Edinburgh City Centre Transformation Project

City of Edinburgh Council

Benefit calculation note

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Contents

1. Introduction

This note sets out outcomes, benefits, and indicators that will be observed as part of the Edinburgh City Centre Transformation Project's (CCT) assessment. It is possible that more benefits/indicators will be observed and the quantitative/qualitative analysis of these may also evolve as the assessment continues.

The progress of the CCT will be monitored against perceived outcomes and the projects that form part of the CCT (and related projects under the CMP and LEZ) will collect output data, such as footfall levels and revenue changes.

1.1 Case for change

Edinburgh is commonly ranked as one of the most liveable cities in the world, putting it ahead of competitors such as London, Singapore and Frankfurt. Its citizens benefit from higher well-being levels on average than people living in other major UK cities. The city contributes significantly to the Scottish economy, particularly through the financial and insurance services sector and the information and communications sector, which together employ about 50,000 people. Edinburgh attracted more digital technology investment in 2016 than any other UK city outside London.

To ensure that Edinburgh remains competitive, retaining its appeal as a great city for investment, talent retention and innovation, the city must match and exceed best practice globally. The quality of the urban environment is a vital factor in this. However, currently the city's outstanding built and natural environment is not matched by the quality of its public realm. Similar to other global cities, Edinburgh faces a number of challenges which need to be addressed to deliver a sustainable future:

- Population growth and demographic change which is currently putting pressure on all aspects of the city's resources, if not managed, will limit the potential of the city.
- Pressure for space for pedestrians and the dominance of cars in parts of the city centre lead to a less than enjoyable experience and presents real safety issues at certain times of the year.
- Rising health concerns resulting from poor air quality and physical inactivity cannot be addressed if private and commercial vehicle usage remains prioritised within the city centre.
- A changing climate requires us to decarbonise, adapt and build resilience into the city's built environment and ensure that future development in Edinburgh is sustainable as well as economically viable and socially just.

1.2 Do-Nothing and Do-Something Scenarios

To measure the benefits of the CCT, we first must define the scenario of what happens if no intervention takes place. As set out in the case for change, Edinburgh is currently a well-performing city that is under pressure from a number of different drivers of change. This has the potential to limit Edinburgh's progress and make things worse over time. Therefore, the Do-Nothing scenario is one with negative trends associated with access to public spaces/greenspace, air pollution, active travel and other indicators. This is compared to a scenario where the CCT is introduced (aka the Do-Something scenario).

2. Benefits

Benefits observed by the CCT will be both quantitative (monetary) and qualitative as it is accepted that quantitative data may be unavailable for all relevant benefits.

2.1 Monetary

Wherever possible, benefits will be assessed and presented in monetary terms. Some of these monetary values are estimated through the use of bespoke modelling and tools like the DfT's Active Mode Toolkit. For the wellbeing benefits, the monetary values represent a change in wellbeing brought about by the CCT.

There will be a monetary output from the analysis that will allow a comparison with the cost estimate. These benefits will be measured over a 25-year period and represent the additional benefits delivered by the CCT over and above the Do-Nothing Scenario as described in the previous section.

The monetary benefits presented in Table 1 were chosen because their effect on wellbeing is the most significant. Other benefits impact upon wellbeing but to a lesser degree; they also introduce issues in terms of potential double-counting effects of and therefore have not been included in the benefit calculation. Similarly, the additional economic benefits presented in Table 2 are considered to be the most significant benefits with available data that avoid double counting of effects.

