighbourhood, through local food-growing, can enable people to access healthier options	Can local food production make a socially significant contribution to overall diets ⁷ , given the limitations of space and what will grow in the West of Scotland climate? Easier access to (reasonably priced) shops selling fresh food may itself confer health benefits	
Accident reduction	See text below	Standard transport appraisal methods available for accidents

Source: “Benefit” originally from TCPA (2021), edited and extended; other columns added (including notes from 24/11/21 meeting)

- 4.4.2 Accident reduction is a potentially important benefit. It is however not certain that more walking/cycling will reduce accidents; in the worst case it would simply increase the number of potential victims for car/pedestrian or car/cyclist collisions. Benefits to older retired people of increased out-of-home physical activity will depend on maintaining high standards of pavement quality and cleanliness – injuries resulting from fall can be extremely damaging to subsequent mobility and independence. It may be significant that the TCPA document doesn’t claim accident reduction as a benefit of 20MNs.

4.5 Social benefits

Table 4-4 Social benefits: Initial assessment

Benefit	Comments: achievement	Comments: appraisal
Sense of community: living in a walkable environment can support a sense of	Depends on take-up	Question of how to measure and value these effects

⁷ There are about 32ha of allotments in Glasgow; at the standard size of 250m² that implies about 1,280 allotment holders, out of around 300,000 households. Gardens are probably much more significant for food production, but viable 20-minute neighbourhoods imply higher densities which are unlikely to result in increased provision of gardens. (<https://glasgowallotments.org/allotment-sites/>; <https://www.scottishlegal.com/article/bill-amended-to-protect-standard-size-of-an-allotment>)

community and improve social interaction ⁸ , as residents are more likely to know their neighbours and trust others, participate politically, and be involved in the community.		
Safety: increased pedestrian activity in public space can improve perceptions of safety ⁹ through passive surveillance (“eyes on the street”); investment in safe streets can also reduce the number of traffic-related pedestrian injuries and deaths	Accident consequences of increased walking and cycling should also be considered (under Health and/or Economic benefits.)	Question of how to measure and value these effects
Inclusiveness: creating a well-designed, more walkable environment provides opportunities to support inclusive design, e.g. encouraging older people to walk more, helping to prevent conditions such as arthritis; child-friendly streets allow for informal play and increased independence, which is important for child development		Question of how to measure and value these effects. Need to avoid double-counting with health benefits

Source: “Benefit” originally from TCPA (2021), edited and extended; other columns added (including notes from 24/11/21 meeting)

4.6 Economic benefits

4.6.1 The range of economic benefits is considered in the table below.

Table 4-5 Economic benefits: Initial assessment

Benefit	Comments: achievement	Comments: appraisal
Improved accessibility to jobs and services	Accessibility calculations implemented in TELMoS combine and value the effect of faster or more enjoyable travel with the effects of changes in destinations e.g. if more jobs locate within the LN zone.	Improvements in the quality of walking/cycling and of access to PT will be valued in minutes and input to the model/appraisal process

⁸ Danish work on severance effects, quoted in Alsace report?

⁹ “Security” rather than safety?

Local businesses: better streets and public spaces can boost footfall and trading, and help reduce vacancy in high streets and town centres	This is in line with previous research on pedestrianisation but will mainly be at the expense of other businesses (conventional or online) elsewhere.	Relocation of employment is considered in TELMoS. Unless there is a reason to benefit some businesses at the expense of others, the benefit is in the additional choice (perhaps) and accessibility offered to customers (included above).
Productivity: walkable environments with highly connected street networks are more likely to make a positive contribution to labour productivity ¹⁰	This is a net gain so long as the economy has the capacity to maintain full employment at full productivity (i.e. not if increased productivity of one group leaves other workers long-term unemployed)	Calculated in TELMoS
New jobs: keeping investment local through community wealth-building can develop the skills of local people and create stable, well-paying jobs	This seems to assume a higher proportion of independent, locally-owned businesses sufficiently prosperous to generate such jobs (at the expense of non-local, chain businesses. Not clear how this could be pursued or that it is a logical consequence of other changes (e.g. greater footfall may attract more, not less, investment from outside firms)	Treat as an opportunity for further action rather than as an inherent part of the LN programme, except for the actions relating to procurement of goods for physical implementation of LNs (see section 0)
Land value: investment in better place-making can boost land values	Implies higher rents being paid, which is a likely outcome but may create difficulties for small local businesses, or reduce value to local residents by driving out valuable but less profitable shops/services	Land values reflect the capture (by landlords) of benefits to occupiers; they are not additional benefits in themselves
Road congestion: making active travel safer and more inviting	Correct if increased active travel abstracts from car use rather than from PT use	If transfers from car to walk/cycle and any consequent reductions in congestion are

¹⁰ Local, easily accessible jobs may also contribute to increased labour participation (particularly among those with mobility problems and/or care commitments?).

can reduce traffic and congestion.		modelled, should be captured in accessibility
Healthcare cost savings	Depend on balance between savings from increased physical activity and losses from possible increases in accidents.	See Queensland evidence.

Source: “Benefit” originally from TCPA (2021), edited and extended; other columns added (including notes from 24/11/21 meeting)

- 4.6.2 These benefits are all either indirect (in that depend on people or firms responding to changing circumstances e.g. by expanding businesses) or complex in that depend on data that is difficult to observe e.g. the numbers of people walking between different places (in future years). Fortunately, the TELMoS modelling developed for Transport Scotland provides a broad-brush representation of much of the necessary data and the potential responses.

