

Walking and Cycling Index 2021

Data sources and methodologies



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Contents

Data sources overview _____	3
Table of data sources _____	6
Appendices _____	56
Appendix A: Independent resident survey - methodology _____	56
Appendix B: Survey questionnaire _____	58

Data sources overview

Where does the data in the 2021 Walking and Cycling Index reports come from?

Formally known as Bike Life, the 18 Walking and Cycling Index reports for 2021 were produced by Sustrans with the support and co-operation of the authorities named on the front cover of each report. The cities, metropolitan areas and boroughs in the UK and Ireland for 2021 are: Aberdeen, Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Glasgow, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Perth, Southampton City Region, Stirling, Tower Hamlets, Tyneside, and West Midlands Metropolitan Area¹. The term 'city' is used as shorthand for all of the types of place.

Data was collated in 2021. Most data applies to 2021. In a minority of cases data is drawn from previous years, where 2021 figures were not available. All reports were published in May 2022.

The data contained in the reports is drawn from a set of common data reviewed and agreed by Sustrans and partner authorities and collected for each of the different cities. There are four categories of data:

Settings data: these are objective measures of the current environment for walking, wheeling and cycling. They include:

- Data supplied by the partner authorities
 - supply-side measures of what is available to help someone walk, wheel or cycle in the city. These include, but are not limited to, cycle route lengths, 20mph limits (or 30km/h limits in Dublin Metropolitan Area), cycle parking and newly introduced measures for 2021 such as percentage of junction arms without a pedestrian phase.

¹ Seven of these cities participated in Bike Life in 2015 and 2017: Belfast, Bristol, Cardiff, Edinburgh, Greater Manchester, Tyneside (formerly as Newcastle only) and West Midlands (formerly as Birmingham only). Three cities participated in 2018: Glasgow, Perth and Stirling. Fourteen cities participated in 2019: Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region, Tower Hamlets, Tyneside and West Midlands.

- Measures of some deterrents such as traffic casualties and cycle theft
- Measures taken from online geographic sources. New for 2021, these analyses include the percentage of households within 800m of everyday amenities, pavement widths alongside roads, pedestrianised streets and neighbourhood housing density. Much of this data is open source. Some is derived from Open Street Map. Open Street Map data has been filtered using the “fclass” attribute which gives a description of the features’ classification type.

Behaviour data: demand-side measures of residents’ travel behaviours, the types of people who are walking, wheeling and cycling, how often, how far and to which types of destination. This data is collected in the independent representative survey in each city. Behaviour data were collected for all survey participants, not just for those who walk, wheel and cycle.

Perception data: attitudes and perceptions of the public towards walking, cycling and transport more generally. This includes types of interventions/facilities/equipment that would encourage respondents to walk, wheel and cycle more; perceptions of existing walking and cycling infrastructure and how to improve them; views on safety and on levels of government spending on different transport modes. Perceptions of the public towards their local neighbourhood was also introduced for 2021. This data is collected in the independent representative survey in each city. Perception data were collected for all survey participants, not just for those who walk, wheel and cycle.

Impact data: health, economic and environmental benefits from walking, wheeling² and cycling, including modelled economic benefits, premature deaths prevented, impacts for the NHS (HSE in Dublin Metropolitan Area) and reductions in pollutants where people walk, wheel, or cycle instead of using cars. This data is calculated by Sustrans’ Research and Monitoring Unit from a combination of the behavioural data and the best available evidence.

The table below shows the data sources and methodologies behind each data point in each city report. It is ordered by page number. We recognise some people, for example wheelchair or mobility scooter users, identify with the term wheeling instead of walking. Therefore, we use the terms walking and wheeling together and consider walking and wheeling to include the use of mobility aids and pushchairs. All walking survey responses within the reports include responses from people who wheel. Throughout the report we have included comparisons to 2019 data where available and comparable³. There is supporting information in the Appendix, including further details on the representative survey delivered in each city

² Survey participants were instructed to consider walking to also include wheeling (the use of wheelchairs and mobility scooters). However, all other source data used as model inputs relate only to walking. This is primarily due to the lack of available data on wheeling.

³ 2019 cycling modelling data was recalculated and updated for the 2021 report, due to development and improvements made for 2021.

and the questionnaire, which can be used to see the exact question wording for data in the reports.

Table of data sources

Table 1: Data sources for each section of the report

Page	Section	Data item	Source and notes
Page 2 Forward Our vision for walking, wheeling and cycling in [city]	Our vision for walking, wheeling and cycling in the city	Various data, depending on each individual city report	Section written by the partner authority. Figures come from data sourced from the Walking and Cycling Index report, or from data sourced separately by the partner authority.
Page 3 The Walking and Cycling Index	The Walking and Cycling Index	Number of residents surveyed	Number of residents who completed the independent survey of residents conducted by NatCen (or for Dublin, by Behaviour & Attitudes).
Page 4 Report Summary	Population	Population	This is the whole population of the city (adults and children), based on the most recent available data for Walking and Cycling Index city boundaries. Belfast: NISRA mid-year 2020 population estimate Dublin Metropolitan Area: 2016 Census All other cities: NOMIS mid-year 2019 population estimate
	The impact of the pandemic	Percentage of residents that travel by walking, driving, public transport and cycling five days or more a week (chart)	The percentage of respondents answering '7 days a week' or '5-6 days a week' to Q2c, combined Q2a/b, Q2f and Q2e in the independent survey of residents. Driving includes travelling as driver or passenger in either a car, van or motorcycle.

Page	Section	Data item	Source and notes	
			2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions (Q2c, combined Q2a/b, Q2e and Q2d). In 2019, question did not include traveling by motorcycle.	
		Percentage of residents who walk at least five days a week	See page 6.	
		Percentage of residents who cycle at least once a week	See page 8.	
	Walking, wheeling and cycling participation is not equal	Proportion of residents who walk at least five days a week	Each city chose which demographics to present in the summary. See page 6 for exact question and available demographics.	
		Proportion of residents who cycle at least once a week	Each city chose which demographics to present in the summary. See page 8 for exact question and available demographics.	
	Not all residents feel safe and welcome in their neighbourhood	Proportion of residents who think walking safety is good	Each city chose which demographics to present in the summary. See page 7 for exact question and available demographics.	
		Proportion of residents who think cycling safety is good	Each city chose which demographics to present in the summary. See page 9 for exact question and available demographics.	
		Proportion of residents who feel welcome and comfortable walking or spending time on the streets of their neighbourhood	Each city chose which demographics to present in the summary. See page 18 for exact question and available demographics.	
	Page 5 Report Summary	Everyone benefits when more people	Number of serious long-term health conditions prevented annually	Combined for walking and cycling. See pages 11 and 13 for walking and cycling conditions separately.

Page	Section	Data item	Source and notes
	walk, wheel and cycle	Economic benefit created for individuals and the city annually	Combined for walking and cycling. See pages 10 and 12 for walking and cycling benefits separately.
		Tonnes of greenhouse gas emissions saved annually	Combined for walking and cycling. See pages 11 and 13 for walking and cycling savings separately.
	Walking, wheeling and cycling help to tackle the climate emergency	Number of cars taken off the road daily	Combined for walking and cycling. This is calculated by dividing the total of non-leisure miles cycled and walked by people that have access to a car by the average annual car mileage for 2019 (from nts0901: https://www.gov.uk/government/statistical-data-sets/nts09-vehicle-mileage-and-occupancy). See more on pages 11 and 13 for return walking and cycle trips that are made daily that could have been driven.
		Number of car journeys up to three miles in length (five km for Dublin Metropolitan Area) that are driven annually	The number of annual short car trips up to 3 miles (5km for Dublin Metropolitan Area) in length is estimated from the responses to Q3 in the independent survey of residents and scaled up for the city adult population (16+) of drivers (those who answered once a week or more frequently to Q2a).
		Tonnes of greenhouse gas emissions that could be saved annually if 80% of annual car journeys up to three miles (five km for Dublin Metropolitan Area) in length were walked or cycled	Total distance is calculated by multiplying 80% of annual car journeys up to 3 miles in length (see above) by an assumed trip distance (midpoint of car journeys length from above) of 1.5 miles (2.5km for Dublin Metropolitan Area). Greenhouse gas emissions saved are calculated by multiplying this distance by the quantity of CO ₂ , CH ₄ and N ₂ O emitted by an average car per distance unit (expressed as CO ₂ equivalent).
	Residents want more funding for walking, wheeling, cycling and public transport	Percentage of residents who would like to see more government spending on: <ul style="list-style-type: none"> walking, cycling, public transport, 	The percentage of respondents giving these answers to Q21a, Q21b, Q21c, Q21d in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q17b, Q17a, Q17c, Q17d).</i>

Page	Section	Data item	Source and notes
		<ul style="list-style-type: none"> driving 	
	This would help support more liveable neighbourhoods	Percentage of residents who support and oppose building more physically protected tracks along roads, even when this would mean less room for other road traffic	The percentage of respondents answering 'strongly support' or 'tend to support' and 'strongly oppose' or 'tend to oppose' to Q18 in the independent survey of residents.
		Percentage of residents who support and oppose the creation of more 20-minute neighbourhoods	The percentage of respondents answering 'strongly support' or 'tend to support' and 'strongly oppose' or 'tend to oppose' to Q20 in the independent survey of residents.
		Percentage of residents who support and oppose the creation of more Low traffic neighbourhoods	The percentage of respondents answering 'strongly support' or 'tend to support' and 'strongly oppose' or 'tend to oppose' to Q19 in the independent survey of residents.
		Percentage of residents who agree and disagree that: <ul style="list-style-type: none"> increasing space for people socialising, walking and cycling on their local high street would improve their local area, more measures to reduce crime and antisocial behaviour on the street or in public spaces would improve their local area closing streets outside local schools to cars during school drop-off and pick-up times would improve their local area 	The percentage of respondents answering 'strongly agree' or 'tend to agree' and 'strongly disagree' or 'tend to disagree' to Q17d, e and a (respectively) in the independent survey of residents.
Page 6 Walking in [city]	Walking and wheeling participation	Percentage of residents who walk	The percentage of respondents answering '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight', 'once a month' or 'less often' to Q2c in the independent survey of residents.

Page	Section	Data item	Source and notes
Walking and wheeling participation, safety and satisfaction			<i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q2c).</i>
		Percentage of residents who walk at least five days a week	The percentage of respondents answering '7 days a week' or '5-6 days a week' to Q2c in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) from corresponding 2019 survey question (Q2c).</i>
		Proportion of residents who walk or wheel at least five days a week within different demographic subgroups: gender, ethnicity, sexuality, age, disability and socio-economic group	The percentage of respondents of these gender, ethnicity, sexuality, age, disability and socio-economic demographic subgroups (Q25, Q28, Q26, Q23, Q34 and Q27) answering '7 days a week' or '5-6 days a week', to Q2c in the independent survey of residents. Dublin only: data on sexuality subgroups is excluded from the Dublin report due to a small sample size. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions (Q23, Q26, Q22, Q30 and Q25). Excludes sexuality as this question was not included in 2019 questionnaire.</i>
Page 7 Walking in [city]	Walking and wheeling safety and satisfaction	Percentage of residents that think the level of safety for walking is good	The percentage of respondents answering 'very good' or 'fairly good' to Q14c in the independent survey of residents.
		Percentage of residents that think the level of safety for children walking is good	The percentage of respondents answering 'very good' or 'fairly good' to Q14d in the independent survey of residents.
		Proportion of residents that think walking or wheeling safety in their local area is good within different	The percentage of respondents of these gender, ethnicity, sexuality, age, disability and socio-economic demographic subgroups (Q25, Q28, Q26, Q23,

Page	Section	Data item	Source and notes
		demographic subgroups: gender, ethnicity, sexuality, age, disability and socio-economic group	Q34 and Q27) answering very good or fairly good to Q14c in the independent survey of residents. Dublin only: data on sexuality subgroups is excluded from the Dublin report due to a small sample size.
		Percentage of residents that think their local area overall is a good place to walk	The percentage of respondents answering 'very good' or 'fairly good' to Q14a in the independent survey of residents.
		Story from a city resident	Case studies from local city residents were sourced from local contacts.
Page 8 Cycling in [city] Cycling participation, safety and satisfaction	Cycling participation	Percentage of residents who cycle at least once a week (regularly; in text and standalone data point)	The percentage of respondents answering, '7 days a week', '5-6 days a week', '2-4 days a week' or 'once a week' to Q2e in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q2d).</i>
		Percentage of all residents who cycle	The percentage of respondents answering, '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight', 'once a month' or 'less often' to Q2e in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) from corresponding 2019 survey question (Q2d).</i>
		Proportion of residents who cycle at least once a week within different demographic subgroups: gender, ethnicity, sexuality, age, disability and socio-economic group	The percentage of respondents of these gender, ethnicity, sexuality, age, disability and socio-economic demographic subgroups (Q25, Q28, Q26, Q23, Q34, Q27) answering '7 days a week', '5-6 days a week', '2-4 days a week' or 'once a week' to Q2e in the independent survey of residents.