Table 1: Wellbeing benefits

No	Outcome	Benefit	Targeted outcome	Value of change (per person per annum)
1	Being a regular visitor of local green spaces	Increased use of local green space improves wellbeing of population	City Centre[1] (CC): increase in positive response in Scottish Household Survey (SHS) (from 67% to 70%) Rest of Edinburgh (RoE): increase in positive response in SHS (from 56% to 57%) Source/Reasoning for targeted outcome: Transport modelling showing 33% of public transport trips at peak in Edinburgh are to the city centre. Therefore, 3% change for CC is reduced to 1% change for RoE.	£320 to £560
2	One unit decrease in pollution index	Wellbeing benefits of a decrease in air pollution	CC population: 0.7 unit decrease (from 2.4 to 1.7) to align with the Scottish average.	£67 to £546

[1] City centre population in the analysis was defined as 26,000 and rest of Edinburgh population defined as 486,000 (according to National records of Scotland data and GIS analysis of zones within the World Heritage Site).

			5% of RoE population experiences benefit at reduced rate of 25% to represent reduced time spent in CC compared to CC residents. Source/Reasoning for targeted outcome: Transport modelling showing 7% of car trips at peak in Edinburgh are to the city centre. Therefore, 5% of RoE effect is reasonable.	
3	Low congestion on the journey to work or study	Wellbeing benefits associated with decreased congestion.	CC: Increase in positive response in SHS (from 71% to 72%) RoE: Increase in positive response in SHS (by 62% to 63%) Source/Reasoning for targeted outcome: Professional judgement that congestion will improve throughout the city centre and beyond.	£130 to £470
4	Being satisfied with public transport	Wellbeing benefits associated with improved public transport.	CC: Increase in positive response in SHS (from 87% to 90%) RoE: Increase in positive response (from 89% to 90%) Source/Reasoning for targeted outcome: Transport modelling showing 33% of public transport trips at peak in Edinburgh are to the city centre. Therefore, 3% change for CC is reduced to 1% change for RoE.	£800 to £1,067
5	Belonging strongly to neighbourhood	Wellbeing benefits associated with improved sense of belonging.	CC: Increase in positive response in SHS to reach Scottish Average of 77% (from 66%) RoE: Increase in positive response (from 73% to 77%) Source: change from City centre and Edinburgh-wide to Urban Scottish Average within the SHS results.	£750 to £1,045

Table 2: Additional economic benefits

No	Outcome	Benefits	Benefit calculation methodology
6	Active travel increase	Various benefits associated with mode shift to active travel (reduced absenteeism, journey ambience, health savings etc). This will be associated with the CCT's proposed changes in certain areas.	1. Existing number of cyclists and pedestrians. 2. Percentage uplift in cyclists and pedestrians: 22% increase in cycling according to 2017 survey[2]. 3. Various other context specific assumptions to populate the DfT's active mode toolkit[3].
7	Increased economic activity in city centre areas	Additional retail/hospitality jobs and GVA through public realm improvements – more footfall resulting in more expenditure on the high street.	1. Existing GVA in relevant Edinburgh sectors[4] 2. Footfall counters for Princes Street[5]. 3. Assumed 5% increase in footfall. 4. 10-year persistence of effect[6] 5. Expenditure per visit[7] 6. Additional expenditure calculated as additional GVA, then into jobs.
8	Improved safety for cyclists and pedestrians through reduced interaction with live traffic	Mode shift to walking and cycling brings about health benefits and increased safety/reduced risk of injury/mortality is valued through reduced number of accidents and value of life. Decreased congestion for vehicle traffic through shift to active travel will be captured in the wellbeing benefit of "Low congestion on the journey to work or study". It will also be captured in the qualitative benefit "Generalised time savings".	1. Type and number of accidents pre-improvements. 2. Value of life. 3. Decrease in accidents due to CCT interventions increasing safety. Based on benchmark of similar road safety interventions in Edinburgh[8].

2.2 Qualitative benefits

Quantifiable benefits represent a significant value of change (approximately £420m); however, there are other benefits that are harder to monetise. These are described in Table 3 below as additional, qualitative benefits.