4.7 Double counting and other issues

- 4.7.1 Land value uplifts represent a transfer of benefits from occupiers to landlords, not additional benefits. Therefore, these have not been considered as a form of benefit, though the fact that benefits may be captured by landlords is of course significant to any discussion of distributional effects.
- 4.7.2 There is a question of whether longer-term mental health benefits to individuals of enjoying relaxation in green (or greener) spaces, and/or of walking/cycling rather than driving, are additional to or a double-counting of the immediate, perceived enjoyment or reduction in generalised cost. However, given the difficulties of measuring and valuing mental health benefits, this is not an immediate practical problem for the appraisal

4.8 Distribution of benefits

- 4.8.1 As this project progresses, we intend to look further into the distribution of benefits in terms of:
- Spatial distribution – where the benefits occur.
 - Sectoral distribution – which part of the economy (residents, firms etc).
 - Social distribution – which kinds of households gain or lose in what ways (especially in terms of more/less well-off).
- 4.8.2 The last of these has to have regard to the potential for “gentrification” effects: areas that become more desirable as places to live are likely to attract different groups of households to seek to live there. Longer-term improvements in the

quality of neighbourhoods are highly desirable in many ways, but it has to be recognized that in a society where households can relocate and, in many cases, can compete for housing, area-based policies cannot be accurately targeted at particular social groups.

4.9 Defining the programme to be appraised

Introduction

- 4.9.1 This section has to consider what is being appraised, and the context in which it is being appraised i.e. what is the Alternative Case and what is the Base Case with which it is being compared.

Approach – the overall Liveable Neighbourhoods Programme

- 4.9.2 The objective of the present appraisal is to inform the Business Case for developing the Liveable Neighbourhoods Programme across all the non-central areas of Glasgow.
- 4.9.3 Earlier stages of the work considered the costs and benefits of the Liveable Neighbourhoods Programme across the four areas of Glasgow in Tranche 1 of the scheme. Even within these, only limited design work has been done so far.
- 4.9.4 The approach taken to the overall Programme has therefore been to consider the absolute benefits in the four defined areas, and to assume that, with careful design and selective investment according to the needs of each city area, a similar benefit cost ratio can be achieved for the full Programme. We note that this could mean no investment at all in the areas that already most “liveable”.

Approach – Tranche 1

- 4.9.5 Only limited design work has been done to date. A detailed appraisal, using costs based on quantity surveyors’ examination of detailed plans, and benefits calculating from the impacts of those plans, is therefore not possible.
- 4.9.6 We are taking a broad-brush assessment of the improvements that may be achieved (the impacts) in a form which can be input into the modelling calculations to forecast their consequences and their benefits. This assessment is informed by the plans that we have seen, and the improvements are assumed to apply in the four defined areas. Similarly, the costs are based on initial estimates for parts of the city, extrapolated to a city-wide network.
- 4.9.7 The main Base Case for the present draft appraisal is one of the existing TELMoS18A Do-Minimum forecasts (that for the Business Low traffic scenario) as prepared for Transport Scotland. Some sensitivity analysis has been done looking

at the effect of adding the LN Programme to an alternative “Do-Something” situation including a representation of the Glasgow Metro proposals.

4.10 Estimating the benefits

Introduction

- 4.10.1 This section sets out the more detailed assumptions and the results of the calculations for different benefits. For the model-based calculations, a summary is (or will be) in the Appendix; more detailed documentation is available in the Model Development Report which has been prepared for Transport Scotland.
- 4.10.2 The focus is strictly on the effect of the LNs (the Alternative Case) compared with the situation which is the same but without the LNs (the Base Case). Providing we can maintain this focus we do not have to be concerned about deadweight effects i.e. the benefits of changes which are going to happen anyhow.

Appraisal period

- 4.10.3 The present appraisal of LN interventions is estimating benefits over a period of 10 years, which is relatively short comparing with many local government investments. This makes the estimates of benefits less dependent on assumption about maintenance and renewals, which we consider would be particularly important for the types of intervention proposed (e.g. a bench in the street probably has a relatively short life compared with a road or railway line).
- 4.10.4 The discount rate used is however the (UK) Treasury standard one. This means that in the present calculations £1 of benefit is worth between 70p and 75p in year 10, but in year 11 there are no benefits at all. This is approximately equivalent to assuming that the benefits depreciate in a straight-line manner over approximately 18 years.

Environmental benefits

- 4.10.5 The following headings pick up from the potential environmental benefits listed in section 4.3.

Air quality: local effects of trees

- 4.10.6 The presence of trees in the street can have some beneficial effects on air quality (though there is also a risk that they can block natural ventilation and trap local pollution). More detailed design work and more detailed analysis would be needed to estimate and value these effects in terms of
- the numbers and types of trees planted, and their locations
 - future air quality in those locations (bearing in mind that the gradual

decarbonisation of transport and home/commercial heating should remove important sources of pollution)

- the numbers of people affected by that air quality.

Air quality: local effects of traffic reduction

4.10.7 Initial estimates are that the LN programme will produce only a tiny (<0.1%) decrease in car trips. This is because:

- Making PT more attractive tends to divert trips from walking rather than from car.
- Making certain destinations more attractive tends to attract more trips there in general, not just by walking and PT – additional measures not so far proposed would be needed to discourage additional arrivals by car.