Page	Section	Data item	Source and notes
			<p>Dublin only: data on sexuality subgroups is excluded from the Dublin report due to a small sample size.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions. Excludes sexuality as this question was not included in 2019 questionnaire.</p>
Page 9 Cycling in [city]	Cycling safety and satisfaction	Percentage of residents that think the level of safety for cycling in their local area is good	<p>The percentage of respondents answering 'very good' or 'fairly good' to Q14e in the independent survey of residents.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q12b).</p>
		Percentage of residents that think the level of safety for children cycling is good	<p>The percentage of respondents answering 'very good' or 'fairly good' to Q14f in the independent survey of residents.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q12c).</p>
		Percentage of residents that think their local area overall is a good place to cycle	<p>The percentage of respondents answering 'very good' or 'fairly good' to Q14b in the independent survey of residents.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q12a).</p>
		Proportion of residents that think cycling safety in their local area is good within different demographic subgroups: gender, ethnicity, sexuality,	<p>The percentage of respondents of these gender, ethnicity, sexuality, age, disability and socio-economic demographic subgroups (Q25, Q28, Q26, Q23, Q34, Q27) answering 'very good' or 'fairly good' to Q14e in the independent survey of residents.</p>

Page	Section	Data item	Source and notes
		age, disability and socio-economic group	Dublin only: data on sexuality subgroups is excluded from the Dublin report due to a small sample size. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions. Excludes sexuality as this question was not included in 2019 questionnaire.</i>
		Story from a city resident	Case studies from local city residents were sourced from local contacts.
Page 10 Benefits of walking Why everyone gains when more people walk or wheel	Number of times city residents walk or wheel around the world/ length of Great Britain* every day	The number of times per day city residents walk or wheel the equivalent times around the world	Miles (km for Dublin Metropolitan Area) walked or wheeled per day (below) divided by the equatorial circumference of the Earth (24,901 miles / 40,075 km).
		*Inverness, Perth, and Stirling only: The number of times per day city residents walk or wheel the equivalent length of Great Britain	Miles walked or wheeled per day (below) divided by the length of Great Britain using the Land's End to John O'Groats cycle route (1,189 miles). (https://www.sustrans.org.uk/national-cycle-network/lands-end-to-john-ogroats-lejog/)
		Number of walking and wheeling trips in the city in the past year	This is the sum of the total estimated number of trips walked or wheeled for all purposes. See below for how the number of trips by purpose is calculated.
		Miles (or km) walked and wheeled in the city in the past year and per day	Respondents to the independent survey of residents were asked to estimate the distance of their most frequent one-way walk (or wheel) to a destination (Q4b) and their most frequent walk (or wheel) or run just for enjoyment or fitness (Q5b). The median trip distance for each of those trip purposes was multiplied by the total number of trips walked or wheeled for that purpose, and the distances travelled across trip purposes were summed. See below for how the number of trips is calculated. Mileage (or km) per year was divided by 365 to get miles per day (km per day for Dublin Metropolitan Area). For school trips by children, an average walking trip distance is obtained from National Travel Survey (2015-2019).

Page	Section	Data item	Source and notes
			For Edinburgh, the average walking trip distance from the 2014-2019 Scottish Household Survey data was used for all trip types.
		Number of days spent walking or wheeling (based on each resident walking continuously, 24 hours a day) for all yearly miles walked and wheeled in the city	The total estimated miles (or kms in Dublin Metropolitan Area) walked or wheeled yearly (see above) divided by the average walking speed in miles (or kms) per hour (5.3 kmph, HEAT ⁴) then multiplied by the number of hours in a day (24) and divided by the population of the city.
		Annual walking and wheeling trips by purpose: Destination – adults only ⁵ (eg work, school, shopping)	<p>The number of trips is estimated from the responses to Q4a in the independent survey of residents and scaled up for the adult (16+) population of walkers.</p> <p>The percentage of respondents that did 15+ trips in the last 7 days is multiplied by the number of days that could be walked in a year (see below), the number of walkers in the population, and by the trips per day for the range 15+. The same value is calculated for all other ranges. These are then summed to provide total annual purposeful walking trips before being seasonally-adjusted (see below).</p> <p>The trips per day for each range is calculated by dividing the lower end of the range by 7 (the number of days in a week). For example, the trips per day figure for 9-10 trips is 1.29 (9/7).</p> <p>The number of walkers was calculated by multiplying the city adult (16+) population by the percentage of respondents answering '7 days a week', '5-6 days a week', '2-4 days a week' or 'once a week' to Q2c in the independent survey of residents.</p> <p>The total possible number of days that could be walked for this purpose is based on the total number of days in a year (365) minus the number of days lost through sickness absence per worker per year for that nation/region (a general number of days lost through sickness per person was not available).</p> <p>The calculations include a correction for seasonal variation using Sustrans' database of average seasonal variation in walking from a series of automatic counters over several years. We are able to correct with confidence for the</p>

⁴ The Health Economic Assessment Tool (HEAT) for walking and cycling by WHO: www.heatwalkingcycling.org.

⁵ Destination trips for Greater Manchester also includes trips by children, due to using TRADS data as an input for modelling.

Page	Section	Data item	Source and notes
			<p>relatively high levels of walking likely to be exhibited during the survey period of June to August. Local counter data was used for Dublin Metropolitan Area.</p> <p>A trip-chaining factor was not applied as there is lower risk of double-counting of trips, since there are only two trip purposes for walking, and they generally do not overlap.</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This includes the estimated number of walking trips done for the purposes of 'Commuting', 'Shopping', 'Personal business', 'Visiting friends', 'Sport and entertainment', 'Escort education' and 'Escort other', for both adults and children and for 'Education' by adults (child education trips are reported separately).</p>
		Annual walking and wheeling trips by purpose: School - children only	<p>The number of trips is estimated by using the number of school days, school roll and proportion of children that walked to school.</p> <p>School days are based on the number of school days in a year for that country, minus the school absence rate for that region (sources below).</p> <p>The number of school days is then multiplied by the proportion of children that walked to school, multiplied by 2 (outward and return trips), and the school roll for each city (sources below).</p> <p>Seasonal adjustment: (as above: Annual trips by purpose: Destination – adults only (eg work, school, shopping)) was applied only for Aberdeen City, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Glasgow, Greater Cambridge, Inverness, Liverpool City Region, Perth, Southampton, and Stirling, where the single month of data collection was known for the proportion of children that walked to school. It was assumed that pupils who 'usually' or 'normally' walk do so on every school day for an outward and a return journey.</p> <p>A trip-chaining factor was not applied as there is no risk of double-counting of child school trips in the method.</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of</p>

Page	Section	Data item	Source and notes
			<p>October 2020 to September 2021. This is comprised of the estimated number of walking trips done for the purpose of 'Education' by children under 16.</p> <p>Sources used:</p> <p>School days in a year:</p> <ul style="list-style-type: none"> • For England: https://www.gov.uk/government/publications/school-attendance • For Northern Ireland: https://www.education-ni.gov.uk/sites/default/files/publications/education/Final%20version%20Circular%20-%20exceptional%20closure%20-%202020.pdf • For Scotland: https://education.gov.scot/parentzone/my-school/general-school-information/term-dates/#:-:text=In%20Scotland%2C%20each%20local%20authority,or%20third%20week%20of%20August. • For Wales: https://gov.wales/sites/default/files/publications/2018-03/22-the-school-year-and-session-times.pdf • For the Dublin Metropolitan Area: https://www.citizensinformation.ie/en/education/primary_and_post_primary_education/attendance_and_discipline_in_schools/school_terms_in_primary_and_postprimary.html <p>School absence rates:</p> <ul style="list-style-type: none"> • For England, school absence rates for 2018-19 are taken from https://www.gov.uk/government/statistics/announcements/pupil-absence-in-schools-in-england-2019-to-2020 • For Northern Ireland, school absence rates for 2017-18 are taken from https://www.education-ni.gov.uk/articles/pupil-attendance • For Scotland, school absence rates for 2018-19 are taken from https://www.gov.scot/publications/school-attendance-and-absence-statistics/ • For Wales, school absence rates for 2018-19 are taken as the average of primary and secondary %s from https://gov.wales/absenteeism-schools-pupil-characteristics

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> For the Dublin Metropolitan Area, the weighted average of Primary and Post-Primary absences for 2017-2018 are taken from Table 1.3 of https://www.tusla.ie/uploads/content/Analysis_of_School_Attendance_Data_in_Primary_and_Post-Primary_Schools_2017-2018.pdf <p>School roll:</p> <p>For Scottish cities:</p> <ul style="list-style-type: none"> Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling: July 2020 pupil roll: https://maps.gov.scot/ATOM/shapefiles/SG_SchoolRoll_2020.zip Belfast: 2020/21 pupil roll: https://www.education-ni.gov.uk/publications/school-enrolment-school-level-date-202021 Bristol, Greater Cambridge, Liverpool City Region, Southampton City Region, Tower Hamlets, Tyneside, West Midlands Metropolitan Area: 'All establishment data' 2020/21 pupil roll: https://get-information-schools.service.gov.uk/Downloads Cardiff: October 2020 pupil roll: https://www.cardiff.gov.uk/ENG/resident/Schools-and-learning/Schools/Cardiff-schools/Pages/default.aspx Dublin Metropolitan Area: 2020/21 pupil roll: Dept of Education School lists <p>Walking to school mode share:</p> <ul style="list-style-type: none"> Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling: Sustrans' Hands Up Survey Scotland, 2020 Belfast: Continuous Household Survey 2019-20 Bristol: Modeshift STARS⁶ data from 2019-20, 2020-21, 2021-22 Cardiff: Sustrans' Hands Up Survey, November/ December 2020 Dublin Metropolitan Area: 2016 Census

⁶ Modeshift STARS is an online platform that creates, develops and supports travel plans. It is delivered by Modeshift, a not-for-profit membership organisation that supports sustainable travel.

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> • Greater Cambridge: Modeshift STARS data June/ July 2021 • Liverpool City Region: Living Streets' Wow Travel Tracker⁷ 2020-21. Living Streets is the UK charity for everyday walking. • Southampton City Region: Hands Up Survey 2020 • Tower Hamlets: Hands Up Survey data, 2020-21, undertaken by MP Smarter Travel • Tyneside: <ul style="list-style-type: none"> ○ Gateshead: Modeshift STARS data from 2020-21 ○ North Tyneside: Modeshift STARS data from 2020-21 ○ No data was provided from Newcastle, it is anticipated that the data from Gateshead and North Tyneside is representative of the whole Tyneside area • West Midlands Metropolitan Area: 2011 Census
		Annual walking and wheeling trips by purpose: Enjoyment or fitness – adults and children (including running)	<p>This is the sum of the total estimated number of trips walked or wheeled for enjoyment or fitness by adults and children.</p> <p>Adult trips for enjoyment or fitness:</p> <ul style="list-style-type: none"> • The number of trips by adults is estimated from the responses to Q5a in the independent survey of residents and scaled up for the adult (16+) population of walkers (once a week or more). • The total possible number of days that could be walked for this purpose is based on the total number of days in a year (365) minus the number of days lost through sickness absence per worker per year for that nation/region (a general number of days lost through sickness per person was not available). <p>Child trips for enjoyment or fitness:</p> <ul style="list-style-type: none"> • We calculated the ratio of child leisure trips (15 and under) per child per year to adult leisure trips (aged 16+) by those in households with

⁷ Living Streets is the UK charity for everyday walking. Their Wow Travel Tracker allows schools to record pupil mode choice daily.

Page	Section	Data item	Source and notes
			<p>children per adult per year, by using data from the National Travel Survey 2015-2019.</p> <ul style="list-style-type: none"> We also calculated the number of adult enjoyment or fitness trips (aged 16+) by those in households with children per adult per year, by using a combination of Q5a and Q30 of the independent survey of residents scaled up for the adult (16+) population. This number of trips was then multiplied by the ratio to give the number of enjoyment or fitness trips per child per year. This is multiplied by the child population (15 and under) to give total annual child trips for enjoyment or fitness. <p>Both calculations include a correction for seasonal variation using Sustrans' database of average seasonal variation in walking from a series of automatic counters over several years. We can correct with confidence for the relatively high levels of walking likely to be exhibited during the survey period of June to August. Local counter data was used for Dublin Metropolitan Area.</p> <p>A trip-chaining factor was not applied as there is lower risk of double-counting of trips, since there are only two trip purposes for walking, and they generally do not overlap.</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of walking trips done for the purpose of 'Holidays and round trips' by all ages.</p>
	Walking and wheeling benefit residents and the local economy in the region	Net annual economic benefit for individuals and society from all walking and wheeling trips	<p>This is comprised of three parts:</p> <ul style="list-style-type: none"> the annual monetary benefit to individuals and society from people with a car choosing to walk or wheel for transport (see below), plus the value of similarly purposeful trips but walked or wheeled by people without access to a car, plus the value of leisure walking or wheeling trips made by everyone