[2] https://www.sustrans.org.uk/media/2948/bike-life-edinburgh-2017.pdf
[3] DfT's Active Mode Toolkit was used instead of the HEAT tool as DfT's tool provided more a greater breakdown of the benefits associated with active travel which in turn aligned with the methodology used to assess wellbeing and wider economic benefits of the CCT.
[4] Retail and Accommodation & Food Services
[5] Essential Edinburgh
[6] https://dspace.lboro.ac.uk/dspace-jspui/bitstream/2134/32649/1/Hart%20et%20al%202014%20ESRC%20Town%20Centre%20Customer%20Experience.pdf
[7] Loughborough University, 2014, *The customer experience of town centres*
[8] https://www.edinburghnews.scotsman.com/news/24-per-cent-drop-in-road-casualties-since-20mph-rolled-out-in-edinburgh-1-4696378

The Strategy will also benefit the outcomes of projects such as the CMP and LEZ as well indirectly benefitting some prospective developments such as the waterfront development.

Table 3: Qualitative benefits

Qualitative Benefits	Description
Ease of movement	Moving around Edinburgh's city centre is currently a stressful experience in terms of traffic, number of people, and wayfinding issues. Walking down Princes Street with large crowds can force some people to walk on the road and bus journey times in the city centre can take twice as long as they should. This can all be improved by the CCT widening pavements, removing street-clutter, improving signage, rationalising bus stops, improving bus reliability, and reducing traffic. These measures will cumulatively make it a more enjoyable experience be in the city centre therefore transforming journeys into a positive experience instead of a means to an end.
Amenity value	The CCT will provide multiple interventions that encourage people to dwell and enjoy the city centre through improved access to public spaces, improved seating, and decreased traffic etc. This will increase the quality of public/greenspaces and therefore increase the amenity value that residents obtain from their city. The monetary benefit associated with an increase in wellbeing due to increased visits to public/greenspaces has been included in the above section but the increased amenity value that residents obtain due to the increased quality of spaces has not been quantified and should be highlighted.
Health	The Quantifiable benefits of the CCT indirectly touch upon health in multiple ways: • Wellbeing benefits – general wellbeing, not health. ○ E.g. Value of the change in air pollution represents wellbeing improvement associated with improved air quality and does not account for health improvements. • Active travel increase – captures productivity increases with people becoming healthier (working longer and less absences) and avoided health care costs. • Improved safety – captures productivity increases through avoided injury/fatality. However, there are other dimensions of health that will be positively impacted by CCT which aren't captured here. For example, a reduction in noise pollution will also have an effect on people's mental health. As noted above, the health benefits associated with decreased air pollution have not been considered (e.g. number of hospital admissions and reduced absenteeism from work).
Accessibility	CCT will make the city centre easier to access for all ranges of ability. Edinburgh's challenging topography will no longer be a barrier to those with mobility impairments through the addition of resting places and lifts. Radial routes and connections to the city centre will be improved therefore encouraging those from different backgrounds across Edinburgh to access the city who previously may have avoided it due to poor public transport or active travel infrastructure.

Flood risk	Implementing future-proof design standards in all the CCT interventions will prepare Edinburgh for a future with more extreme temperatures, rainfall and wind. This will avoid damages and lost productivity in the future.
Noise pollution	Vehicle traffic will be reduced through the restriction of traffic flows, improvements to public transport, and introduction of more active travel infrastructure. This will in turn reduce noise pollution in the city centre and make it a quieter more enjoyable place where residents will linger and enjoy more compared to an oppressively noisy and stressful street.
Safety	The atmosphere of the city centre will change and feel safer with more people walking around, more effective use of lighting, and greater social inclusivity so that people from the young to the old will be able to enjoy the centre.
Culture	The CCT will improve public spaces and people's access to them, leading to increased opportunities for people to enjoy cultural events and increased opportunities to host events without creating further strain or pinch points. An example is Festival square which is currently isolated due to Lothian Road's significant road infrastructure; if this was pedestrianised it could be a vibrant hub with potential for people to enjoy a space that is currently underutilised.
Business and skills	Edinburgh is a sought-after destination for people to live, work and visit. Improving the experience of the city centre and connections to it will only improve Edinburgh's position as a city for the future, preventing loss of reputation due to over-reliance of ageing infrastructure that isn't suited to modern society. This improved offering will encourage investment, attract skilled workers, and increase productivity in the city and surrounding region.

