TRAFNIDIAETH CYMRU
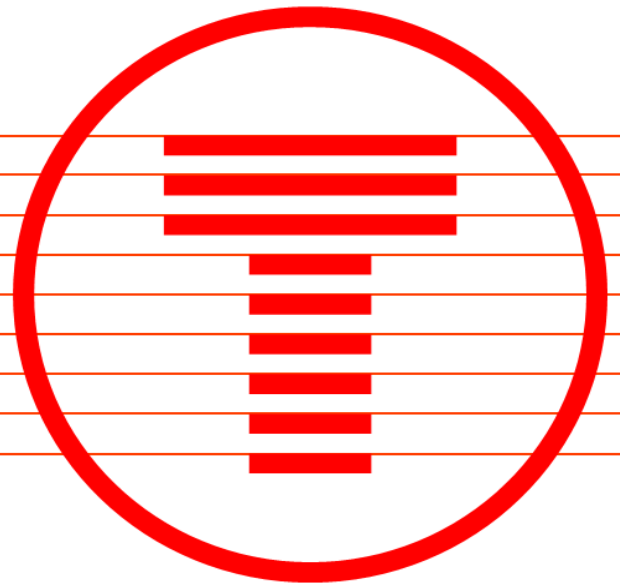# TRANSPORT FOR WALES

Transport for Wales

Wales Transport Strategy Monitoring Framework Technical Report 2022

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1 Contents

2 Purpose

The purpose of this document is to detail the methodologies that have been designed and adopted to monitor the six key and 27 subsidiary measures that are included in the Wales Transport Strategy Monitoring Framework.

These measures will provide an indication of progress made against the Welsh Government's ambitions for the next 20 years and the priorities over the next 5 years as detailed within Llwybr Newydd: The Wales Transport Strategy 2021.

3 Context

Llwybr Newydd was published by Welsh Government in March 2021. The Strategy sets out the future vision for Transport in Wales, its priorities for the next five years and ambitions for the next 20 years (figure 1).

Figure 1: Llwybr Newydd; Vision, Ambitions and Priorities

The strategy sets out a number of commitments to support delivery of the strategy. One such commitment is to develop and publish a monitoring framework with the purpose of ensuring the strategy is contributing towards the vision, priorities and well-being ambitions set out in figure 1.

4 Llwybr Newydd monitoring framework

This monitoring framework has been designed to include six key cross-cutting measures (M1 to M6), which relate to key themes and aims within the Welsh Government (Welsh Government: Well-Being Statement 2021-2026) that are wider than just transport.

There are also 27 subsidiary measures (S1 to S27) which are designed to support and provide additional context to the key measures.

The framework is based on statements and commitments set out in Llwybr Newydd. Each measure is designed to align to one or more of the priorities and ambitions. The framework has also been developed in consultation with the Welsh Government and the commissioners to ensure that the final measures are fit for purpose and provide meaningful insight into the priorities and ambitions. Table 1 provides an overview of these measures.

Llwybr Newydd details the following three priorities and four ambitions:

- **Priority 1** – Bring services to people in order to reduce the need to travel;
- **Priority 2** – Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure; and
- **Priority 3** – Encourage people to make the change to more sustainable transport

- **Ambition 1** – Good for people and communities;
- **Ambition 2** – Good for the environment;
- **Ambition 3** – Good for the economy and places in Wales; and
- **Ambition 4** – Good for culture and the Welsh language

For each measure within the monitoring framework, we have looked to indicate which of these priorities and ambitions they can influence or contribute to.

Table 1. Llwybr Newydd Monitoring Framework

Ref	Key Measures	Priority 1	Priority 2	Priority 3	Ambition 1	Ambition 2	Ambition 3	Ambition 4
M1	% Journeys by walking, cycling and public transport	■	■	■	■	■	■	■
M2	% Vehicles that are ultra-low or zero emission	□	■	■	■	■	□	□
M3	Total vehicle kilometres travelled	■	■	■	■	■	■	□
M4	Average distance travelled per person	■	□	■	□	■	□	□
M5	% Workforce working remotely on a regular basis	■	□	■	□	■	□	□
M6	Greenhouse gas emissions from the transport sector	■	■	■	□	■	□	□