Page	Section	Data item	Source and notes
			Note that where this figure amounts to less than the figure for the value of early deaths prevented (see page 11) this is mainly because the figure for early deaths prevented does not take into account the costs of walking.
		Net annual economic benefit for individuals and society from people with a car choosing to walk or wheel for transport	<p>This is calculated by multiplying the per mile (or km for Dublin Metropolitan Area) monetary benefit figure (see below) by the estimated total distance walked that could have been driven across the year.</p> <p>The distance walked or wheeled that could have been driven is calculated by multiplying the annual miles/kilometres walked to a destination by adults (see above) by the proportion of walkers that own or have access to at least one car or van (Q1 of the independent survey of residents).</p> <p>The number of walkers was calculated by multiplying the city adult (16+) population by the percentage of respondents answering '7 days a week', '5-6 days a week', '2-4 days a week' or 'once a week' to Q2c in the independent survey of residents.</p>
		Monetary net benefit to individuals and society for each mile (or km) walked or wheeled instead of driven	<p>This is the difference between the total cost per mile (or km for Dublin Metropolitan Area) of driving a car and the total cost per mile (or km) of walking.</p> <p>The costs of both include costs and benefits to the individual and to society as a whole. The calculation includes figures for the operating costs of walking (ie shoe wear) and car, travel time of both, traffic congestion, the value of additional life years, medical costs and work absenteeism (the main factors), and also infrastructure maintenance (e.g. path and road maintenance), local air quality, noise, greenhouse gases, soil and water quality, environmental costs of fuel production, and taxation (lesser factors).</p> <p>The figure for each factor is based on best available evidence in the UK and the Republic of Ireland, including data taken from the Government's standard Transport Analysis Guidance (TAG) and accounts for local traffic speeds for 2020 (or 2019 in Belfast, Greater Manchester and Dublin Combined Authority and 2018 for Tower Hamlets). For some cases evidence from across Europe has been used.</p> <p>All costs and benefits are expressed in 2021 prices and values.</p>

Page	Section	Data item	Source and notes
Page 11 Benefits of walking	Walking and wheeling unlock health benefits for everyone	Number of serious long-term health conditions averted per year by walking (total, and by disease type in the chart)	<p>This is calculated using the Sport England MOVES tool, which shows the return on investment for health from sport and physical activity.</p> <p>Physical activity protects against many illnesses. MOVES estimates the number of cases of eight specific conditions that are likely to be prevented:</p> <ul style="list-style-type: none"> • Type 2 Diabetes • Ischaemic Heart Disease • Cardiovascular Disease (Stroke) • Dementia • Depression • Breast Cancer • Colon Cancer • Hip Fracture <p>As the MOVES tool is based on UK statistics of disease incidence, mortality rates and treatment costs, the tool was adapted to be used for Dublin Metropolitan Area by including the equivalent Irish data where possible. The only addition made was for life expectancy data (2015-17 Irish Life Tables from: https://www.cso.ie/en/statistics/birthsdeathsandmarriages/irishlifetables/)</p> <p>Note that wheelchair and mobility scooter trips are modelled as walking trips for the purposes of the MOVES model.</p>
		Cost saving to the NHS in the city (HSE in Dublin Metropolitan Area)	This is also calculated using the MOVES tool and is the annual saving in health care costs arising from the number of conditions averted.
		Number of GP appointments this cost equates to	<p>The total healthcare cost savings are divided by the average cost of a GP appointment. UK: £30 (https://www.england.nhs.uk/2019/01/missed-gp-appointments-costing-nhs-millions/)</p> <p>Dublin Metropolitan Area: €55 (https://www.independent.ie/business/personal-finance/revealed-how-much-we-spend-visiting-the-doctor-each-year-36699145.html)</p>

Page	Section	Data item	Source and notes
		Number of early deaths prevented annually	<p>This is calculated using the widely recognised World Health Organisation (WHO) Health Economic Assessment Tool (HEAT). This estimates the number of premature deaths prevented by specified amounts of walking.</p> <p>Note that wheelchair and mobility scooter trips are modelled as walking trips for the purposes of the HEAT model.</p>
		Value of the early deaths prevented	<p>This is also calculated using the WHO HEAT tool, which subsequently estimates the value of the reduced mortality. This is based on contingent valuation studies that test the amounts people would be prepared to pay to increase their chances of survival.</p> <p>The HEAT tool was not modified for an Irish context as it is based on Europe-wide context and is therefore applicable to the UK and the Republic of Ireland.</p> <p>Note that the value for HEAT is sometimes greater than the value shown at the bottom of page 10 for the overall net benefit of walking. This is because the HEAT figure is a gross value including this benefit only. The net value takes into account the wider range of benefits and costs associated with walking.</p>
		Kg of NO _x and particulates (PM ₁₀ and PM _{2.5}) saved annually	<p>These are calculated from the distance (see page 10) and number (see below) of return walking trips that could have been driven annually. It is based on the emissions that an average car would produce. The calculation considers the average per trip emissions from a cold start, emissions per km at optimum catalytic convertor temperature, and emissions per km arising from brake wear and road abrasion, all taken from NAEI (http://naei.beis.gov.uk/data/ef-transport). Diesel/ petrol fleet split is factored into the calculations (NAEI in the UK, EPA in Dublin Metropolitan Area).</p>
		Percentage of residents agreeing the air is clean in their local area	<p>The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16f in the independent survey of residents.</p>
	Walking and wheeling in the city help	Tonnes of greenhouse gas emissions saved annually	<p>Greenhouse gas emissions saved are calculated by multiplying the distance of walking trips that could have been driven (see page 10 for number of return walking trips) by the quantity of CO₂, CH₄ and N₂O that would have been emitted by an average car per distance unit (expressed as CO₂ equivalent), as taken from the UK government greenhouse gas reporting conversion factors</p>

Page	Section	Data item	Source and notes
	mitigate our climate crisis		(https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020).
		Equivalent number of flights to a worldwide destination	This is calculated by dividing the total greenhouse gas emissions (above) by the average emissions from a single flight from the nearest airport to a destination city (based on the online flight emissions calculator: https://www.carbonfootprint.com/calculator.aspx).
		Perth only: equivalent to the carbon footprint of individuals	This is calculated by dividing the total greenhouse gas emissions (above) by the carbon footprint in CO ₂ equivalent of an average UK citizen (CO ₂ emissions per capita). Carbon footprint includes emissions from all activities and of all greenhouse gases. For Perth the CO ₂ emissions per capita figures are for the whole of the Perth & Kinross, not the city as we have defined it for the Walking and Cycling Index. (https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019)
		Contextual data on transport emissions over time	<ul style="list-style-type: none"> English cities: Department for Business, Energy and Industrial Strategy (2019) UK greenhouse gas emissions, Final Figures [Online] Available at: https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-to-2019 Scottish cities: Scottish Government (2021) Scottish greenhouse gas emissions 2019 [Online] Available at: https://www.gov.scot/publications/scottish-greenhouse-gas-statistics-1990-2019/ <p>The decrease of 52% in overall emissions is calculated by using the Greenhouse Gas Account, which has replaced the previous method of calculation in Scotland (which was used previously in Bike Life).</p> <p>The 11.3% decrease in emissions by transport refers to domestic transport only. In previous Bike Life reports the equivalent figure was based on all transport including all aviation and shipping.</p>

Page	Section	Data item	Source and notes
			<p>Similarly, domestic transport alone accounts for 25% of all Scottish emissions.</p> <p>These changes in calculation methods reflect changes made by the Scottish Government since publication of the last Bike Life report.</p> <ul style="list-style-type: none"> • Cardiff: StatsWales, Emissions of Greenhouse Gases by Year [Online] Available at: https://statswales.gov.wales/Catalogue/Environment-and-Countryside/Greenhouse-Gas/emissionsofgreenhousegases-by-year • Belfast: Department of Agriculture, Environment and Rural Affairs (2021) Northern Ireland greenhouse gas inventory 1990-2019 [Online] Available at: https://www.daera-ni.gov.uk/publications/northern-ireland-greenhouse-gas-inventory-1990-2019-statistical-bulletin • Dublin Metropolitan Area: Environmental Protection Agency data. <p>20% of emissions are from transport: see second pie chart on page 5 of EPA-GHG-Inventory-Report-Final.pdf</p> <p>10% increase in overall emissions between 1990 and 2019: See EPA-Prov_GHG-Inventory-Report-1990-2019_final.pdf. See table of data on page 22 Calculation: $(59,897.27 \text{ ktonnes in 2019} - 54,388.13 \text{ ktonnes in 1990}) / 54,388.13 = 10\% \text{ increase}$</p> <p>137% increase in transport emissions: see Key messages Environmental Protection Agency (epa.ie). See chart 'Greenhouse Gas Emissions by Sector'. Calculation: $(12220.19 \text{ kt in 2019} - 5148.44 \text{ kt in 1990}) / 5148.44 = 137\% \text{ increase}$</p>
	Walking and wheeling keep the city moving	Number of return walking trips that are made daily by people that could have used a car	<p>The number of trips walked to a destination (see page 10) is multiplied by the proportion of walkers that own or have access to at least one car or van (Q1 responses from the independent survey of residents), divided by 365 to get a value per day and by 2 to get return trips.</p> <p>The number of walkers was calculated by multiplying the city adult (16+) population by the percentage of respondents answering '7 days a week', '5-6 days a week', '2-4 days a week' or 'once a week' to Q2c in the independent survey of residents.</p>

Page	Section	Data item	Source and notes
		Length of the traffic jam that would result from these cars	The number of trips that could have been made by car (above) multiplied by the average length of a parking space (4.8m) to represent one car in a traffic jam for every trip. The place for the end of the traffic jam was identified by using the Google Maps journey planner.
Page 12 Benefits of cycling Why everyone gains when more people cycle	Number of times city residents cycle around the world/ length of Great Britain* every day	The number of times per day city residents cycle the equivalent times around the world	Miles (km for Dublin Metropolitan Area) cycled per day (below) divided by the equatorial circumference of the Earth (24,901 miles / 40,075 km).
		*Inverness, Perth, and Stirling only: The number of times per day city residents cycle the equivalent length of Great Britain	Miles cycled per day (below) divided by the length of Great Britain using the Lands End to John O’Groats cycle route (1,189 miles). (https://www.sustrans.org.uk/national-cycle-network/lands-end-to-john-ogroats-lejog/)
		Number of cycle trips in the city in the past year	This is the sum of the total estimated number of trips cycled for all purposes. See below for how the number of trips by purpose is calculated. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from equivalent 2019 data.</i>
		Miles (or km) cycled in the city in the past year, and per day	Respondents to the independent survey of residents were asked to give an estimate of the typical one-way distance of each trip purpose (work, education or shopping/other purposeful/social trips, (Q6b, Q8b and Q9b)) and the total round trip distance for leisure trips (Q10b). The median trip distance for each trip purpose was multiplied by the total number of trips cycled for that purpose, and the distances travelled across trip purposes were summed. See below for how the number of trips for each purpose is calculated. Distance per year was divided by 365 to get miles (km for Dublin Metropolitan Area) per day. For Edinburgh, the average cycling trip distance from the 2014-2019 Scottish Household Survey data was used for all trip types. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019</i>

Page	Section	Data item	Source and notes
			<i>survey questions (Q3b, Q5b, Q6b and Q7b) and 2014-2017 Scottish Household Survey data (for Edinburgh).</i>
		Annual trips by purpose: Work (adults)	<p>The number of trips is estimated from the responses to Q6a in the independent survey of residents and scaled up for the adult (16+) population of cycle riders.</p> <p>The percentage of respondents who travel 7 days a week for this purpose is multiplied by the number of days cycled per year for work, the number of cycle riders in the population, and by two (for outward and return journeys). The same value is calculated for all other frequencies. These are then summed to provide total annual cycle trips before being trip-chain adjusted and seasonally-adjusted (see below).</p> <p>The number of days cycled per year for work is calculated by multiplying the number of workdays per year (see below) by the proportion of days in a week that are cycled for each range. For seven days a week and 5-6 days a week this is one. For other ranges, the lower end of the range is divided by the span of the range. For example, at least once a week is 0.2 (1/10), with 10 being the number of workdays in a fortnight.</p> <p>The number of cycle riders was calculated by multiplying the city adult (16+) population by the percentage of respondents answering '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight' or 'once a month' to Q2e in the independent survey of residents.</p> <p>Workdays are based on the number of working days per year in 2021 (http://www.work-day.co.uk/) for each nation minus 28 days of annual leave (20 in Dublin Metropolitan Area), minus the average number of days lost through sickness absence per worker per year for that nation/region⁸. For a seven-day work week compensation rest days and national public holidays are also accounted for.</p> <p>The calculations include a correction for seasonal variation: using Sustrans' database of average seasonal variation in cycling from a large number of automatic counters over many years, we are able to correct with confidence for</p>

⁸ ONS (2020), Sickness absence in the UK labour market, Table 9b [Online] Available at: <https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/datasets/sicknessabsenceinthelabourmarket>

Page	Section	Data item	Source and notes
			<p>the relatively high levels of cycling likely to be exhibited during the survey period of April to July. Local counter data was used for Dublin Metropolitan Area.</p> <p>The seasonality-adjusted figure is divided by a trip-chaining factor from Primerano, F et al. (2008) Defining and understanding trip chaining behaviour, <i>Transportation</i> 35, 55–72 [Online], to account for double-counting of trips within different trip purposes.</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of cycling trips done for the purpose of ‘Commuting’ by those aged 17 or older.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q3a), using days per year from 2019 and sickness absence days from 2018. Greater Manchester used TRADS data for the calendar year 2018.</i></p>
		Annual trips by purpose: School, college or university (adults)	<p>The number of trips to school, college or university (including accompanying a child to school) is estimated from the responses to Q8a in the independent survey of residents and scaled up for the adult (16+) population of cycle riders (once a month or more).</p> <p>The calculation for this is the same as for trips to work (see above), but using the number of school days in a year in place of the number of workdays.</p> <p>School days are based on the number of days for that country’s school year, minus the school absence rate for the city’s region multiplied by the number of days in the school year (sources as walking, see page 15).</p> <p>The calculations include a correction for seasonal variation and trip chaining (as above: adult work trips).</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of</p>