2.3 Monitoring

2.3.1 Monitoring programme

The benefits mentioned previously in sections 2.1 and 2.2 are an ex-ante estimate of the value of change associated with the CCT. In order to track this change over time and ensure that the CCT has delivered these benefits, it is necessary to monitor a number of indicators that will provide insight into the performance of the CCT. The key element of the monitoring programme is the continuing observation of indicators that will evolve over time depending on new data/surveys becoming available. The monitoring programme expects to collect baseline data on indicators and provide an update of CCT progress at years 3, 5, 7 and 10. The following sections describe the proposed approach to monitoring in more detail.

2.3.2 Indicators relating to CCT outcomes

The approach to monitoring is two-fold in terms of the types of indicators to be collected: firstly, perception-based indicators will be gathered using surveys (such as the Scottish Household Survey (SHS), Edinburgh People Survey (EPS) and Annual Population Survey (APS)) and may be supplemented by further survey work. Secondly, real-world indicators on tangible impacts such as travel times, bus patronage, etc will be gathered and tracked over time. It is necessary to distinguish between these two strands of monitoring activity as they measure the same outcomes in different ways; for example, the perception-based outcome of improved "satisfaction with public transport" (observed via results in the Scottish Household Survey) also relate to real-world indicators such as level of mode shift from car to bus.

These indicators will require a variety of data collection methods depending on level of data available: desk-based research/collection from existing sources, analysis and repurposing data collected from other projects, and primary data collection to address gaps.

The table below presents a list of monitoring KPIs associated with the CCT's principles that have been chosen after consideration of national monitoring frameworks, similar projects (CMP and LEZ), and professional judgement of CCT project principles. In addition to the KPIs below, a long list on monitoring indicators is available in the appendix that track the CCT's progress in more detail.

Table 4: Key Project Indicators of CCT

CCT Principle	Monitoring description and KPIs
People first	Measure extent to which people's experience of travelling to/around the city centre has improved. KPI 1: Mode of transport for commute and motivations for choices. KPI 2: Number of accidents in the city centre
Liveable	Measure extent to which city centre residents' experience of the city centre and local centres general environment has changed. KPI 1: Vehicle movements in CC and surrounding areas [traffic counts] KPI 2: Feeling of belonging
Enhanced Open Spaces	Measure extent to which people are visiting open and green spaces more often/enjoying them more, therefore gaining more utility from a city centre visit.

	KPI 1: Frequency of visits to green/open spaces KPI 2: Mode of transport for commute and motivations for choices. KPI 3: Footfall counters at key catalyst areas
Unique Character & Identity	Measure extent to which Edinburgh's built and natural environment is maintained/enhanced and residents continue to enjoy it. KPI 1: Frequency of cultural visits KPI 2: Attitude towards Edinburgh Festivals KPI 3: Alterations to city centre's built-environment (trees planted, benches etc.)
Inclusive & Accessible:	Measure extent to which the city centre changes allow a more diverse range of society to enjoy it. KPI 1: Usage and demographic of lift/shuttle bus KPI 2: Origin/Destination surveys from areas around Edinburgh
Integrated Policies & Projects:	Measure the extent to which CCT is contributing to Edinburgh's overall aims, related projects and city planning/management. KPI 1: Cumulative impact report or cross project evaluation report

2.3.3 Project based indicator collection

Data relating to indicators that measure both perception-based outcomes and real-world outputs such as travel times, footfall and changes in revenue of sectors will be collected by the individual projects under the CCT. Table 5 below outlines some of the data collection that should take place, but this will be further developed in individual projects' plans and the mutual monitoring strategy (see 2.3.4).