4.10.8 Whilst the reduction in pollutants emitted may be slight, some other effects will come into play in the LN programme:

- local pedestrianisation may help to separate pedestrians and vehicles and reduce the adverse impacts of pollution (air quality being worse closest to the vehicles emitting the pollutants)
- there could be local increases in traffic/pollution due to traffic being displaced from (for example) going round rather than through a residential neighbourhood.

4.10.9 Decarbonisation of transport (electric cars and electric or hydrogen buses) should in any case make traffic less of a source of air pollution.

Carbon sequestration by trees

4.10.10 Extrapolating from the example design work we have seen suggests that the Liveable Neighbourhoods programme for the four areas might involve planting something around 2,000 trees. Given a figure of 10kg of CO₂e absorbed per tree year, that gives a total of 20 tonnes CO₂e absorbed per year across the four areas. The STAG high value of not emitting one tonne of CO₂ in 2030 is about £100/tonne, so 20 tonnes CO₂e absorbed per year should be valued at about £2,000 per year.

4.10.11 This assumes that

- the trees themselves are “additional”, i.e. they would not otherwise be growing; and
- the CO₂ and other GHG emissions involved in growing and planting them are insignificant compared with the CO₂ they absorb.

4.10.12 Whilst this saving is a step in the right direction, the value itself is too small to be significant in the overall value for money calculation.

Reduction in greenhouse gas emissions

4.10.13 This is expected to be very slight – see points about air quality, above.

Local mitigation of climate change

- 4.10.14 The TCPA assessment of potential argued that 20MNs could lead to an increase in unpaved area and improvements to drainage, which would reduce the risk of surface water flooding”.
- 4.10.15 In the present example plans, the only increase in unpaved area would seem to be the breaks in paved areas for trees to be planted, and possibly some additional decorative planting. The spaces identified as potential mini-parks or community gardens are already open and unpaved. As such the effect on surface water flood risk would appear to be minimal.
- 4.10.16 As design work progresses, further attention might be paid to areas where flood risk is significant with a view to ensuring that the LN programme contributes to mitigation. Equally, care will be needed in tree planting to ensure that the planting and subsequent growth of the trees does not damage existing draining systems.

Opportunities for district heating and net-zero homes

- 4.10.17 The suggestion in earlier discussion was that improved opportunities would result from a mix of uses (particularly employment and residence) and higher densities allowing for efficient operation of district heating or combined heat-and-power (CHP) systems.

Biodiversity

- 4.10.18 The level of tree planting and other changes in vegetation are on a small scale and unlikely to offer significant benefits in terms of biodiversity.
- 4.10.19 Note that we assume all tree planting is done in such a way as not to have negative environmental consequences elsewhere.

Health benefits

- 4.10.20 The following headings pick up from the categories of health and well-being benefits listed in section 4.4.

Direct benefits of improved health from increased physical activity

- 4.10.21 The parallel appraisal of the Active Travel Strategy includes a monetary valuation of the benefits expected to flow from increased walking and cycling in terms of the value of longer lives and the value of increased productivity due to reduced sickness.
- 4.10.22 We need to avoid double counting between the two appraisals as well as within each one. We therefore need to be careful not to count the benefits of increased walking and cycling in both unless there are clear reasons to do so. Since the descriptions we have been given suggest that direct measures to facilitate and encourage walking and cycling are seen as belonging to the ATS, we have not counted them as part of the LN programme.

Value of noise reduction

- 4.10.23 It is not clear that there will be any significant noise reduction from LNs themselves. Again, the switch to electric cars (and possibly electric buses) should reduce the amount of noise generated by motor vehicles. Some design details, e.g. the use of cobbles or setts as a speed limiting device, may increase noise levels.

More accessible healthcare and other social service facilities

- 4.10.24 This is treated as an opportunity benefit – not valued here since it would depend on other decisions (by the health/social providers) and possibly on additional public investment.

Value of a healthier diet

- 4.10.25 We are aware that the provision of space for community gardens is under discussion. These could (if well used) deliver benefits in
- fresh food (in modest quantities);
 - physical and mental health value of gardening work, including both the exercise involved in same tasks (e.g. digging) and the satisfaction (sometimes) of producing an edible crop; and
 - education for children/young adults who otherwise have little or no practical knowledge of food production or of using raw fruit and vegetables.
- 4.10.26 Given the uncertainties about the provision of space for community gardens or similar, we are not pursuing the question of how to measure and value these benefits.

Social benefits

4.10.27 The following headings take up the types of social benefits.

Sense of community

4.10.28 This is difficult to measure, and even if it can be measured there is a question about causality – to what extent:

- Do liveable neighbourhoods create a sense of community?
- Do people who seek a sense of community choose to live in liveable neighbourhoods?
- Do places where many residents share a sense of community tend to develop into liveable neighbourhoods?

4.10.29 Given these difficulties and uncertainties, this is not valued.

Improved perception of pedestrian security

4.10.30 Increased presence of pedestrians and cyclists should help to improve perceived (and actual) security through more “eyes on the street”, but it would need more detailed information on what other factors are affecting pedestrian security and whether the changes proposed will significantly change the situation.

Accident reductions

4.10.31 It is not clear at this stage what the balance will be between:

- Slightly less traffic – assume additional restraint prevents any increase in speeds and hence in the likely severity of accidents; and
- More pedestrians and cyclists – and hence more “vulnerable” road users.

4.10.32 Any active travel elements, and the complementary Active Travel scheme will include additional measures to reduce risks – ideally without adding to time/inconvenience penalties for pedestrians/cyclists.

4.10.33 The increase in “vulnerable” users may be offset by the effect that where pedestrians and cyclists are commonplace, motorists modify their behaviour and drive more cautiously.