Page	Section	Data item	Source and notes
			<p>cycling trips done for the purposes of 'Education' and 'Escort education' by those aged 17 or older.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q5a) and latest available absence rates. Greater Manchester used TRADS data for the calendar year 2018.</i></p>
		Annual trips by purpose: School (children)	<p>Annual trips to school by children cycling is calculated in the same way as annual trips to school by children walking but using the proportion of children in the city who cycle to school (see walking data sources and methodology on page 10).</p> <p>Seasonal adjustment (as above: adult work trips) was applied only for Aberdeen City, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Glasgow, Greater Cambridge, Inverness, Liverpool City Region, Perth, Southampton, and Stirling, where the single month of data collection was known for the proportion of children that cycle to school. It was assumed that pupils who 'usually' or 'normally' cycle do so on every school day for an outward and a return journey.</p> <p>A trip-chaining factor was not applied as there is no risk of double-counting of child school trips in the method.</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of cycling trips done for the purpose of 'Education' by children 16 and under.</p> <p>2019 mode share data from the below sources, with seasonal adjustment applied to Dublin Metropolitan Area, Dundee, Edinburgh and Inverness.</p> <ul style="list-style-type: none"> • Belfast: Continuous Household Survey 2017-18 • Bristol: Modeshift Stars and Living Streets Wow Travel Tracker data from 2018-19 • Cardiff: Sustrans' Hands Up Survey, 2018

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> Dundee, Edinburgh and Inverness: Sustrans' Hands Up Survey Scotland, 2018 Dublin Metropolitan Area: 2016 Census Greater Cambridge: Modeshift Stars data 2018-19 Greater Manchester: TRADS, 3 year rolling average 2016-2018 Liverpool City Region: Living Streets' Wow Travel Tracker 2018-19 Southampton City Region: Modeshift Stars data 2017/18 Tower Hamlets: Sustrans' Hands Up Survey data, 2014-15, 2017-18, 2018-19 and 2019-20 Tyneside: <ul style="list-style-type: none"> Gateshead: Local Authority Census 2018/19 Newcastle: Hands Up Survey 2015/16 North Tyneside: 'how did you travel to school today' classroom survey question 2018 West Midlands Metropolitan Area: 2011 Census
		Annual trips by purpose: Shopping, personal business and social trips (adult ⁹)	<p>The number of shopping, personal business and social trips is estimated from the responses to Q9a in the independent survey of residents and scaled up for the adult population (16+) of cycle riders (once a month or more).</p> <p>The percentage of respondents who travel 7 days a week for this purpose is multiplied by the number of days cycled per year for this purpose, the number of cycle riders in the population, and by two (for outward and return journeys). The same value is calculated for all other frequencies. These are then summed to provide total annual cycle trips before being trip-chain adjusted and seasonally-adjusted (see below).</p> <p>The number of days cycled per year for this purpose is calculated by multiplying the number of days per year that could be cycled for this purpose (see below) by</p>

⁹ Shopping, personal business and social trips for Greater Manchester also includes trips by children, due to using TRADS data as an input for modelling.

Page	Section	Data item	Source and notes
			<p>the proportion of days in a week that are cycled for each range. For seven days a week this is one. For other ranges, the lower end of the range is divided by the span of the range. For example, at least once a week is 0.14 (1/14), with 14 being the number of workdays in a fortnight. The total possible number of days that could be cycled for this purpose is based on the total number of days in a year (365) minus the number of days lost through sickness absence per worker per year for that nation/region (a general number of days lost through sickness per person was not available).</p> <p>The calculations include a correction for seasonal variation and trip chaining (as above: adult work trips).</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of cycling trips done for the purposes of 'Escort other', 'Personal business', 'Shopping', 'Sport and entertainment' and 'Visiting friends' by all ages.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q6a) and latest available absence rates. Greater Manchester used TRADS data for the calendar year 2018.</i></p>
		Annual trips by purpose: Leisure (adults and children)	<p>This is the sum of the total estimated number of leisure trips cycled by adults and children.</p> <p>For adult leisure trips:</p> <ul style="list-style-type: none"> • The number of trips by adults is estimated from the responses to Q10a in the independent survey of residents and scaled up for the adult population (16+) of cycle riders (once a month or more). This is calculated in the same way as adult trips for the purpose of shopping, personal business and social trips. • The total possible number of days that could be cycled for this purpose is based on the total number of days in a year (365) minus the number of days lost through sickness absence per worker per year for that nation/region (a general number of days lost through sickness per person was not available).

Page	Section	Data item	Source and notes
			<p>For child leisure trips (improved since 2019, to also include child leisure trips not accompanied by adults):</p> <ul style="list-style-type: none"> We calculated the ratio of child leisure trips (15 and under) per child per year to adult leisure trips (16+) by those in households with children per adult per year by using data from National Travel Survey 2015-2019. We also calculated the number of adult enjoyment or fitness trips (16+) by cycle riders (once a month or more) in households with children per adult per year, by using a combination of Q10a and Q30 of the independent survey of residents scaled up for the adult population. This number of trips is then multiplied by the ratio to give the number of enjoyment or fitness trips per child per year. This is multiplied by the child population (15 and under) to give total annual child trips for leisure. <p>Both calculations include a correction for seasonal variation and trip chaining (as above: adult work trips).</p> <p>For Greater Manchester, trip estimates are modelled from responses to the Transport for Greater Manchester Travel Diary Survey (TRADS) for the period of October 2020 to September 2021. This is comprised of the estimated number of cycling trips done for the purpose of 'Holidays and round trips' by all ages.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q7a and Q30). Greater Manchester used TRADS data for the calendar year 2018.</i></p>
		Net annual economic benefit for individuals and society from all cycling trips	<p>This is comprised of three parts:</p> <ul style="list-style-type: none"> the annual monetary benefit to individuals and society from people with a car choosing to cycle for transport (above), plus the value of similarly purposeful trips but cycled by people without access to a car, plus the value of leisure cycle trips made by everyone

Page	Section	Data item	Source and notes
			<p>Note that where this figure amounts to less than the figure for the value of early deaths prevented (page 13) this is mainly because the figure for early deaths prevented does not consider the costs of cycling.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</p>
	Cycling benefits residents and the local economy in the city	Net annual economic benefit for individuals and society from people with a car choosing to cycle for transport	<p>This is calculated by multiplying the per mile (or km for Dublin Metropolitan Area) monetary benefit figure (below) by the estimated total distance cycled that could have been driven across the year.</p> <p>The distance cycled that could have been driven is calculated by multiplying the annual kilometres cycled for the purposes of work, school, college or university (adult) or shopping, personal business and social trips (see above) by the proportion of cycle riders that own or have access to at least one car or van (from Q1 of the independent survey of residents).</p> <p>The number of cycle riders was calculated by multiplying the city adult (16+) population with the percentage of respondents answering, '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight' or 'once a month' to Q2e in the independent survey of residents.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values and survey questions (Q1 and Q2d).</p>
		Monetary net benefit to individuals and society for each mile (or km) cycled instead of driven	<p>This is the difference between the total cost per mile (or km for Dublin Metropolitan Area) of driving a car and the total cost per mile (or km) of riding a cycle.</p> <p>The costs of both include costs and benefits to the individual and to society as a whole. The calculation includes figures for the operating costs of a cycle and car, travel time of both, traffic congestion, the value of additional life years, medical costs and work absenteeism (the main factors), and also infrastructure (e.g. path and road maintenance), local air quality, noise, greenhouse gases, soil and</p>

Page	Section	Data item	Source and notes
			<p>water quality, environmental costs of fuel production, and taxation (lesser factors).</p> <p>The figure for each factor is based on best available evidence in the UK and the Republic of Ireland, including data taken from the Government's standard Transport Analysis Guidance (TAG) and accounts for local traffic speeds for 2020 supplied by partner authorities or taken from the DfT average for England (2019 in Belfast, Greater Manchester and Dublin Metropolitan Area and 2018 for Tower Hamlets). For some cases evidence from across Europe has been used.</p> <p>This methodology is based upon that used for the Copenhagen Bicycle Account, which has been established for 20 years and was one of the main inspirations for the Walking and Cycling Index (formerly Bike Life).</p> <p>All costs and benefits are expressed in 2021 prices and values.</p> <p><i>For 2019 (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside), the same sources are used but are expressed in 2019 values and prices. For traffic speed default (DfT, 2019) or supplied by partner authorities, figures from 2018 or earlier are used.</i></p>
		<p>Number of serious long-term health conditions averted per year by cycling (total, and by disease type in the chart)</p>	<p>This is calculated using the Sport England MOVES tool which shows the return on investment for health from sport and physical activity.</p> <p>Physical activity protects against many illnesses. MOVES estimates the number of cases of eight specific conditions that are likely to be prevented:</p> <ul style="list-style-type: none"> • Type 2 Diabetes • Ischaemic Heart Disease • Cardiovascular Disease (Stroke) • Dementia • Depression • Breast Cancer • Colon Cancer

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> Hip Fracture <p>As the MOVES tool is based on UK statistics of disease incidence, mortality rates and treatment costs, the tool was adapted to be used for Dublin Metropolitan Area by including the equivalent Irish data where possible. The only addition made was for life expectancy data, from Irish Life Tables (https://www.cso.ie/en/statistics/birthsdeathsandmarriages/irishlifetables/)</p> <p>2019 data for total cases avoided (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</p>
Page 13 Benefits of cycling	Cycling unlocks health benefits for everyone	Cost saving to the NHS in the city (HSE in Dublin Metropolitan Area)	<p>This is also calculated using the MOVES tool and is the annual saving in health care costs arising from the number of conditions averted.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</p>
		Number of GP appointments this cost equates to	<p>The total healthcare cost savings are divided by the average cost of a GP appointment.</p> <ul style="list-style-type: none"> UK: £30 (https://www.england.nhs.uk/2019/01/missed-gp-appointments-costing-nhs-millions/) Dublin Metropolitan Area: €55 (https://www.independent.ie/business/personal-finance/revealed-how-much-we-spend-visiting-the-doctor-each-year-36699145.html) <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</p>

Page	Section	Data item	Source and notes
		Number of early deaths prevented annually	<p>This is calculated using the widely recognised World Health Organisation (WHO) Health Economic Assessment Tool (HEAT). This estimates the number of premature deaths prevented by specified amounts of cycling.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</i></p>
		Value of the early deaths prevented	<p>This is also calculated using the WHO HEAT tool, which subsequently estimates the value of the reduced mortality. This is based on contingent valuation studies that test the amounts people would be prepared to pay to increase their chances of survival.</p> <p>The HEAT tool was not modified for an Irish context as it is based on Europe-wide context and is therefore applicable to the UK and the Republic of Ireland.</p> <p>Note that the value for HEAT is sometimes greater than the value shown at the bottom of page 12 for the overall net benefit of cycling. This is because the HEAT figure is a gross value including this benefit only. The net value takes into account the wider range of benefits and costs associated with cycling.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</i></p>
		Kg of NO _x and particulates (PM ₁₀ and PM _{2.5}) saved annually	<p>These are calculated from the distance (see page 12) and number (see below) of return cycle trips that could have been driven annually. It is based on the emissions that an average car would produce. The calculation considers the average per trip emissions from a cold start, emissions per km at optimum catalytic convertor temperature, and emissions per km arising from brake wear and road abrasion, all taken from NAEI (http://naei.beis.gov.uk/data/ef-transport). Diesel/petrol fleet split is factored into the calculations (NAEI in the UK, EPA in Dublin Metropolitan Area).</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City</i></p>

Page	Section	Data item	Source and notes
			<i>Region, Southampton City Region and Tyneside) from corresponding 2019 values.</i>
		Percentage of residents agreeing the air is clean in their local area	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16f in the independent survey of residents.
		Tonnes of greenhouse gas emissions saved annually	Greenhouse gas emissions saved are calculated by multiplying the distance of cycle trips that could have been driven (see page 12) by the quantity of CO ₂ , CH ₄ and N ₂ O that would have been emitted by an average car per distance unit (expressed as CO ₂ equivalent), as taken from the UK government greenhouse gas reporting conversion factors (https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2020). <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region, Tyneside and West Midlands) from corresponding 2019 values.</i>
	Cycling in the city helps mitigate our climate crisis	Equivalent number of flights to a worldwide destination	This equivalent is calculated by dividing the total greenhouse gas emissions (above) by the average emissions from a single flight from the nearest airport to a destination city (based on the online flight emissions calculator: https://www.carbonfootprint.com/calculator.aspx). <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region, Tyneside and West Midlands) from corresponding 2019 values.</i>
		Perth only: equivalent to the carbon footprint of individuals	This is calculated by dividing the total greenhouse gas emissions (above) by the carbon footprint in CO ₂ equivalent of an average UK citizen (CO ₂ emissions per capita). Carbon footprint includes emissions from all activities and of all greenhouse gases. For Perth the CO ₂ emissions per capita figures are for the whole of the Perth & Kinross, not the city as we have defined it for the Walking and Cycling Index.