Table 5: CCT project level indicator/data collection

Project type	Indicators
Street closures Safe cycle routes Re-allocation of traffic lanes Junction improvements	Area/Length of road or pavement changed to cycle route Footfall/Cycle counts Vehicle traffic counts in surrounding streets Business surveys – Shop closures/Business revenue/Jobs in area/Mix of sectors Noise level recording AQ measurements Journey times for different modes and from/to key areas of the city. Accident data
City hopper bus	Passenger counts in combination with similar Lothian bus passenger counts.
Parking Strategy	Vehicle displacement – monitoring vehicle movements in area and surrounding areas.
Electric vehicle charging points	Uptake of electric vehicles over time regionally, city wide, and city centre. Monitor businesses who offer electric vehicles as part of car clubs. Monitor applications for grants
Installation of lifts	User satisfaction surveys

	User counts and types of users
New pedestrian/cycle bridge	Footfall/Cycle counts Vehicle traffic counts in surrounding streets Noise level recording Accident counts
Public space improvements (Wayfinding improvements, increased maintenance, benches, shade, waste management)	User satisfaction surveys Footfall/Cycle counts Business surveys – Shop closures/Business revenue/Jobs in area/Mix of sectors Noise level recording AQ measurements Accident counts
Lighting improvements	Crime levels Perception of crime survey responses Footfall/Cycle counts Business surveys – Shop closures/Business revenue/Jobs in area/Mix of sectors
Expansion and promotion of bike hire and car club	Utilisation levels Origin destination analysis Surveys of mode shift

2.3.4 Mutual monitoring strategy

Some of the indicators in sections 2.3.2 and 2.3.3 will be relevant to projects under CMP and LEZ. Given the links between CCT and these other projects/plans, a mutual monitoring strategy will be developed as the CCT, CMP and LEZ each progress through the plan/design/implementation phases. This aligned approach to monitoring will ensure that data collection and analysis is as meaningful as possible. This will be linked to the Data Management Strategy to be developed at the start of the CCT delivery programme.

2.3.5 Gaps

During the process of identifying relevant indicators with useful[9] data sources, gaps in data have been identified which need to be filled for CCT to adequately monitor the effects of the project. Some of these gaps will be addressed via project-based indicator collection as discussed above (2.3.3); however they remain as gaps until it is assured that in the mutual monitoring strategy and individual project design documents commit to adequate data collection.

The Edinburgh People Survey (EPS) currently provides trend data for many of the relevant indicators such as the extent of "Feeling of safety as a cyclist" amongst respondents or "Feeling that your local area is a place where people from different backgrounds live well together". We recommend that part of the monitoring strategy identifies how the EPS can be continued and utilised going forward, to ensure continuity of data collection and in turn monitoring of indicators over time.

The following gaps in data collection have been identified but more may be highlighted as a mutual monitoring strategy is developed between CCT, CMP, and LEZ (see 2.3.4):

Table 6: Indicator gaps that could be addressed through data collection

Indicator	Detail
Noise levels	Traffic noise reduction is a key measure of benefits obtained by residents. Should be collected over time to measure change due to CCT.

[9] Relevant and useful means that the data is available at a necessary geographical level and is collected recently/regularly.

Footfall counts	Key measurement of movements around the city at various points in the day/year.
Investment decisions	Business survey responses will be useful to ascertain level of business confidence and if local economy is taking advantage of new opportunities presented by the CCT.
Origin destination surveys	Trips from surrounding areas into the city centre will be useful to track extent to which CCT is increasing accessibility.

3. Appendix

3.1 Monitoring longlist

3.1.1 National performance framework

As a framework for the type of indicators that should be monitored as part of the CCT, we have used the Scottish Government's National Performance Framework (NPF). Introduced in 2007 and refreshed in 2011 and 2016, the NPF[10] provides a clear vision for Scotland with broad measures of national wellbeing covering a range of economic, health, social and environmental indicators and targets. The framework is comprised of eleven national outcomes, underpinned by 81 national indicators.