4.10.34 This will be considered in greater detail in later stages of the business case as specific proposals are developed for each neighbourhood.

Inclusiveness

- 4.10.35 The proposed measures should be advantageous in encouraging people with limited mobility to get out more and hence potentially to interact more with others. Given the limited spatial extent of the improvements illustrated to date, this effect from Liveable Neighbourhoods will be limited to the areas immediately around the improved neighbourhood centres; the ATS should extend the effects rather further.
- 4.10.36 Safe walking routes to local shops and services should also be potentially advantageous in creating conditions where children can make more independent trips to shops etc, though other factors may also influence this – e.g. sending a child to get a bottle of milk from the corner shop is very different if they have to take a debit card valid for multiple £100 payments rather than a £2 coin.
- 4.10.37 There is also an open question about future levels of car ownership particularly among young adults. The proportion of young adults obtaining driving licences has been falling for some time; suggested reasons include both the increased cost of driving and car ownership (particularly insurance), stronger environmental opinions leading to a preference for other modes of transport, and greater use of internet/telecommunications offering both alternative ways of interacting without travelling, and entertainment/communication whilst travelling on (or waiting for) public transport but not while driving. It has therefore been suggested that younger generations will place a higher value on walkability and access to public transport. If this turns out to be correct, and if the effect persists (once battery-electric cars become common as second-hand cars, and if their low operating cost continues, environmental and cost reasons for not driving will be much diluted) then LNs may have an attraction for young adult households as well as for households of older people and those with children. This may help to retain or restore age-balanced communities within each neighbourhood, which should also be helpful for inclusiveness. Whilst this is a valuable benefit it is impossible to quantify at this stage.

Economic benefits

- 4.10.38 These can be calculated using TELMoS18A to model the effect of the interventions and the associated ULTrA appraisal calculations to appraise them.
- 4.10.39 We have taken the view that to avoid the risk of double-counting between the LNs appraisal and the ATS appraisal, we should assume that the LN interventions mainly affect people's enjoyment of being in the places whose environment is improved by the interventions, whilst the ATS relates to improving the enjoyment, or at least reducing the dissatisfaction or simply the time spent, in getting from place to place. We also assume that the direct positive effects of the LNs will arise mainly while people are outside. The proposals for tree planting, for example, may improve the view from the windows of some tenements, but it may also be a worsening for

others, particular ground floor dwellings which may lose some (scarce) natural lighting.

4.10.40 From the discussion to date around the potential designs, and bearing in mind the focus of the LNs on encouraging the use of local neighbourhood facilities, we have assumed that the main measurable effect on accessibility and hence on the economy will come about through making a proportion of the destinations in the LN areas more attractive to visit for shopping, services, recreation etc. The exact form of this will differ for different users e.g. for a parent with a buggy it may be in fewer or quieter roads to cross or easier crossings; for an older person with mobility difficulties it may be through fewer kerbs to negotiate and more benches in suitable places on which to rest. We have also assumed that the improvements in environment will apply in particular to access to and from public transport, particularly bus services, especially as bus stops tend to be found in or adjacent to local shopping/service centres.

4.10.41 The changes input to the modelling process are therefore:

- A one minute reduction in the generalised cost of travel (by any mode) to the LN destinations for “other home-based travel”, which includes trips to shops, services, recreation etc; and
- A two minute reduction in the generalised cost of using public transport to or from the LN zones.

4.10.42 These changes are input to the run of the model for the “Alternative” or Do-Something Case; all other inputs are kept the same (the Base Case). The differences in output are therefore do solely to these input changes and can be taken as the impacts of the LN interventions.

4.10.43 The model is run separately for the Base Case and the Alternative Case, but it is easier and more appropriate to discuss the working of the model in terms of the way in which differences arise.

4.10.44 The input changes in generalised costs improve residents’ accessibility to local shopping/service destinations, and to all kinds of destinations by public transport. For people who are already going to those destinations, or already using public transport, this is a straightforward reduction in time or inconvenience, or an improvement in the quality of their journey. Other people will change their travel patterns, for example making slightly more trips to (and purchases from) local shops. Those shops will prosper slightly more as a result, which will tend to make the local shopping centres more attractive and to increase employment there.

4.10.45 Over time the improvement in the attractiveness of these centres, and the improvements in access by public transport to other areas, will become apparent to other people, and will tend to attract slightly more households wanting to live there.

This can lead to an increase in demand for housing, some increases in rents, and possibly to changes in the mix of households in the area.

4.10.46 Initial estimate for the resulting benefits from LNs (for four areas), over the 10-year period from 2025 to 2035, is £265M¹¹.

4.11 Estimating the Costs

Costs

4.11.1 At present we have only a high level initial estimate, based on preliminary work on possible LN interventions in a single community. Extrapolating from that estimate gives a range of costs from £20M to £50M as “low” and “high” estimates.

Offsetting factors

4.11.2 A potential aspect of the LN plan is that goods required to implement the plan – for example, new street furniture such as benches and planters – will be purchased from local suppliers who commit to using locally or regionally recycled materials. This seems an entirely laudable objective, providing that it does not inflate the costs of purchases more than the objective would justify. It will require some unusual but not unreasonable procurement criteria to be applied.

4.11.3 The questions to be considered here are

- Is it valid to count either a more-than-usually localised economic impact of this expenditure as a benefit of the scheme (even if the absolute cost is slightly greater than conventional purchasing with no local input or recycling requirements)?
- Is it valid to count a smaller-than-usual environmental impact of building the scheme as a benefit?