Page	Section	Data item	Source and notes
			https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2019
		Contextual data on transport emissions over time	Repeated figures from page 11: Contextual data on transport emissions over time
	Cycling keeps the city moving	Number of return cycle trips that are made daily by people that could have used a car	<p>The number of trips cycled that could have been driven is calculated by multiplying the annual trips cycled for the purposes of work, school, college or university (adult) or shopping, personal business and social trips (see page 12) by the proportion of cycle riders that own or have access to at least one car or van (from Q1 of the independent survey of residents).</p> <p>The number of cycle riders was calculated by multiplying the city adult (16+) population with the percentage of respondents answering, '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight' or 'once a month' to Q2e in the independent survey of residents.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values and survey questions (Q1 and Q2d).</i></p>
		Length of the traffic jam that would result from these cars	<p>The number of trips that could have been made by car (above) multiplied by the average length of a parking space (4.8m) to represent one car in a traffic jam for every trip. The place for the end of the traffic jam was identified by using the Google Maps journey planner.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 values.</i></p>
Page 14 Walking solution	Residents want more services and amenities	Percentage of households located in neighbourhoods of walkable density (40 dwellings per hectare)	Number of households/ dwellings per hectare of city boundary was calculated. This gave household density per hectare. The proportion of hectares with 40 or more households against total hectareage was calculated.

Page	Section	Data item	Source and notes
What would help make walking and wheeling better?	within walking and wheeling distance		<p>Household data sources and licence numbers:</p> <p>UK household data (except Belfast) was supplied by Digital Mapping Solutions from Dotted Eyes as MarkerUp postcode unit point dataset with number of households per postcode. © Crown Copyright 2021. All rights reserved. Licence numbers 100019918, 100046668 (Scottish cities), 100023406 (Bristol), 100031673 (Cardiff), 100023205 (Cambridge), 0100022610 (Manchester), 100019918 (Liverpool), 100019679 (Southampton), 100019288 (Tower Hamlets), 100019569 (Tyneside), 100019543 (West Midlands). Also Contains National Statistics data © Crown copyright and database right 2021.</p> <p>Belfast households from Royal Mail Postcode Address File (PAF) database and the AddressList mail generation program by Arc en Ciel Ltd.</p> <p>Dublin Metropolitan Area household data supplied by © copyright Ordnance Survey Ireland - 2021/OSi_NMA_180.</p>
		<p>Percentage of residents who would find more local amenities and services useful to help them walk or wheel more:</p> <ul style="list-style-type: none"> • More shops and everyday services, such as banks and post offices, close to your home • More government services, such as doctors surgeries and schools, close to your home • More parks or green spaces close to your home • More things to see and do close to your home, eg cafes or entertainment venues 	<p>The percentage of respondents answering 'very useful' or 'fairly useful' to Q11a, Q11b, Q11i, Q11k in the independent survey of residents.</p>

Page	Section	Data item	Source and notes
		Percentage of residents who agree they can get to many places they need to visit without having to drive	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16c in the independent survey of residents.
		<p>Percentage of households located within an 800m walk or wheel of the following amenities and services:</p> <ul style="list-style-type: none"> • Food shop • Park or space for recreation • Primary school • Doctors surgery • Library • Post office • Train station or Metro/ Tram stop • Bus stop (within 400m) • A mix of cultural and leisure venues 	<p>800m (or 400m for bus stops) walking isochrones (a map layer depicting the area accessible from a point within a certain time threshold) calculated for each facility within the city boundary. Households within these isochrones were then identified and percentage calculated.</p> <p>400m and 800m isochrones were generated using © openrouteservice.org by HeiGIT in QGIS.</p> <p>For household data sources and licences, see above under Percentage of households located in neighbourhoods of walkable density (40 dwellings per hectare).</p> <p>Amenities and services:</p> <p>Food shop: Open Street Map (OSM) 'Points of Interest' point shapefile layer with fclass = convenience, newsagent, supermarket and kiosk. © OpenStreetMap contributors.</p> <p>Data not reported for Dundee and Liverpool City Region, because in those cases significant under-reporting of shops in OSM was suspected by both the authority and by Sustrans.</p> <p>Park or space for recreation:</p> <ul style="list-style-type: none"> • UK cities: Ordnance Survey Open Greenspace access points • Belfast and Dublin Metropolitan Area: Open Street Map 'Natural' point shapefile layer with fclass = allotments, cemetery, park, recreation_ground. © OpenStreetMap contributors. <p>No minimum area was defined, therefore very small public greenspaces were included.</p> <p>Primary school:</p> <ul style="list-style-type: none"> • UK cities: Schools data is sourced from data.gov.uk under Open Government Licence v.3.0 using Sustrans schools dataset (UK schools)

Page	Section	Data item	Source and notes
			<p>(public view) derived from https://get-information-schools.service.gov.uk/Downloads)</p> <ul style="list-style-type: none"> Dublin Metropolitan Area: schools' data is sourced from data.gov.ie under Creative Commons Attribution 4 International (CC BY 4.0) (https://data.gov.ie/dataset/primary-schools) <p>Doctors surgery:</p> <ul style="list-style-type: none"> England and Wales: Healthcare data sourced from NHS Digital under Open Government Licence (OGL). NHS GP Practices "epracur" dataset (https://digital.nhs.uk/services/organisation-data-service/file-downloads/gp-and-gp-practice-related-data) Scottish cities: Healthcare data sourced from © copyright Public Health Scotland under Open Government. List of general practices (GP surgeries) in Scotland with practice addresses dataset (https://www.isdscotland.org/Health-topics/General-practice/Workforce-and-practice-populations/) Belfast: Healthcare data sourced from Business Services Organisation under Open Government Licence (OGL). Northern Ireland Practice List (MS Excel) (https://hscbusiness.hscni.net/services/1816.htm) Dublin Metropolitan Area: Open Street Map 'Points of Interest' point shapefile layer with fclass = doctors. © OpenStreetMap contributors. <p>Libraries:</p> <ul style="list-style-type: none"> Open Street Map 'Points of Interest' point shapefile layer with fclass = library. © OpenStreetMap contributors. <p>Data not reported for Cardiff, Dublin Metropolitan Area, Dundee, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region, Stirling and Tyneside, where significant under-reporting of libraries is suspected on Open Street Map (<75%).</p> <p>Post office:</p>

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> UK cities: Post Office Ltd. Contains public sector information licensed under the Open Government Licence v3.0. UK Post Office Branch List 2020 (https://osm.mathmos.net/postoffice/data/) Dublin Metropolitan Area: Open Street Map 'Points of Interest' point shapefile layer with fclass = post office. © OpenStreetMap contributors. <p>Bus stop:</p> <ul style="list-style-type: none"> UK cities and Dublin Metropolitan Area: Bus Stop data is sourced from National Public Transport Access Nodes (NaPTAN) under Open Government Licence v.3.0. National dataset (https://data.gov.uk/dataset/ff93ffc1-6656-47d8-9155-85ea0b8f2251/national-public-transport-access-nodes-naptan) (https://data.gov.ie/dataset/2017-national-public-transport-access-nodes-naptan/resource/db6d3f5b-bc1f-48fd-9afa-2f2db339d24e). Belfast: OpenDataNI Translink Bus Stop List under Open Government Licence v.3.0 (https://www.opendatani.gov.uk/dataset/translink-bus-stop-list/resource/846c8d1c-a0bc-48ab-aed5-cc53f5c7953e?inner_span=True) <p>Railway station and metro/ tram stops (where relevant):</p> <ul style="list-style-type: none"> UK cities (except Belfast): train station data is sourced from National Public Transport Access Nodes (NaPTAN) under Open Government Licence v.3.0. National dataset (https://data.gov.uk/dataset/ff93ffc1-6656-47d8-9155-85ea0b8f2251/national-public-transport-access-nodes-naptan) Belfast and Dublin Metropolitan Area: Open Street Map 'Transport' point shapefile layer with fclass = railway halt, railway station. © OpenStreetMap contributors. <p>Cultural and leisure venues:</p> <p>Open Street Map 'Points of Interest' point shapefile layer with fclass = arts centre, bar, café, cinema, department store, fast food, food court, ice rink, mall, museum, nightclub, pub, restaurant, sports centre, stadium, swimming pool, theatre, theme park, zoo. © OpenStreetMap contributors.</p>

Page	Section	Data item	Source and notes
Page 15 Walking solutions	Residents want better streets	<p>Percentage of residents who would find the following changes helpful to walk or wheel more:</p> <ul style="list-style-type: none"> • Wider pavements • More frequent road crossings, with reduced wait times • Nicer places along streets to stop and rest, eg more benches, trees and shelters • Better accessibility, eg level surfaces, dropped kerbs at crossing points, fewer obstructions • Fewer cars parked on the pavement • Less fear of crime or antisocial behaviour in your area 	<p>The percentage of respondents answering 'very useful' or 'fairly useful' to Q11h, Q11i, Q11j, Q11g, Q11f, Q11c in the independent survey of residents.</p>
		<p>Percentage of:</p> <ul style="list-style-type: none"> • A and B roads (National and Regional for Dublin Metropolitan Area) with pavement widths greater than 3m • C and unclassified roads (minor for Dublin Metropolitan Area) with pavement widths greater than 2m 	<p>Pavement widths are calculated from frontage to kerb. These have been calculated without any obstructions, but we acknowledge 'obstructions' will occur in varying degrees of permanence and legitimacy, from street furniture like bus shelters, benches, trees, litter bins and lamp posts, to other obstacles like parked cars, roadworks, wheelie bins or fallen leaves.</p> <p>Pavement data from OS MasterMap ('path' and 'roadside'). Calculated where these are 2m+ or 3m+ in width. Identify road network for city. Calculate where road network is alongside 2m+ or 3m+ pavements. Calculate the total length of these roads. Calculate percentage of roads alongside 2m+ or 3m+ wide pavements in comparison to total road network length.</p> <ul style="list-style-type: none"> • UK cities' road network: Ordnance Survey Open Roads data © Crown copyright and database right 2021. A and B Roads (A Road and B Road classifications) and C and Unclassified Roads (Unclassified, Classified Unnumbered and Unknown classifications).

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> Dublin Metropolitan Area: Open Street Map 'Roads' line shapefile layer with fclass = primary, primary_link, secondary, secondary_link (to represent A and B roads) or residential, tertiary, tertiary_link, unclassified (to represent C and unclassified roads). © OpenStreetMap contributors. English cities and Cardiff: Pavement widths are calculated using OS Mastermap Topographic data © crown copyright and database rights 2021. Licence number 100019918, 100046668 (Scottish cities), 100023406 (Bristol), 100031673 (Cardiff), 100023205 (Cambridge), 0100022610 (Manchester), 100019918 (Liverpool), 100019679 (Southampton), 100019288 (Tower Hamlets), 100019569 (Tyneside), 100019543 (West Midlands) Scottish cities: Pavement widths calculated using OS Mastermap Topographic data © crown copyright and database rights 2021 OS 100046668. This product contains data created and maintained by Scottish Local Government Dublin Metropolitan Area: Pavement widths calculated using OS Mastermap Topographic data © Copyright Ordnance Survey Ireland - 2021/OSi_NMA_180 <p>Belfast: Pavement widths were not calculated, as data sources were not available</p>
		Percentage of all roads making up junctions that do not have a red or green man for pedestrians	<p>For all roads that make up junctions within the city boundary, where flow of vehicles is controlled by traffic signals. Each junction arm in the city is counted as either having a pedestrian phase or not.</p> <p>Excludes motorway junctions and 'mid-block' signals which only exist to manage the interaction between vehicles and footway traffic.</p> <p>Data supplied by partner authorities.</p> <ul style="list-style-type: none"> The following cities supplied data: Aberdeen, Belfast, Dublin Metropolitan Area, Dundee, Edinburgh, Glasgow, Greater Cambridge, Inverness, Liverpool City Region, Perth, Southampton City Region, Stirling and Tower Hamlets.

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> The following cities did not supply data: Bristol, Cardiff, Greater Manchester, Tyneside and West Midlands. <p>Edinburgh City Council prefer to count arms with a 2-stage crossing as 2 rather than 1. When comparing with other cities, it should be noted that this may make a small difference to the percentage of junction arms without a pedestrian phase.</p>
		Percentage of residents who agree that more measures to reduce crime and antisocial behaviour on the street or in public spaces would improve their local area	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q17e in the independent survey of residents.
		Story from a city resident	Case studies from local city residents were sourced from local contacts.
Page 16 Cycling solutions What would make cycling better?	Many city residents want to cycle	Percentage of residents who see themselves as someone who: <ul style="list-style-type: none"> regularly cycles, occasionally cycles, are new or returning to cycling, do not cycle but would like to, <ul style="list-style-type: none"> do not cycle and do not want to. 	The percentage of respondents giving these answers to Q13 in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q8).</i>
		Proportion of residents who said they 'do not cycle but would like to' for: <ul style="list-style-type: none"> women ethnic minority disability 	The percentage of respondents of these specific gender, ethnicity and disability demographic groups (Q25, Q28, Q34) answering 'do not cycle but would like to', to Q13 in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 demographic survey questions (Q23, Q26 and Q30) answering 'does not cycle but would like to' to Q8.</i>

Page	Section	Data item	Source and notes
	Residents want improved cycling infrastructure	Percentage of residents who would be helped to cycle more by better facilities: <ul style="list-style-type: none"> • more traffic-free cycle routes away from roads, eg through parks or along waterways • more cycle tracks along roads which are physically separated from traffic and pedestrians, • more signposted local cycle routes along quieter streets where there is less traffic, • better links with public transport, (eg secure cycle parking at train stations) 	The percentage of respondents answering 'very useful' or 'fairly useful' to Q12b, Q12a, Q12c, Q12m in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions (Q10b, Q10a, Q10c, Q10l).</i>
		Length of traffic-free cycle routes away from the road	Data supplied by partner authorities. <i>2019 data for those who supplied data for Bike Life 2019 (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Southampton City Region, Tower Hamlets and Tyneside).</i>
		Length of cycle routes physically separated from traffic and pedestrians	Data supplied by partner authorities. <i>2019 data for those who supplied data for Bike Life 2019 (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Southampton City Region, Tower Hamlets and Tyneside).</i>
		Length of signposted cycle routes on quieter streets	Data supplied by partner authorities. This was an optional cycle routes category.