In Table 7, the NPF National Outcomes and the associated national indicators are assessed as relevant to the CCT's monitoring programme. Given the comprehensive nature of the NPF indicators, not all 81 directly relate to CCT's expected outcomes.

Table 7: NPF indicators and relevance to CCT by NPF outcome

NPF National Outcomes	NPF national indicator	Relevance to CCT	Type of indicator
Children and Young People	Child social and physical development - The percentage of eligible children with no concerns, at their 27-30 month review.	No specific indicators as part of NPF 'Children and People' outcome have been selected for CCT.	
Communities	Perceptions of local area - Percentage of adults who rate their neighbourhood as a very good place to live.	Relevant to monitoring CCT principles: "People first", "Liveable", "Unique Character & Identity"	Perception based indicator
	Perceptions of local crime rate - Percentage of respondents who think crime in their area has stayed the same or reduced in the past 2 years.	Relevant to monitoring CCT principles: "People first", "Liveable"	Perception based indicator
	Access to green and blue space - Proportion of adults who live within a 5-minute walk of their local green or blue space.	Relevant to monitoring CCT principles: "Enhanced open spaces"	Perception based indicator

[10] https://nationalperformance.gov.scot/measuring-progress/national-indicator-performance

Culture	Attendance at cultural events or places of culture - Percentage of adults who have attended or visited a cultural event or place in the last 12 months.	Relevant to monitoring CCT principles: “People first”, “Unique Character & Identity”	Real-world indicator
	Participation in a cultural activity - Percentage of adults who have participated in a cultural activity in the last 12 months.	Relevant to monitoring CCT principles: “People first”, “Unique Character & Identity”	Real-world indicator
	Growth in the cultural economy - The amount of income generated by businesses, measured by Approximate Gross Value Added (GVA), of the Creative Industries Growth Sector (GBP Millions).	Relevant to monitoring CCT principles: “People first”, “Unique Character & Identity”	Real-world indicator
Economy	Income inequality - Income share of the top 10% of the population in Scotland divided by income share of the bottom 40% (Palma ratio) expressed as a percentage.	Relevant to monitoring CCT principles: “People first”.	Real-world indicator
Education	Work place learning - Percentage of employees who received on the job training in the last 3 months.	No indicators as part of NPF ‘Education’ outcome have been selected for CCT.	
Environment	Visits to the outdoors - Proportion of adults making one or more visits to the outdoors per week.	Relevant to monitoring CCT principles: “Inclusive & accessible”, “Enhanced open spaces”	Real-world indicator
Fair Work and Business	The number of businesses - The total number of private sector enterprises (registered for Value Added Tax and/or Pay As You Earn) in Scotland per 10,000 adults.	No specific indicators as part of NPF ‘Fair Work and Business’ outcome have been selected for CCT.	
Health	Physical activity - Percentage of adults meeting physical activity recommendations.	Relevant to monitoring CCT principles: “Inclusive & accessible”, “Enhanced open spaces”, “People first”	Real-world indicator

	Journeys by active travel - Proportion of adults usually travelling to work by public or active transport.	Relevant to monitoring CCT principles: “Inclusive & accessible”, “Enhanced open spaces”, “People first”	Real-world indicator
Human Rights	Quality of public services - Percentage of respondents who are fairly or very satisfied with the quality of local services (local health services, local schools and public transport).	Relevant to monitoring CCT principles: “Inclusive & accessible”, “People first”	Perception based indicator
International	Scotland's reputation - Anholt GfK-Roper Nation Brands Index (NBI): Average scores of the six dimensions of national competence, given as a value (not percentage) out of 100.	No indicators relevant to the NPF ‘International’ outcome have been selected for CCT.	
Poverty	Wealth inequality - Wealth inequality as measured by the Gini coefficient which ranges from 0 (perfect equality) to 100 (maximal inequality).	Relevant to monitoring CCT principles: “Inclusive & accessible”	Real-world indicator

3.1.2 Non-NPF indicators

Where the effects of CCT have no corresponding indicator from NPF, indicators from other sources have been used. For example, noise pollution will be reduced by the CCT and therefore an indicator relating to noise levels or the effects of noise levels should be monitored as part of the CCT; such as noise pollution data from Scotland Environment Wave 2 noise data or responses in the Scottish Household Survey on anti-social behaviours relating to noise.