4.11.4 If so, then in each case:

- How do we quantify those benefits and where do they enter into the value for money calculation? and
- What additional costs will be incurred?

4.11.5 These questions are raised here because they follow from the consideration of the project costs, but the answers are likely to appear partly in costs, partly in benefits. We also need to bear in mind that we only have order-of-magnitude costs

4.11.6 One possible approach would be to assume for this appraisal that there is nothing special about either the sources of goods used or their costs, and to leave the issue

1. ¹¹ TEST WD 16/12/21, Glasgow LA only

to be dealt with in the procurement process, where it should be informed by some prior analysis (if it doesn't already exist) of how much GCC should be willing to pay for (a) local production and (b) use of recycled materials.

- 4.11.7 These impacts have not been included in the quantification of either the costs or benefits presented in this report but will be considered further in later stages of the business case.

4.12 Value for Money

Introduction

- 4.12.1 This section compares the benefits against the costs to assess value for money.

Liveable Neighbourhoods

- 4.12.2 The following figures relate to the four LNs in Tranche 1 of the present programme. Our initial estimate for benefits of LNs, over a 10-year period, is a net present value (at 2018 prices) of £265M. This initial estimate an approximate assessment of the value of the improvements for (a) people visiting shops and services in the LN zones and (b) people accessing public transport (mainly waiting at bus stops) in the LN zones, thus representing the ways in which we expect people to experience the improvements brought about by the LNs in the course of daily life. Other benefits (e.g. the air quality and other benefits flowing from the presence (or the growth) of additional trees) still have to be added to these benefits.
- 4.12.3 The figures we currently have for the capital cost of the LNs programme¹² are a range from £20 million to £50 million. This is understood to exclude some specific and more major works that are being considered; but these have also been excluded from the analysis of benefits. We do not yet have any indication of the additional maintenance costs that are likely to be incurred.
- 4.12.4 On the available information, therefore, the benefit cost ratio of the LN programme is currently in a range from about 5 to 13, with further benefits still to be added, but maintenance costs also still to be taken into account. The further benefits include:
- A small benefit from carbon sequestration by the trees planted as part of the programme (noting that this is dependent on a number of conditions, notably that these are “additional trees” that would not be sequestering carbon somewhere else if the LN programme was not pursued).
 - Local air quality effects of trees (noting that this may become less valuable as decarbonisation of transport and domestic/commercial space heating are decarbonised).

¹² (CS email: £1million/community * 5 communities per LN * 4 LNs = £20 million)

- Inclusiveness resulting from increased social interaction within the Liveable Neighbourhoods.

4.12.5 It seems unlikely that increased maintenance costs (for trees, street furniture) would seriously reduce the benefit cost ratio.

4.13 Conclusions

4.13.1 We believe it is reasonable to assume that further work extending the Liveable Neighbourhoods programme to the rest of Glasgow will be distributed according to the needs of each area and will overall deliver a comparable, high benefit:cost ratio. This indicates a strong case for continuing for investing in the programme.

4.13.2 The analysis also indicates that the value of the Liveable Neighbourhoods programme will increase slightly as the Glasgow Metro is developed, as the LN improvements will improve the quality of pedestrian (or cyclist) access to the Metro.

5 Conclusions

5.1 Strategic Case

- 5.1.1 A wide range of information has been presented outlining the objectives of developing Liveable Neighbourhoods within Glasgow and the types of measures expected to be put in place to achieve these aims. Glasgow's liveable neighbourhoods are designed to provide:
- Healthy more resilient places that allow people of all ages and abilities to thrive in their local area.
 - Accessible places where people can meet their daily needs and services in a sustained manner.
 - Better connect places helping to reduce the city's dependency on cars by making walking, cycling and public transport the first choice.
 - A sustainable and low carbon city.
- 5.1.2 A range of local and national policy have been identified which closely align with objectives of the Liveable Neighbourhoods programme. These include Glasgow City's Strategic Plan and Development Plan from a local perspective as well as the National Planning Framework and National Transport Strategy from a national perspective alongside many others.
- 5.1.3 A key element of this is the contribution towards the Sustainable and Low Carbon City theme within Glasgow City Councils Strategic Plan (2017-2022). Each Liveable Neighbourhood will directly contribute to reducing the city's carbon footprint through encouraging a shift towards active modes and reducing the level of congestion within the city.
- 5.1.4 The Strategic Case provides a strong narrative for investment in the Liveable Neighbourhoods programme and outlines clearly the benefits that are expected to be realised by the local population alongside wider benefits that would accrue to the whole city.

5.2 Economic Case

- 5.2.1 Development of specific packages of interventions is currently underway for each of the initial four Liveable Neighbourhoods within Tranche 1 of the programme. As a result, the economic assessment of the scheme benefits has been undertaken for an indicative package of interventions to provide an idea of the magnitude of potential benefits.
- 5.2.2 A range of environmental, social and health benefits have been calculated as part of the indicative appraisal providing a comprehensive understanding of the impact

of the scheme in terms of monetised benefits. Indicative costs have also been used to provide a benefit-cost ratio. The benefit cost ratio for the Liveable Neighbourhoods scheme is expected to range between 5 and 13 suggesting a high to very high potential value for money category.

5.3 Commercial Case

- 5.3.1 At the current SBC stage of assessment, detailed information regarding the preferred interventions are not yet available. As such, work in determining potential procurement routes for services rendered has not yet taken place. Glasgow City Council will investigate potential procurement routes in compliance with relevant guidance depending on the specific characteristics of the scheme requirements.
- 5.3.2 Further details on the Commercial Case will be provided in future iterations of the business case.