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> The following cities supplied data: Cardiff, Dublin Metropolitan Area, Edinburgh, Glasgow, Greater Manchester, Inverness, Liverpool City Region, Perth, Southampton City Region, Stirling, Tower Hamlets and Tyneside. The following cities did not supply data: Aberdeen, Belfast, Bristol, Dundee, Greater Cambridge and West Midlands. <p><i>2019 data for those who supplied data for Bike Life 2019 (Cardiff, Edinburgh, Greater Manchester, Inverness, Tower Hamlets and Tyneside).</i></p>
		Dublin Metropolitan Area only: Length of cycle tracks level with the footpath distinguished by a different surface	This route category is unique to Dublin Metropolitan Area, and data was supplied by the partner authority.
		Percentage of households within 125m of these routes	<p>Calculated by Sustrans based on data provided by partner authorities for each city.</p> <ul style="list-style-type: none"> For Cardiff, Dublin Metropolitan Area, Edinburgh, Glasgow, Greater Manchester, Inverness, Liverpool City Region, Perth, Southampton City Region, Stirling, Tower Hamlets and Tyneside this figure is based on the following routes: <ul style="list-style-type: none"> ○ cycle tracks physically separated from traffic and pedestrians ○ traffic free cycle routes away from the road ○ signposted cycle routes along quieter streets For Aberdeen, Belfast, Bristol, Dundee, Greater Cambridge and West Midlands the optional 'signposted cycle routes along quieter streets category' was not collected) so this figure is based on the following routes: <ul style="list-style-type: none"> ○ cycle tracks physically separated from traffic and pedestrians ○ traffic free cycle routes away from the road <p>For each city, this was calculated using the route types above and postcode data (from March 2021). For household data sources and licences, see page 14 under Percentage of households located in neighbourhoods of walkable density (40 dwellings per hectare).</p>

Page	Section	Data item	Source and notes
		Number of cycle parking spaces at - railway and bus stations	<p>Data supplied by partner authorities.</p> <p>Number of publicly accessible and free to use cycle parking spaces at railway and bus stations presented alongside the total number of stations.</p> <p>Some cities also included other public transport stations in the number of cycle parking spaces and number of stations at railway stations:</p> <ul style="list-style-type: none"> • Liverpool City Region include cycle parking at ferry stations • Glasgow includes subway station cycle parking • Tyneside and West Midlands include cycle parking at Metro stations • Tower Hamlets include cycle parking at Underground and DRL stations <p>Data excluded for Greater Manchester</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Inverness, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) for railway cycle parking only except Liverpool, Tyneside and Tower Hamlets who also included parking at Ferry, Metro and tube/ DRL stations respectively. All data supplied by partner authorities for Bike Life 2019.</i></p>
		Percentage of residents who support building more cycle tracks physically separated from traffic and pedestrians, even when this would mean less room for other road traffic	<p>The percentage of respondents answering 'strongly support' or 'tend to support' to Q18 in the independent survey of residents.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) from corresponding 2019 survey question (Q16).</i></p>
Page 17 Cycling solutions	Residents want more support to cycle	<p>Percentage of residents that would find the following support useful to cycle more:</p> <ul style="list-style-type: none"> • cycling training courses and organised social rides 	<p>The percentage of respondents answering 'very useful' or 'fairly useful' to Q12f, Q12d, Q12l, Q12h, Q12i, Q12k, Q12j in the independent survey of residents.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey questions.</i></p>

Page	Section	Data item	Source and notes
		<ul style="list-style-type: none"> • access or improvements to a city cycle sharing scheme, • access to secure cycle storage at or near home • access to a bicycle • access to an electric cycle, • access to a cargo cycle (with space to carry children or shopping) • access to an adapted cycle (eg tricycle or recumbent cycle) 	
		<p>Cycle scheme data:</p> <ul style="list-style-type: none"> • Annual trips • Cycle share stations • Cycles 	<p>Data is for July 2020- June 2021 unless otherwise stated.</p> <p>Cycle scheme data is reported only for the following cities:</p> <ul style="list-style-type: none"> • Belfast: Belfast Bikes data provided by Belfast City Council • Cardiff: NextBike cycle hire data provided by CoMoUK • Dublin Metropolitan Area: Dublin Bikes, BleeperBikes and Moby data provided by the operators. BleeperBikes and Moby are dockless schemes so do not have any cycle share stations. • Dundee: RideOn data provided by Dundee for November 2020- June 2021 • Edinburgh: data provided directly from Transport for Edinburgh Cycle Hire scheme • Glasgow: NextBike cycle hire data provided by CoMoUK • Liverpool City Region: City Bike operates in Liverpool only, and data was provided by Liverpool City Council • Glasgow: NextBike cycle hire data provided by CoMoUK • Tower Hamlets: data provided by the partner authority from Transport for London for Santander cycles

Page	Section	Data item	Source and notes
			<ul style="list-style-type: none"> West Midlands: Serco cycle hire data provided by partner authority. Data covers the pilot of the scheme from 8th February – 30th June 2021 <p>Thanks to CoMoUK for helping source data.</p> <p><i>2019 data (Belfast, Cardiff, Dublin Metropolitan Area, Greater Cambridge, Liverpool City Region and Tower Hamlets) supplied by relevant partner authorities for Bike Life 2019. All data for July 2018- June 2019.</i></p>
		Number of reported cycle thefts	Reported cycle theft figures were provided by partner authorities following Sustrans' guidance, and were usually obtained from local councils, police forces, Police UK website or FOI requests for Scottish cities. The data in the reports is shown for the 2020-21 and 2019-20 financial years.
		Number of people who own an adult cycle in the city, for every 1 reported cycle theft in the past year	The number of people who own an adult cycle is calculated by multiplying the total adult population (16+) of the city by the percentage of adults in the city who own one or more adult cycles (from Q22a, Q22b, Q22c, Q22d in the independent survey of residents). This is then divided by the total number of reported cycle thefts in 2020/21 (see above).
		Number of people who cycle per public parking space	<p>The percentage of residents who 'ever' cycle (respondents answering: '7 days a week', '5-6 days a week', '2-4 days a week', 'once a week', 'once a fortnight', 'once a month' or 'less often' to Q2e of the independent survey of residents) scaled up for the whole adult population of the city (16+) and then divided by the total number of cycle parking spaces in the city (data provided by the partner authority). This is cycle parking spaces, not stands; one Sheffield stand is two cycle parking spaces.</p> <p>Includes all public cycle parking available to the general public. Excludes parking at workplaces, educational establishments and railway stations that are for exclusive or preferential use by people at those establishments.</p> <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Inverness, Liverpool City Region, Southampton City Region and Tyneside) used the corresponding 2019 survey question (Q2d), 2019 number of cycle parking spaces provided by partner authorities and latest available population statistic.</p>

Page	Section	Data item	Source and notes
		Percentage of residents that have access to an adult pedal cycle	<p>The percentage of respondents answering that they owned at least one of the following types of adult cycles, in the independent survey of residents.</p> <ul style="list-style-type: none"> • Adult pedal bicycle (non-electric) (Q22a) • Adult electric bicycle (Q22b) • Other adult cycles (including hand-cycles, tricycles, tandems, recumbents) (Q22c) • Cargo cycles (with space to carry children or shopping) (Q22d) <p>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) used the corresponding 2019 survey questions (Q20a, Q20b, Q20c). For 2021 adult pedal and electric cycles were split into two questions, whereas this distinction was not made in 2019.</p>
		Percentage of households within 800m from a cycle shop	<p>800m walking isochrones calculated for all cycle shops within each city boundary. Households within these isochrones were then identified and percentage calculated.</p> <p>Cycle shops:</p> <ul style="list-style-type: none"> • UK cities: Cycle Shop data is sourced from USMART under Open Government Licence v.3.0 Credit to the Association of Cycle Traders (ACT) and Cycling UK for their assistance with cycle shop locations and services offered. • Dublin Metropolitan Area: Open Street Map 'Points of Interest' point shapefile layer with fclass = bicycle. © OpenStreetMap contributors.
		Story from a city resident	Case studies from local city residents were sourced from local contacts.
Page 18 Neighbourhood solutions	All residents should feel welcome in their neighbourhood	Percentage of residents who feel welcome and comfortable walking or spending time on the streets of their neighbourhood	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16a in the independent survey of residents.

Page	Section	Data item	Source and notes
What would help make neighbourhoods better?		Proportion of residents who feel welcome and comfortable walking or spending time on the streets of their neighbourhood within different demographic subgroups: gender, ethnicity, disability and socio-economic group	The percentage of respondents of these gender, ethnicity, disability and socio-economic demographic subgroups (Q25, Q28, Q34, Q27) answering 'strongly agree' or 'tend to agree' to Q16a in the independent survey of residents.
	The dominance of motor vehicles can discourage walking, wheeling and cycling	Percentage of residents that think that their streets are not dominated by moving or parked motor vehicles	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16g in the independent survey of residents.
		Percentage of residents who would find fewer motor vehicles on their streets useful to: <ul style="list-style-type: none"> walk more, cycle more 	The percentage of respondents answering 'very useful' or 'fairly useful' to Q11d and Q12g in the independent survey of residents. <i>2019 data [cycle only] (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q10g).</i>
		<ul style="list-style-type: none"> Percentage of unclassified road length in the city that are not designed to carry through traffic 	Based on data supplied to Sustrans by the creators of CycleStreets' www.lowtrafficneighbourhoods.org . Road classifications follow those used by Open Street Map Highway: International equivalence - OpenStreetMap Wiki For the UK, "unclassified roads" are all public roads that are neither motorways, A, B nor C roads. This is the sixth category on Open Street Map. For Ireland the equivalent sixth category is "less significant minor roads". For each city, CycleStreets has sub-divided these lesser roads into ones that are either: <ul style="list-style-type: none"> Through-streets Through-streets with traffic calming No-through streets

Page	Section	Data item	Source and notes
			<p>The percentage is obtained by dividing (a) by (a)+(b)+(c)</p> <p>More major roads (the first to fifth categories on Open Street Map) are excluded from the calculation because they are usually necessary for traffic distribution, and it is less likely that these could ever be suitable for conversion to access-only status.</p>
		Percentage of residents who agree that restricting through traffic on local residential streets would make their area a better place	<p>The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q17b in the independent survey of residents.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q15b).</i></p>
		<p>UK cities: Percentage of streets in the city that are 20mph</p> <p>Dublin Metropolitan Area: Percentage of streets that should typically have traffic travelling at speeds below 30km/h</p>	<p>This is the percentage of the total street length to which a 20mph limit applies, not the percentage of named streets that are 20mph. Excludes motorways as these will never be appropriate for 20mph limits.</p> <p>Edinburgh also excludes trunk roads from their calculations.</p> <p>Data supplied by partner authorities for each city.</p> <ul style="list-style-type: none"> Dublin Metropolitan Area reports on the percentage of all streets that should have traffic travelling at speeds below 30km/h, as data is NAVTEQ NAVSTREETS Speed Category data, rather than actual records of legally posted 30km/h signs. <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region, Tower Hamlets and Tyneside) supplied by relevant partner authorities for Bike Life 2019.</i></p>
		<p>Percentage of residents who would find more streets with 20mph (30km/h for Dublin Metropolitan Area) speed limits useful to:</p> <ul style="list-style-type: none"> walk more, 	<p>The percentage of respondents answering 'very useful' or 'fairly useful' to Q11e and Q12e in the independent survey of residents.</p> <p><i>2019 data [cycle only] (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Liverpool City</i></p>

Page	Section	Data item	Source and notes
		<ul style="list-style-type: none"> cycle more 	<i>Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q10e).</i>
	Residents want local streets to be better spaces for people to spend time in	<ul style="list-style-type: none"> Percentage of residents who agree increasing space for people socialising, walking and cycling on their local high street (main street for Dublin Metropolitan Area) would improve their local area 	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q17d in the independent survey of residents. <i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q15f).</i>
		Percentage of residents who agree they regularly chat to their neighbours, more than just to say hello	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16d in the independent survey of residents.
		Percentage of residents who support low traffic neighbourhoods	The percentage of respondents answering 'strongly support' or 'tend to support' to Q19 in the independent survey of residents.
Page 19		Story from a city resident	Case studies from local city residents were sourced from local contacts.
Neighbourhood solutions	Neighbourhoods must be designed with children in mind	Average age when people in city who have children in their household would let them walk or cycle independently in their neighbourhood	Median age given by respondents living with children in their household by answering to Q31 in the independent survey of residents.
		Context data for average age of independent travel of children in Germany	Source: Children's Independent Mobility: an international comparison and recommendations for action, 2015.
		Percentage of residents who agree there is space for children to socialise and play	The percentage of respondents answering 'strongly agree' or 'tend to agree' to Q16e in the independent survey of residents.
		Percentage of households within 800m of a children's playground	800m walking isochrones calculated for each OS Greenspace 'Play Space' Access Point (GB cities) or Open Street Map 'playground' in each city.