Ref	Subsidiary Measures	Priority 1	Priority 2	Priority 3	Ambition 1	Ambition 2	Ambition 3	Ambition 4
S1	Average travel time to education, health and leisure services	■	■	■	■	■	■	■
S2	% People satisfied with their ability to access services in their local area	■	■	■	■	■	■	■
S3	% People within walking distance of sustainable modes of transport	■	■	■	■	■	■	☐
S4	% People who walk or cycle at least once a week as a means of transport	☐	■	■	■	■	■	☐
S5	% Journeys to a rail station by walking, cycling or bus	☐	■	■	■	■	■	☐
S6	% Trips to visitor attractions by sustainable modes of transport	☐	■	■	■	■	■	■
S7	% Rail network that is electrified	☐	■	■	☐	■	■	☐
S8	% Land-based freight moved by rail	☐	■	☐	☐	■	■	☐
S9	% Bus and rail services on time	☐	■	■	■	☐	■	☐
S10	Number of publicly available electric vehicle charging points	☐	■	■	☐	■	☐	☐
S11	% People satisfied with their journey	☐	■	■	■	☐	☐	☐
S12	% People satisfied with their ability to access public transport independently	☐	■	■	■	☐	☐	☐
S13	% Rail stations that are step-free	☐	■	■	■	☐	☐	☐
S14	% Buses and trains with audio visual information	☐	■	■	■	☐	☐	☐
S15	% Welsh speakers using Welsh language services in the transport sector	☐	■	■	■	☐	☐	■
S16	Average delay per kilometre travelled	☐	■	■	☐	☐	■	☐
S17	Average cost per kilometre travelled by public transport	☐	■	■	■	☐	■	☐
S18	% People who feel they can't afford to travel by public transport	☐	■	■	■	☐	■	☐
S19	People killed or injured on the transport network	☐	■	■	■	☐	☐	☐
S20	% People who feel safe and welcome when travelling	☐	■	■	■	☐	☐	☐
S21	% Transport infrastructure in good condition	☐	■	■	■	☐	■	☐
S22	% Transport infrastructure at risk of flooding	☐	■	■	■	☐	■	☐
S23	Level of air pollutants from the transport sector	☐	☐	☐	■	☐	☐	☐
S24	% People regularly bothered by noise from outside the home caused by transport	☐	☐	☐	■	☐	☐	☐
S25	Hectares of habitat on the transport estate maintained or improved for biodiversity benefit	☐	☐	☐	☐	■	☐	☐
S26	% Waste produced by the transport sector that is reused or recycled	☐	☐	☐	☐	■	☐	☐
S27	% Designated historic assets on the transport estate that are in a stable or improving condition	☐	☐	☐	☐	☐	☐	■

5 Wales National Travel Survey

Llwybr Newydd includes a commitment to develop and introduce a new Wales National Travel Survey and this is currently in development phase.

A number of the measures included within the monitoring framework will rely on data from this new survey for their calculation. For those measures we have used temporary alternative data sources or proxy data to provide some information until the measure can be updated with the Wales National Travel Survey data.

The measures that will rely on data from the Wales National Travel Survey are:

- M1- % Journeys by walking, cycling and public transport;
- M4 - Average distance travelled per person;
- M5 % workforce working remotely on a regular basis;
- S5 - % Journeys to a rail station by walking, cycling or bus;
- S11 - % People satisfied with their journey;
- S12 - % People satisfied with their ability to access public transport independently;
- S15 - % Welsh speakers using Welsh language services in the transport sector;
- S17 - Average cost per kilometre travelled by public transport;
- S18 - % People who feel they can't afford to travel by public transport;
- S20 - % People who feel safe and welcome when travelling; and
- S24 - % People regularly bothered by noise from outside the home caused by transport.

In this document, methodologies have been included for the temporary/proxy data and these will be updated once data is available from the new Wales National Travel Survey.

Note: Wales was previously included in the Department for Transport's National Travel Survey up until 2012. In the absence of other suitable data sources at present some measures have used data from the DfT's 2012 National Travel Survey.

6 Monitoring framework methodologies

This section of the report provides a detailed methodology for each of the 6 key and 27 subsidiary measures that are included in the monitoring framework.

This includes details of the data sources that have been used and how the published headline figures are calculated.

Some measures only require the analysis and interpretation of a single data source, and some measures are calculated by combining and analysing multiple data sources from different data owners.

Where possible, we have combined similar data and results to enable a single headline figure to be published for each measure. However, in some instances the way in which data is monitored/collected and analysed means that this is not possible and separate results are published for each of the component parts to be considered alongside each other to provide an indication of performance against the measure.