5.4 Financial Case

- 5.4.1 The preferred option for intervention as part of the first Tranche of the Liveable Neighbourhoods is yet to be decided upon. As a result, work in identifying potential funding routes and overall scheme costs has not yet been undertaken. Funding requests will differ for each of the Tranches of the Liveable Neighbourhoods programme, it is therefore likely that numerous iterations of the financial case will be submitted to reflect the individual requirements within each Tranche.
- 5.4.2 Further details on the Financial Case identifying specific funding requirements will be provided in future iterations of the business case.

5.5 Management Case

- 5.5.1 A Management Case has not been submitted at the current SBC stage of business case development. This is due to the preferred option for interventions not yet being finalised and final plans for delivery of the scheme lacking the necessary refinement for inclusion within the Management Case at this time.
- 5.5.2 Further details on the Management Case will be provided in future iterations of the business case.

Appendix A – Methods Used

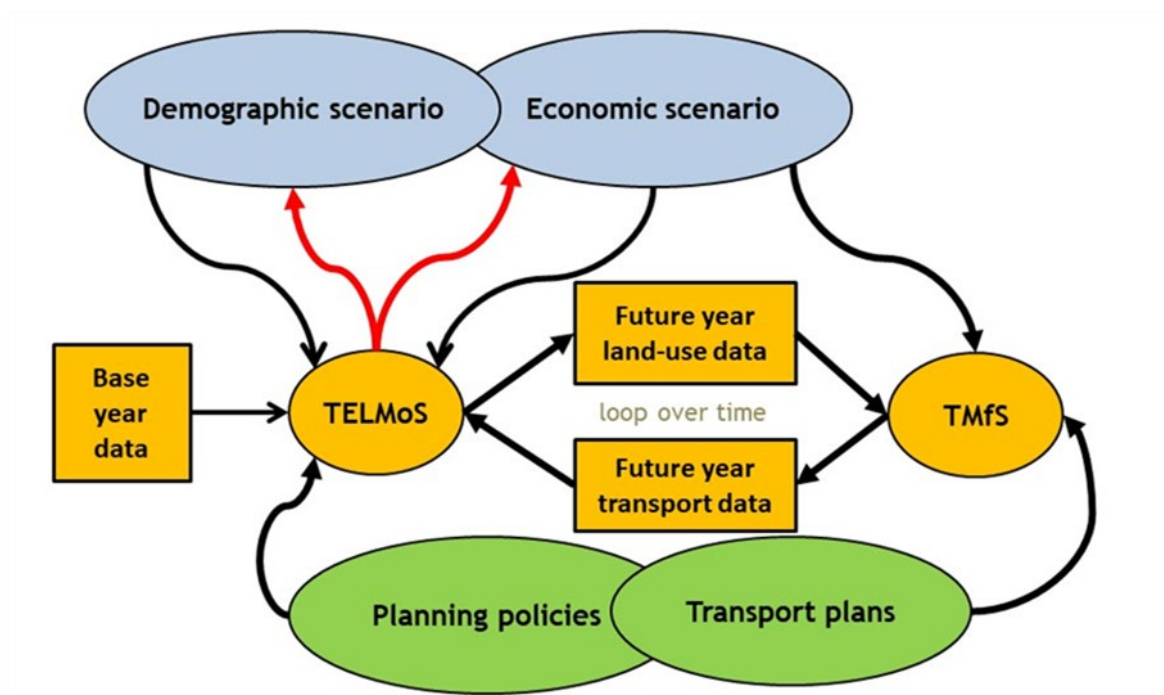
A.1 Introduction

- A.1.1 This Appendix provides a brief description of
- the TELMoS model.
 - the ULTrA appraisal approach.

A.2 TELMoS

- A.2.1 TELMoS is one half of the national land-use/transport interaction model of Scotland. It is an application of the DELTA package, used in interaction with the Transport Model for Scotland as the main modelling framework for Transport Scotland's Land-Use And Transport Integration in Scotland (LATIS) programme. The overall structure of the TELMoS-TMfS system is shown in the figure below.

Land-use/transport interaction in TELMoS-TMfS



Geographical structure- zone system

- A.2.2 The TELMos18 model covers the whole of Scotland, with external zones representing English region. There are 787 in Scotland, and 16 external zones.
- A.2.3 The model also uses higher-level spatial units called macrozones. These are aggregations of sets of zones to functional economic areas (based on Census Travel

to Work areas) which the regional economic model (REM) and migration model forecasts.

Base land-use data

- A.2.4* The base year for TELMoS18 and TMfS is 2018. The starting land-use databases have been developed in a slightly different method because of the length of time since the last Census. A version of TELMoS14 model was adapted to the slightly different TELMoS18 zone system and used to produce a “best yet” forecast of change from 2014-2018. This forecast was constrained to observed data on population, households, and employment as well as using observed information on planning policy to ensure consistent growth in the stock of residential and commercial property.