Page	Section	Data item	Source and notes
			<p>Households within these isochrones were then identified and percentage calculated.</p> <p>Children's playgrounds:</p> <p>GB cities: Ordnance Survey Open Greenspace access points with 'Play Space' classification</p> <p>Belfast and Dublin Metropolitan Area: Open Street Map 'Natural' point shapefile layer with fclass = playground. © OpenStreetMap contributors.</p> <p>800 m walking isochrones are generated using © openrouteservice.org by HeiGIT in QGIS.</p> <p>For household data sources and licences, see page 14 under Percentage of households located in neighbourhoods of walkable density (40 dwellings per hectare).</p>
		Percentage of residents who agree and disagree that closing streets outside local schools to cars during drop-off and pick-up times would improve their local area	<p>The percentage of respondents answering 'strongly agree' or 'tend to agree' and 'tend to disagree' or 'strongly disagree' to Q17a in the independent survey of residents.</p> <p><i>2019 data (Belfast, Bristol, Cardiff, Dublin Metropolitan Area, Dundee, Edinburgh, Greater Cambridge, Greater Manchester, Inverness, Liverpool City Region, Southampton City Region and Tyneside) from corresponding 2019 survey question (Q15a).</i></p>
		Number of permanent school streets schemes in the city	<p>Number of permanent school streets schemes where roads are closed to cars during school drop off and pick up times. See footnotes in individual city reports for cut off inclusion date.</p> <p>Excludes trial schemes because these are not permanent. Cities that mentioned/reported that they have additional trial schemes include, but not limited, to Bristol, Cardiff, Glasgow, Perth, Tower Hamlets and Tyneside.</p> <p>Belfast did not supply data.</p>
Page 20 and 21 Developing [city]	Recent walking, wheeling, cycling and	Information on projects, schemes and investments across the city.	Information provided by the partner authority.

Page	Section	Data item	Source and notes
	neighbourhood changes		
Page 22 and 23 Looking forward	Better places and places for everyone	Information on future plans for walking, wheeling and cycle schemes and investments across the city.	Information provided by the partner authority.
		Story from a city resident	Case studies from local city residents were sourced from local contacts.

Appendices

Appendix A: Independent resident survey - methodology

An independent representative survey of residents was conducted in each participating city. For UK cities this was conducted by NatCen Social Research, while Behaviour & Attitudes (B&A) conducted the Dublin Metropolitan Area survey, following Covid-19 travel restrictions being lifted.

The survey by NatCen Social Research aimed to gather a representative sample of at least 1,100 respondents aged 16 and above in each of the 17 UK cities (the actual number of completed surveys is between 1,264 and 1,622 for all cities). The sample of respondents was stratified first by the Index of Multiple Deprivation quintiles¹⁰ and then by Output Area classifications¹¹ to reflect the profile of each city. The NatCen survey was a 'push to online' survey, where letters including access codes and login credentials for the online survey were posted to specific addresses of a sample chosen by the stratification described above. There was also a paper format of the questionnaire that could be returned by prepaid postage. This process took place between 2nd June and 23rd August 2021. The 2019 residential survey in 12 UK cities was conducted between 10th April and 1st July 2019 in 12 UK cities by the same research agency, following the same sampling process and using same methodology, with similar questionnaire.

In 2021, due to pandemic, social distancing rules and the recommendation from Market Research Society to stop conducting face-to face interviews in the UK, Tower Hamlets survey was also conducted as 'push to online' instead of face-to-face interviews as originally planned. There was an additional boost to the Tower Hamlets sample, with 2,000 Postcode Address File (PAF) addresses issued on 23 June in areas of particularly high ethnic minority population. This was used to potentially boost the number of respondents of ethnic minority background in the sample, to be more alike the sample obtained in 2019 with face-to-face interviews. Due to the change in survey approach, the 2019 and 2021 data is not comparable for Tower Hamlets.

¹⁰ The Index of Multiple Deprivation is an official statistic produced by the UK Government. More information can be found here: www.gov.uk/government/statistics/english-indices-of-deprivation-2019

¹¹ Output Areas are the lowest geographical level at which census estimates are provided. More information can be found here: www.ons.gov.uk/methodology/geography/ukgeographies/censusgeography#output-area-oa

Behaviour & Attitudes (B&A) conducted the survey in Dublin Metropolitan Area. The fieldwork was carried out from 3rd June to 11th July 2021, with interviews lasting for 16 minutes on average. This was a face to face survey, but with extra Covid-19 measures implemented to ensure safety of both participants and interviewers. A representative sample of 1,103 respondents aged 16 and above were interviewed and there was a sufficient number of people who cycle in the initial sample, so booster interviews were not required. The sample was stratified by population areas and then electoral divisions, following which quotas were applied for age, gender and socio-economic status. The content of the survey for Dublin Metropolitan Area was almost identical, except for using kilometres rather than miles and adjusting interview instructions and question wording to be more suited for the face-to-face interview format and certain UK terminology to be more relevant to Dubliners. 2019 residential survey in Dublin Metropolitan Area was conducted between 24th June and 27th July 2019 by the same research agency, following the same sampling process and using same methodology, with similar questionnaire.

Weighting:

All “push to online” cities: at the analysis stage, survey data for all cities conducted as “push to online” was weighted to adjust for differences in address/household response rates, and differences in individual response rates, to match the population estimates for age and gender by city¹². The Tower Hamlets overall sample was additionally calibrated to Census estimates of proportion ethnicity in the borough.

Dublin Metropolitan Area (face to face): a two-step weighting process was applied. At the first step, weighting was applied by, ethnicity and age. All weighting proportions were based on the National Census 2016. For the second step, a corrective weight was applied to the regional areas.

¹² Mid-year population estimates from the Office for National Statistics (ONS) and National Records of Scotland (NRS) were used to estimate age/sex.

Appendix B: Survey questionnaire

(City) Travel Survey

Please note: throughout this questionnaire please consider walking to include the use of wheelchairs and mobility scooters.

{ASK ALL}

Firstly, we would like to ask some questions about how you travel around.

Q1 How many cars or vans are owned, or are available for use in your household?

None

One

Two

Three or more

{ASK ALL}

Q2 Thinking about the different ways in which you travel around, how often do you...?’

Please give your best guess.

- a) Travel by car, van or motorcycle as a driver
- b) Travel by car, van or motorcycle as a passenger
- c) Walk
- d) Run
- e) Cycle
- f) Use public transport
- g) Use a scooter or electric scooter

7 days a week

5-6 days a week

2-4 days a week

Once a week

Once a fortnight

Once a month

Less often

Never

{ASK ALL CODED 1-7 AT Q2a}

Q3 In the last 7 days, how many one-way journeys did you make by car up to 3 miles in length? (If you travelled to a place and back, please count that as two trips.)

15+ times

13-14 times

11-12 times

9-10 times

7-8 times

5-6 times

3-4 times

1-2 times

None

The following questions are about walking.

{ASK IF CODES 1-7 AT Q2c}

Q4a Please give your best estimate of how many one-way trips you walked in the last 7 days from home to a destination like work, school, shopping, the gym, the bus stop, or to see friends/family. Do not count simple walks with no particular destination. If you walk to a place and back, please count that as two trips.

15+ times

13-14 times

11-12 times

9-10 times

7-8 times

5-6 times

3-4 times

1-2 times

None

I only ever walk for leisure, or not at all

{ASK IF CODES 1-8 AT Q4a}

SCRIPT INSTRUCTION: QUESTIONS Q4b and Q4c PRESENTED ON A SAME SCREEN

Q4b Thinking about your most frequent one-way walk to a destination, please give your best estimate of how far this is (in metres e.g. 250 metres, 1,000 metres)

NUMERICAL RESPONSE IN METRES

100-10,000 metres

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}}

{ASK IF CODES 1-8 AT Q4a}

Q4c Still thinking about your most frequent one-way walk to a destination, please give your best estimate of how long this takes (in minutes).

NUMERICAL RESPONSE IN MINUTES.

1-180 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}}

{ASK IF CODES 1 TO 7 AT Q2c OR/AND Q2d}

Q5a Please give your best estimate of how many walks or runs you took in the last 7 days for enjoyment or fitness (just for pleasure or to keep fit, including running or walking a dog)?

15+ times

13-14 times

11-12 times

9-10 times

7-8 times

5-6 times

3-4 times

1-2 times

None

I never walk or run for recreation or enjoyment

{ASK IF CODES 1-8 AT Q5a}

SCRIPT INSTRUCTION: QUESTIONS Q5b and Q5c PRESENTED ON A SAME SCREEN

Q5b Thinking about your most frequent walk or run for enjoyment or fitness, please give your best estimate of how far this is (in metres e.g. 500 metres, 4,000 metres).

NUMERICAL RESPONSE IN METRES

100-20,000 metres

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1-8 AT Q5a}

Q5c Still thinking about your most frequent walk or run for enjoyment or fitness, please give your best estimate of how long this takes (in minutes).

NUMERICAL RESPONSE IN MINUTES.

1-500 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1 TO 7 AT Q2e}

The following questions are about cycling.

Q6a How often do you cycle to and from work?

7 days a week

5-6 days a week

2-4 days a week

Once a week

Once a fortnight

Once a month

Less often

Never

I do not work, or I work from home all of the time

{ASK IF CODES 1-7 AT Q6a}

SCRIPT INSTRUCTION: QUESTIONS Q6b and Q6c PRESENTED ON A SAME SCREEN

Q6b Please give your best estimate of the typical distance in miles of a one-way cycle trip to or from work (e.g. 3 miles, 1.5 miles).

NUMERICAL RESPONSE IN MILES

0.25-50.00 miles

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1-7 AT Q6a}

Q6c Please give your best estimate of the typical duration in minutes of a one-way cycle trip to or from work.

NUMERICAL RESPONSE IN MINUTES.

1..150 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1 TO 7 AT Q2e}

Q7a How often do you cycle to get around as part of your job? For example, for delivering items or travelling to meetings?

- 7 days a week
- 5-6 days a week
- 2-4 days a week
- Once a week
- Once a fortnight
- Once a month
- Less often
- Never
- I do not work or travelling is not part of my job

{ASK IF CODES 1-7 AT Q7a}

SCRIPT INSTRUCTION: QUESTIONS Q7b and Q7c PRESENTED ON A SAME SCREEN

Q7b Please give your best estimate of the typical distance in miles of a one-way cycle trip to get around as part of your job (e.g. 3 miles, 1.5 miles).

NUMERICAL RESPONSE IN MILES

0.25-50.00 miles

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – {You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1-7 AT Q7a}

Q7c Please give your best estimate of the typical duration in minutes of a one-way cycle trip to get around as part of your job.

NUMERICAL RESPONSE IN MINUTES.

1..150 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.

{ASK IF CODES 1 TO 7 AT Q2e}

Q8a During school term (not holidays), how often do you cycle to or from school, college or university? This includes accompanying a child or someone else.

- 7 days a week
- 5-6 days a week
- 2-4 days a week
- Once a week
- Once a fortnight
- Once a month
- Less often
- Never
- I do not go to school, college or university, or accompany anyone else to them

{ASK IF CODES 1 TO 7 AT Q8a}

SCRIPT INSTRUCTION: QUESTIONS Q8b and Q8c PRESENTED ON A SAME SCREEN

Q8b Please give your best estimate of the typical distance in miles of a one-way cycle trip to or from school, college or university (e.g. 3 miles, 1.5 miles).

NUMERICAL RESPONSE IN MILES

0.25-50.00 miles

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.

{ASK IF CODES 1 TO 7 AT Q8a}

Q8c Please give your best estimate of the typical duration in minutes of a one-way cycle trip to or from school, college or university.

NUMERICAL RESPONSE IN MINUTES.

1-150 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.

{ASK IF CODES 1 TO 7 AT Q2e}

Q9a How often do you cycle for shopping, personal business or social trips? e.g. to travel from your home to the supermarket, doctors, or to see friends or family.

7 days a week

5-6 days a week

2-4 days a week

Once a week

Once a fortnight

Once a month

Less often

Never

I do not make any shopping, personal business or social trips

{ASK IF CODES 1 TO 7 AT Q9a}

SCRIPT INSTRUCTION: QUESTIONS Q9b and Q9c PRESENTED ON A SAME SCREEN

Q9b. Please give your best estimate of the typical distance in miles of a one-way cycle trip for shopping, personal business or social trips (e.g. 3 miles, 1.5 miles).

NUMERICAL RESPONSE IN MILES

0.25-50.00 miles

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.

{ASK IF CODES 1 TO 7 AT Q9a}

Q9c Please give your best estimate of the typical duration in minutes of a one-way cycle trip for shopping, personal business or social trips.

NUMERICAL RESPONSE IN MINUTES.