The following indicators in Table 8 were not provided under the NPF framework, instead they have been selected based on professional judgement of relevance to CCT and research into available data. Some indicators may be relevant to multiple CCT principles but have only been listed under the most relevant principle.

Table 8: Non-NPF indicators that will be monitored as part of CCT

CCT Principle	Indicator	Data source	Type of indicator
People first	Feelings of safety in public	Scottish Household Survey	Perception-based
	ONS key wellbeing metrics: life satisfaction, self-rated general health	Annual Population Survey	Perception-based
	Any chronic mental or physical health conditions	Scottish Household Survey	Real-world
	Warwick–Edinburgh Mental Well-being Scale (emotional well-being)	Scottish Household Survey	Perception-based
	Ranking of Scottish Data Zones by Access to Bus Indicator	Traffic Scotland	Real-world
	Resident proximity to cycling routes	GIS analysis	Real-world
	Cycling/walking as the main mode of travel	Scottish Household Survey, Edinburgh's People Survey	Real-world
	Use of the cycle hire scheme	Scottish Household Survey Edinburgh Cycle Hire open data	Real-world
	Feeling of safety as a cyclist	Edinburgh's People Survey	Perception-based
	Change in the number of park-and-ride users (count)	Scottish Household Survey	Real-world
	Mode of transport to work and school (all choices) and motivations behind these choices	Scottish Household Survey	Real-world
	Public transport (PT) indicators: satisfaction with public transport, including regular use of PT and perception of barriers to accessing PT	Scottish Household Survey	Real-world
	Improved PT accessibility	GIS analysis	Real-world
	Journey time to key services (by foot, PT)	Transport Scotland	Real-world
	Awareness and use of park and ride facilities	Scottish Household Survey	Perception-based
	Change in total emissions of key pollutants	DEFRA annual means and monitoring station data (days above thresholds)	Real-world
	Change in noise pollution	Scotland Environment Wave 2 noise data Scottish Household Survey (anti-social behaviours - noise)	Real-world
	Number of road casualties (by location, type of injury and age of victim) and changes	DfT	Real-world
Liveable	Frequency of visits to library, theatre, musical events	Edinburgh's People Survey	Real-world
	Attendance of the Edinburgh Festivals (among Edinburgh residents)	Edinburgh's People Survey	Real-world

	Attitude towards Edinburgh Festivals (do they make Edinburgh a better place to live)	Edinburgh's People Survey	Perception-based
	Traffic flow (number of vehicles) / Congestion along road sections (min/km)	DfT or Traffic modelling	Real-world
	Percentage of journeys perceived to be delayed due to congestion	Scottish Household Survey, also summarised at council area level by Transport Scotland	Perception-based
	Congestion in journey to work (from the perspective of drivers)	Scottish Household Survey	Perception-based
	Euro standard of vehicle fleet	DVLA	Real-world
Enhanced open spaces	Change in the area of greenspace (hectares)	GIS analysis	Real-world
	Distance to green spaces	GIS analysis	Real-world
	Satisfaction with green spaces	Scottish Household Survey and Edinburgh People's Survey	Perception-based
Unique character & identity	Visitor numbers to historic sites in the city centre (available per site)	Association of leading visitor attractions	Real-world
Inclusive & Accessible	Scottish Index of Multiple Deprivation (individual indexes of income, employment, health, education/skills, housing, access, and crime rank)	Scottish Government	Real-world
	Feeling that your local area is a place where people from different backgrounds live well together	Edinburgh's People Survey	Perception-based