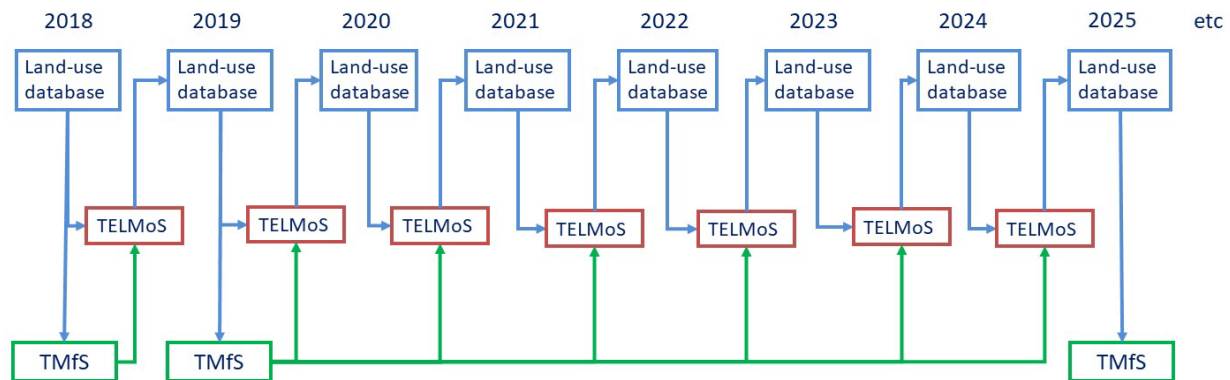
A.3 Transport data

- A.3.1* There is an interface between the Land use (TELMoS18) and Transport (TfMS18) Models that passes data between the two models.
- A.3.2* The transport model requires employment and demographic data as a basis for travel demand. These data, in the form of population and household data by type and socio-economic status, are output from TELMoS18 into formatted files by zones and transferred to the transport model. The output data also includes specific types of employment sectors.
- A.3.3* The land-use/economic model requires data describing how easy or difficult it is to travel or to move goods between any two zones, or within any zone (“intrazonal” movements). Ease or difficulty of movement is measured in terms of generalised costs, which reflect the time taken for the journey (including, for public transport journeys, access to/from stations, waiting time, etc.), its money cost and key elements of “inconvenience” such as congestion on roads or the number of changes between trains.
- A.3.4* The transport data input to TELMoS18 consists of matrices of generalised costs by mode and purpose, for the base year and for each of the transport model forecast years: 2018, 2019, 2025 and every fifth year to 2045. In addition, estimates of generalized cost for active mode travel, based on distances, are used within TELMoS18 but are independent of TMfS.

Time horizon and modelled years

- A.3.5* The TELMoS18 model runs in one-year steps from 2018 to 2050. The extension of the forecast period beyond the last transport model year would allow the model to capture some (albeit limited) land use impact of that final transport forecast and reflects the types of land-use timelags present in responding to transport changes.

Time-marching sequence



Business, household and developer processes: choices and responses

- A.3.6 Business activity is measured mainly in terms of employment. National growth in employment (and the associated growth in production) is controlled to a given scenario. The present modelling work is concerned with how transport and land use interventions will affect the distribution of economic activity within Scotland and does not allow the totals to vary.
- A.3.7 Within each run of the model, the location of employment is determined through processes which represent business choices about
- where within Scotland to invest;
 - where to trade and to produce; and
 - at a more local level, about where to locate premises.
- A.3.8 For the majority of sectors, each choice is influenced by accessibility or transport cost terms, as well as by a range of other variables.
- A.3.9 The number of households and the size of the population are likewise constrained to a given national scenario. The location and mix of households and residents changes over time through
- migration (longer-distance moves, particularly influenced by employment prospects);
 - local moves (particularly influenced by housing availability, but also by accessibility to work and services); and
 - gaining or losing employment.
- A.3.10 Changes in the location of businesses affect households over time, by changing the demand for labour in each location; and changes in the location of households affect businesses over time, by changing the supply of labour and the demand for services.

- A.3.11 Developer choices are represented by models of how much floorspace to build, and where to build it. Developers' decisions are driven by expected profits, which in turn are driven by occupier demand: development therefore tends to follow businesses and households, whilst also being constrained by the inputs representing planning policy (which control the amount of development that can take place in any location at any time).
- A.3.12 The sensitivities of businesses, households and developers to different stimuli are set mainly by adjusting the model so as to reproduce, as far as practical and appropriate, elasticities or other measures of response which have been drawn from previous research.

Planning policy inputs

- A.3.13 The land-use policy inputs are one of the key inputs to the TELMoS model. They inform the modelling of development. They influence the model's forecasts of future floorspace, and hence can strongly influence where people live and work. They determine:
- where development may take place;
 - in which year land for development is likely to come forward; and
 - the maximum amount of development that may take place in any zone.
- A.3.14 The APPI18 data are based upon information provided by the 34 local planning authorities (i.e. the 32 local authorities and two national park authorities) and describe the scale and location of planned development.
- A.3.15 Information is included for all eight of the land uses modelled within TELMoS are provided below.

Land Use Categories modelled in TELMoS18

Floorspace Type	Description
1	Residential
2	Retail
3	Office
4	Industrial
5	Warehouse
6	Leisure / Hotel
7	Education
8	Health

Accessibility calculations

- A.3.16* The data obtained from TMfS18 is combined with TELMoS18's own data on land-uses to calculate a range of accessibility measures for each zone and macrozone. These are recalculated in each year of each forecast, in non-transport model years, the most recent generalised costs are used as well as the land-use forecast for the given year. It is worth reinforcing the concept that accessibility in DELTA is opportunity measured, and changes in planning policy and development can affect accessibility and long with changes in generalised costs.
- A.3.17* Within a single forecast model run, the other sub-models are sensitive to changes in accessibility over time.
- A.3.18* It is the differences between the accessibilities based on Do-Something generalised costs and those based on Do-Minimum generalised costs that give rise to the different forecasts and hence show the impact of any interventions tested.