1-150 minutes

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.

{ASK IF CODES 1 TO 7 AT Q2e}

Q10a How often do you cycle just for enjoyment or fitness?

7 days a week

5-6 days a week

2-4 days a week

Once a week

Once a fortnight

Once a month
Less often
Never
I do not go out for fitness/enjoyment

{ASK IF CODES 1 TO 7 AT Q10a}

SCRIPT INSTRUCTION: QUESTIONS Q10b and Q10c PRESENTED ON A SAME SCREEN

Q10b Please give your best estimate of the typical distance in miles of your round trip cycle ride for enjoyment or fitness (e.g. 3 miles, 1.5 miles).

NUMERICAL RESPONSE IN MILES
0.25-150.00 miles

{HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK IF CODES 1 TO 7 AT Q10a}

Q10c Please give your best estimate of the typical duration in minutes of your round trip cycle ride for enjoyment or fitness.

NUMERICAL RESPONSE IN MINUTES.
1-500 minutes

HARD CHECK IF RESPONDENT IS OUTSIDE THESE RANGES – You answered {answer} which is outside the {acceptable range} range. Please, amend your answer.}

{ASK ALL}

And now some questions about why you walk and cycle or not.

{ASK ALL}

Q11 How useful would each of the following be to help you walk more?

- a) More shops and everyday services, such as banks and post offices, close to your home
- b) More government services, such as doctors surgeries and schools, close to your home
- c) Less fear of crime or antisocial behaviour in your area
- d) Fewer motor vehicles on our streets
- e) More streets with 20mph speed limits
- f) Fewer cars parked on the pavement
- g) Better accessibility, e.g. level surfaces, dropped kerbs at crossing points, fewer obstructions
- h) Wider pavements
- i) More frequent road crossings, with reduced wait times
- j) Nicer places along streets to stop and rest, e.g. more benches, trees and shelters
- k) More things to see and do close to your home, e.g. cafes or entertainment venues
- l) More parks or green spaces close to your home

Very useful
Fairly useful
Not very useful
Not useful at all

{ASK ALL}

Q12 How useful, if at all, would any of the following be to help you start cycling or to cycle more?

- a) More cycle tracks along roads which are physically separated from traffic and pedestrians
- b) More traffic-free cycle routes away from roads e.g. through parks or along waterways
- c) More signposted local cycle routes along quieter streets where there is less traffic
- d) Access or improvements to a city cycle sharing scheme
- e) More streets with 20mph speed limits
- f) Cycling training courses and organised social rides
- g) Fewer motor vehicles on our streets
- h) Access to a bicycle
- i) Access to an electric cycle
- j) Access to an adapted cycle, e.g. a tricycle or handcycle
- k) Access to a cargo cycle (with space to carry children or shopping)
- l) Access to secure cycle storage at or near home
- m) Better links with public transport (e.g. secure cycle parking at train stations)

Very useful

Fairly useful

Not very useful

Not useful at all

{ASK ALL}

Q13 Which one of the following statements best describes you? Would you say you are someone who...

does not cycle but would like to

does not cycle and does not want to

is new or returning to cycling

occasionally cycles

regularly cycles

{ASK ALL}

And now some questions on your views about transport, walking and cycling in your local area.

Q14 We would like to ask you what you think about walking and cycling in your local area. For each statement, please say whether you think it is good or bad?

- a) Your local area overall as a place to walk
- b) Your local area overall as a place to cycle
- c) Safety when walking
- d) Children's safety when walking
- e) Safety when cycling
- f) Children's safety when cycling

Very good

Fairly good

Neither good nor bad

Fairly bad

Very bad

And now some questions about your local area

{ASK ALL}

Q15a For each of these types of services, do you use them most frequently within or outside of your local neighbourhood, and how do you travel to them? We define your local neighbourhood as the area within a 10 minute walk (or 20-minute round trip) from your home.

A food shop which sells a range of fresh fruit and vegetables

Park or green space
Doctor's surgery (General Practice)
Primary school (i.e. that children within your household attend)
Bus stops, tram stops or a train station
Post Office and or bank
Any public indoor meeting place (e.g. a pub, café, community centre, place of worship)

- a) I drive to them within my neighbourhood
- b) I drive to them outside of my neighbourhood
- c) I walk, cycle or take public transport to them within my neighbourhood
- d) I walk, cycle or take public transport to them outside of my neighbourhood
- e) I do not use services of this type

{ASK ALL CODED (b) and (d) AT Q15a}

Q15b To the best of your knowledge are these services available within your local neighbourhood i.e. a 10-minute walk (or 20-minute round trip) from your home? Please select all that apply.

A food shop which sells a range of fresh fruit and vegetables
Park or green space
Doctor's surgery (General Practice)
Primary school
Bus stops, tram stops or a train station
Post Office and or bank
Any public indoor meeting place (e.g. a pub, café, community centre, place of worship)
None of these

{ASK ALL}

Q16 For each of the following statements, how much do you agree or disagree with these characteristics of your neighbourhood?

- a) You feel welcome and comfortable walking or spending time on the streets of your neighbourhood
- b) You feel able to participate in making your neighbourhood a better place to live
- c) You can easily get to many places you need to visit, without having to drive
- d) You regularly chat to your neighbours, more than just to say hello
- e) There is space for children to socialise and play
- f) The air is clean
- g) The streets are not dominated by moving or parked motor vehicles

Strongly agree
Tend to agree
Neither agree nor disagree
Tend to disagree
Strongly disagree

{ASK ALL}

Q17 For each statement, how much do you agree or disagree that this could make your local area a better place to live, work or visit?

- a) Close streets outside local schools to cars during school drop-off and pick-up times
- b) Restrict through-traffic on local residential streets
- c) Reduce speed limits on local roads in built-up areas to 20mph
- d) Increase space for people socialising, walking and cycling on your local high street, even if this reduces space for cars
- e) More measures to reduce crime and antisocial behaviour on the street or in public spaces

Strongly agree
Tend to agree
Neither agree nor disagree
Tend to disagree
Strongly disagree

{ASK ALL}

Q18 To what extent do you support or oppose the creation of more cycle tracks along roads? These are physically separated from traffic and pedestrians by kerbs and would mean less room for other road traffic.

Strongly support
Tend to support
Neither support nor oppose
Tend to oppose
Strongly oppose

Q19 To what extent do you support or oppose the creation of more low-traffic neighbourhoods? Low traffic neighbourhoods are groups of streets, bordered by main roads, where 'through' motor vehicle traffic is greatly reduced. Residents still have access to all parts by car.

Strongly support
Tend to support
Neither support nor oppose
Tend to oppose
Strongly oppose

Q20 To what extent do you support or oppose the creation of 20-minute neighbourhoods? These are neighbourhoods where it is easy for people to meet most of their everyday needs in a short, convenient and pleasant 20 minute return walk. For example having local shops, schools, green space and public transport options within a 10 minute walk (or 20 minute round trip) of your home.

Strongly support
Tend to support
Neither support nor oppose
Tend to oppose
Strongly oppose

{ASK ALL}

Q21 Would you like to see more or less government spending on each of the following in your local area or do you think the level of government spending is about right?

- a) On walking
- b) On cycling
- c) On public transport
- d) On driving

More government spending
Less government spending
The level of spending is about right

{ASK ALL}

And now some questions about you

Q22 How many of each of the following do you own in your household?

- a) Adult pedal bicycles (non-electric)
- b) Adult electric bicycles
- c) Other adult cycles, including hand-cycles, tricycles, tandems, recumbents (pedal or electric)
- d) Cargo cycles (with space to carry children or shopping; pedal or electric)
- e) Children's bicycles, tricycles and other types of cycles (pedal or electric)

None

One

Two

Three or more

{ASK ALL}

Q23 In order that we interview a representative cross-section of the population, please can you tell me your age?

NUMERICAL ENTRY

16..120

HARD CHECK

{ASK ALL REFUSED AT Q23}

Q24 To which of these age bands do you belong?

16-20

21-25

26-30

31-35

36-40

41-45

46-50

51-55

56-60

61-65

66-70

71-75

76+

{ASK ALL}

Q25 Which of the following describes how you think of yourself?

Female

Male

In another way

{ASK ALL}

Q26 Which of the following best describes your sexual orientation?

Heterosexual (attracted to people of the opposite sex)

Gay or Lesbian (attracted to people of the same sex)

Bisexual (attracted to more than one sex)

Other sexual orientation – write in your answer, for example, pansexual or asexual _____

Rather not say

{ASK ALL}

Q27a What is the occupation of the MAIN INCOME EARNER in your household?

List below

Main income earner is retired (ANSWER Q27b)

Q27b { IF RETIRED AT Q27a}.

Please indicate which one of the following best describes the PREVIOUS OCCUPATION of the main income earner in your household?

- a) Higher managerial / professional / administrative (e.g. established doctor, solicitor, board director in a large organisation (200+ employees), top level civil servant / public service employee)
- b) Intermediate managerial / professional / administrative (e.g. newly qualified (under 3 years) doctor, solicitor, board director in a small organisation, middle manager in a large organisation, principal officer in the civil service / local government, teacher, accountant)
- c) Supervisory or clerical / junior managerial / professional / administrative (e.g. office worker, student doctor, foreman with 25+ employees, salesperson, policeman, nurse, secretary, self-employed)
- d) Skilled manual worker (e.g. skilled bricklayer, carpenter, electrician, plumber, painter, bus / ambulance driver, HGV/train driver, AA patrolman, mechanic)
- e) Semi or unskilled manual work (e.g. manual workers, all apprentices in skilled trades, caretaker, park keeper, non-HGV driver, shop assistant, pub / bar worker, factory worker, receptionist, labourer)
- f) Full time education/student
- g) Unemployed
- h) Looking after home or family
- i) Retired

ASSIGN RESPONDENT TO SEG A, B, C1, C2, D, E.

{ASK ALL}

Q28 What is your ethnic group?

Choose one option that best describes your ethnic group or background.

White

- English / Welsh / Scottish / Northern Irish / British
- Irish
- Gypsy or Irish Traveller
- Any other white background

Mixed

- White and Black Caribbean
- White and Black African
- White and Asian
- Any other mixed / Multiple Ethnic background

Asian or Asian British

- Indian
- Pakistani
- Bangladeshi
- Chinese
- Any other Asian background

Black / African / Caribbean/ Black British

- Caribbean
- African
- Any other Black / African / Caribbean / background

Other ethnic group

- Arab
- Any other ethnic group (please specify)

{ASK ALL}

Q29 Which of these applies to your home?

Owned outright (without mortgage)

Owned with a mortgage or loan

Owned with a mortgage or loan through an affordable housing scheme

Rented from the council

Rented from someone else

Rent free

{ASK ALL}

Q30 Please could you tell us the number of children under 16 in your household?

None

One

Two

Three or more

{ASK IF Q30=1+}

Q31 At what age would you let children in your household walk or cycle independently in your local neighbourhood?

Enter age

NUMERICAL RESPONSE

HARD CHECK (3-21 y.o.). {You answered {answer} which is outside the 3-21 range. Please amend your answer.}

{ASK ALL}

Q32 When travelling with children do you use:

(Select one answer only)

A buggy or pushchair when walking?

A child seat or cargo bike when cycling?

Both

None

I do not travel with children

{ASK ALL}Q33 Please could you tell me the number of adults aged 16 or over in your household including yourself?

One

Two

Three or more

{ASK ALL}

Q34 Do you have any physical or mental health conditions or illnesses lasting or expected to last for 12 months or more? If you have a physical condition and a mental health condition please cross both boxes.

Yes, a physical condition
Yes, a mental health condition
No

{ASK IF YES AT Q34}

Q35 Do you have any health conditions or illnesses which affect you in any of the following areas? Please select all that apply.

Reduced mobility (including physical/dexterity/stamina impairments)
Learning disabilities
Deaf and hearing loss
Blind and partially sighted
Mental health problems
Other
None of these

{ASK IF YES AT Q35}

Q36 Do you use a mobility aid to get around?
Please select all that apply.

Wheelchair
Mobility scooters
A cane or guide dog
A walking stick or frame
An adapted cycle
None of these

{ASK ALL}

Q37 So that we can understand what people think about cycling in specific parts of your local area it would be useful for us to have your full postcode. We will pass your postcode to the charity Sustrans and their local council partners. In addition if requested we may also share this data with universities for research purposes only; it would never be passed onto any marketing or advertising company.

WRITE IN

{HARD CHECK – ENSURE ENTRY IS A POSTCODE. IF NOT – This is not a full postcode.
Please try entering it again}

{ASK ALL WHO REFUSE AT Q37}

Q38 In that case, please could you provide just the first part of your postcode, including the number in the 2nd half? As mentioned, it would be used for research purposes only; it would never be passed onto any marketing or advertising company.

WRITE IN

{ASK ALL}

Q39 Please use this space for any further comments you would like to make:

WRITE IN:

Thank you for your time today.

Please encourage others aged 16+ in your household to also take part. See the letter you received for further details.

The final results will appear in a report to be published by Sustrans in mid 2022. You will be able to read a copy of the report by visiting www.sustrans.org.uk

Be the first to see the results of the Bike Life survey. And stay up to date with walking and cycling news across the UK and local to you. Sign up to Sustrans enewsletter.
<https://www.sustrans.org.uk/signup/bikelife>