M1 % journeys by walking, cycling and public transport

The data for this measure will be collected through the Wales National Travel Survey, once available. It will comprise the percentage of all journeys made by pedestrians, cycling and public transport (bus and rail). A breakdown is likely to be available by some protected characteristics, including age, gender and some socio-economic factors. In the interim, data from the Department for Transport's 2012 National Travel Survey has been used to provide the percentage of journeys by walking and public transport.

Data Owner	Department for Transport
Data Source	National Travel Survey 2012 Tables- Department for Transport (gov.uk) (NTS9903)
Quality	National travel survey 2012 technical document- Department for Transport (gov.uk)
Frequency	None Past 2012
Statistical Designation	National Statistics

DfT's National Travel Survey (2012 table) NTS9903 details the average number of annual trips taken per person by the following transport mode groupings:

- Walk;
- Car/van driver;
- Car/Van Passenger;
- Other private transport (cycle, motorcycle and private bus hire);
- Local bus;
- Other public transport (Non-local bus, London Underground, surface rail, taxi / minicab and other public (air, ferries, light rail); and
- All modes.

To calculate this measure, the categories of 'walk', 'local bus' and 'other public transport' are combined to provide the total number of 'sustainable' journeys. The 'sustainable' journeys total is then divided by the total number of journeys by all modes to calculate the percentage of trips made by walking and public transport.

Notes:

We have combined the categories of 'local bus' and 'other public transport' under the combined heading of 'public transport' in the published dashboard.

Cycling journeys are not included within the 'sustainable' journeys total and calculation as cycling is combined with motorcycle and private bus hire under the heading of 'Other private Transport' within the data source and cannot be separated out.

Due to the age of the data used for this measure there may be some uncertainty around its reliability and application in 2022. However, this data source provided the largest and most reliable sample size available to us to undertake this calculation.

M2 % vehicles that are ultra-low or zero emission

Proportion of road vehicle fleet registered in Wales and TfW rolling stock that are low or zero emission.

Ultra-low emission vehicles (ULEVs) are vehicles that are reported to emit less than 75g of carbon dioxide (CO_2) from the tailpipe for every kilometre travelled. In practice, the term typically refers to battery electric, plug-in hybrid electric and fuel cell electric vehicles.

A breakdown is available for cars, motorcycles, taxis, buses and coaches, light goods vehicles and heavy goods vehicles and other vehicles (comprising vehicles not mentioned in other body types including rear diggers, lift trucks, rollers, ambulances, three wheelers, tricycles and agricultural vehicles).

Road Vehicle Fleet

Dataset 1: Road vehicles

Data Owner	Department for Transport
Data Source	Vehicle licensing statistics data tables - GOV.UK (www.gov.uk) (VEH1104 and VEH0130)
Quality	Vehicle licensing statistics: notes and definitions - GOV.UK (www.gov.uk)
Frequency	VEH1104 and VEH0130 (Quarterly)
Designation	National Statistics

Dataset 2: Taxis

Data Owner	Welsh Government
Data Source and Quality	Public Service Vehicles licence numbers by local authority (StatsWales.gov)
Frequency	Annual
Designation	National Statistics

The DfT publishes data in table VEH1104 detailing the total number of licensed vehicles. Licensed vehicle volumes are grouped into the following vehicle classifications:

- Cars;
- Motorcycles;
- Light Goods vehicles;
- Heavy Goods vehicles; and
- Buses and Coaches;
- Other Vehicles.

DfT also publishes table VEH0130 which details the total number of licensed vehicles which can be classed as Ultra low or zero emission vehicles (ULEV). ULEV volumes are grouped into the same categories as table VEH1104 but also includes taxis.

Both tables are published at an All Wales level on a quarterly basis.

StatsWales publishes data on the levels of licensed taxis and private hire vehicles in Wales on an annual basis.

Using the data published in tables VEH1104, VEH0130 and StatsWales data on licensed taxis and private hire vehicles we have calculated the proportion of road vehicles in Wales that have been classed as ULEV compared with the total volume of vehicles licensed in Wales. This calculation has been undertaken for the overall number of licensed vehicles and for each vehicle classification detailed above and also taxis. The total number of ULEV vehicles across all categories has also been published for information purposes.