A.4 ULTrA

- A.4.1* ULTrA stands for "Unified Land-Use/Transport Appraisal" is a method and software package for "accessibility-based land-use/transport appraisal" which DSC have developed over the last decade, partly in projects commissioned by Transport for London.
- A.4.2* "Accessibility-based land-use/transport appraisal" is an approach to economic assessment (cost benefit analysis) which
- brings together the appraisal of land-use and transport changes, and hence (unlike conventional approaches) can be used to appraise integrated land-use/transport plans and proposals, as well as taking account of the impact of land-use interventions on transport and vice versa (which conventional methods cannot do)
 - uses improvements in accessibility (how easily people or businesses can reach destinations, or be reached by others) rather than savings in travel time and cost, as the key measure of transport benefits. Critically, this recognizes benefits if destinations (e.g. work or shopping opportunities) are relocated closer to people who wish to reach them, as well as benefits if transport to existing destinations is improved; conventional transport appraisal can only recognize benefits from transport improvements.
- A.4.3* The ULTrA application linked to TELMoS breaks down benefits by type of benefit (e.g. improved accessibility, increased income) and by beneficiary (households, firms, developers/landowners, government, other), as well as where the benefits are enjoyed. It therefore provides a considerable level of detail about the form and distribution of benefits (or malefits, since redistribution effects – e.g. one area gaining jobs at the expense of another – are common in the appraisal of land-use/transport proposals). Benefits are calculated from the differences between two TELMoS runs for each year of the appraisal period, and discounted to a present value in the usual way. The treatment of costs is conventional, except that if a proposal leads to private

developers developing more housing or commercial floorspace, the costs of the development appear as negative benefits (malefits). (The returns they make on that development – the rents earned – appear as a benefit to them and (if rent levels increase) as a malefit to the occupiers.)

A.4.4 The following table sets out the full set of benefits estimated in the ULTrA application used here. (Only summary totals are used in the text, but the full results can be supplied on request.)

ULTrA output definitions

Sector	Item	Definition
Households	Accessibility	Benefit to households from improved accessibility to opportunities for work and services. NB improved accessibility may arise from any or all of: better transport provision; higher car ownership; more or better-located opportunities
	Household environment	Benefit to households from reduced traffic (dependent on data passed from transport model – not currently available in TELMoS18)
	Housing consumption	Benefit to households from lower housing cost per household and/or improved space per household. NB all households are represented as renters.
	Income	Benefit to households from increased income net of income tax, Council Tax and VAT on household expenditure. Income per household may increase through more household members in work or higher wages per worker. Wages may increase due to higher wages in particular work zones or increased commuting to zones offering higher wages.
	Leisure time and commuting costs	Benefit to households in increased leisure time and reduced commuting costs if the number of workers per household decreases. (So if income increases due to more household members in work, this will be negative i.e. a loss of benefit.)
	Car ownership costs	Benefit to households from reduced expenditure on car ownership. (So if increased incomes lead to increased car ownership, some of the benefits in income and accessibility will be offset by a negative here representing increase expenditure on car ownership.)
	Housing quality	Benefit to households from improved quality of housing areas i.e. from externality effects of higher-quality new development or better maintenance/improvement by other residents
	Total - households	Sum of the household benefit components listed above
Firms	Productivity	Gains to firms' profits from productivity effects e.g. agglomeration effects (increase in GVA minus increase in wages paid), moves to more productive locations

	Accessibility	Benefit from improved accessibility to other businesses
	Rent	Benefit from reduced rents
	Tax paid	Benefit from reduced taxes on profits. This represents the part of the above gains that is taken in corporation tax, so will always be negative (more tax paid) if the sum of the above three items is positive (more profit made).
	Total - firms	Sum of the firms' benefits listed above
Developers	Rent income	Benefit to developers/property owners from increases in (gross) income from rents (housing and commercial floorspace)
	Development and maintenance costs	Benefit to developers/property owners from reduction in development and maintenance costs (housing and commercial) (so an intervention that increases floorspace supply will show a negative here)
	Tax paid	Benefits from reduced taxes on profits. Equivalent to tax paid by firms (see above) except that a proportion of households are assumed to be owner-occupiers and not to pay tax on rent "income"
	Total – developers	Sum of the above benefits to developers/property owners
Public sector	Income tax revenue	Increase in government revenue due to more income tax paid
	VAT revenue	Increase in government revenue due to more value-added tax paid
	Unemployment benefit savings	Reduction in government expenditure due to less unemployment benefit paid
	Council tax revenues	Increase in (local) government from more council tax paid
	Business rates revenues	Increase in (local) government from more business rates paid
	Taxes on profits	Increase in government revenue due to more corporation tax paid
	Fuel tax revenues	Increase in government revenue due to more tax paid on motor vehicles fuels
	PT revenues	
	Total – public sector	Sum of above increases in revenue (or reduction in cost) to public sector
Other	Regeneration	Shadow value of net increases in employment for residents in most deprived local authorities
	Social infrastructure costs	Savings in cost of land for social infrastructure (schools, hospitals) from population locating in areas where land is cheaper
	Environmental	Shadow value of greenhouse gas reduction (and possibly other benefits)
	Total	Sum of the benefits to the "other" sector

PVB	Present Value of Benefits = sum of all benefits listed above
PVC	Present Value of Costs (input exogenously)
NPV	Net Present Value = $PVB - PVC$
BCR	Benefit:Cost Ratio = PVB / PVC

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