Notes:

The calculation for the percentage of taxis classed as ULEV uses the latest ULEV dataset published by DfT in table VEH0130 and the latest licensed taxis and private hire vehicles data published by StatsWales.

In some circumstances, the DfT data for motorcycles considers electronic bikes as a ULEV, therefore the volume and proportion of motorcycle published as ULEV may be overstated.

TfW Rail Services Rolling Stock

Dataset 3: Rail

Data Owner	Transport for Wales
Data Source and Quality	Train accessibility | TfW
Frequency	Ongoing
Designation	No statistical designation

TfW Rail Ltd publishes details of all trains in its current rail fleet which operate scheduled passenger services. Details of the fleet include the train type and fuel type, which is received from the train manufacturer.

The ULEV classification and the DfT's definition of a motor vehicle producing less than 75g CO_2 per Km travelled does not apply to trains.

TfW are currently assessing its trains fuel efficiency against the RSSB's estimations for CO_2 emissions per unit of energy consumed by a train.

We have published information on the number of TfW trains that have currently operate using a diesel and battery bi-mode fuel.

Note: Trains fuelled by green hydrogen, and green biodiesel are the only train fuel types classed as zero carbon on the basis that the energy is produced from genuinely zero carbon processes. .

M3 Total vehicle kilometres travelled

Total vehicle kilometres travelled on the Welsh road network (billion kms).

Breakdowns are available by pedal cycles, motorcycles, cars and taxis, buses and coaches, light vans, goods vehicles, all motor vehicles (not including pedal cycles), and all vehicles (including pedal cycles).

Data Owner	Welsh Government
Data Source and quality	Volume of road traffic by type of vehicle- StatsWales (gov.wales)
Frequency	Annual
Statistical Designation	National Statistics

StatsWales publishes estimates for the total motor vehicle kms travelled on the road network in Wales and by a variety of vehicle groupings, as defined by the DfT. These are as follows:

- Pedal Cycles;
- Motorcycle;
- Cars and Taxis;
- Buses and Coaches;
- Light Vans;
- Goods Vehicles; and
- All motor vehicles (not including pedal cycles).

The published data is collected on behalf of Welsh Government by DfT and the detailed calculation methodology can be accessed using the above link, which also includes the data series. The published data (by groupings) has been used for this measure with no additional calculations, however we have included pedal cycles in the overall total to provide a headline figure for total vehicles kms travelled rather than the total motor vehicle kms travelled.

M4 Average distance travelled per person

The average annual distance travelled per person by mode (miles).

The data for this measure will be collected through the Wales National Travel Survey, once available. It will comprise the average annual distance travelled per person by walking, cycling, bus, rail, taxi/private hire vehicle, car passenger and car driver. Further breakdowns are likely to be available by some protected characteristics, including age, gender and some socio-economic factors.

In the interim, data from the Department for Transport's 2012 National Travel Survey has been used to provide the average distance travelled per person (miles).

Data Owner	Department for Transport
Data Source	National Travel Survey 2012 Tables- Department for Transport (gov.uk) (NTS9904)
Quality	National travel survey 2012 technical document- Department for Transport (gov.uk)
Frequency	None, past data 2012
Statistical Designation	National Statistics

DfTs National Travel Survey (2012 table) NTS9904 details the average annual distance travelled (miles) per person by the following transport mode groupings:

- Walking;
- Car/van driver;
- Car/van passenger;
- Other Private transport (Bicycle, motorcycle and private bus hire);
- Local bus;
- Other Public Transport (Non-local bus, London Underground, surface rail, taxi / minicab and other public (air, ferries, light rail); and
- All modes.

This published data (by groupings) has been used for this measure with no additional calculations, however we have combined the 'local bus' and other public transport' groupings under a single 'public transport' grouping.

Notes:

Average annual distance per person travelled by cycling cannot be published independently as it has been combined with motorcycle and private bus hire as a mode under the heading of 'Other Private transport' within the data source and cannot be separated out.

Due to the age of the data used for this measure there may be some uncertainty around its reliability and application in 2022. However, this data source provided the largest and most reliable sample size available for us to publish at present.

M5 % workforce working remotely on a regular basis

There is no data source currently available that identifies the percentage of the working population who work remotely on a regular basis. Data for this measure will be collected through the Wales National Travel Survey, once available. Breakdowns are likely to be available by age, gender, households in material deprivation, region and rural/urban.

The National Survey for Wales identifies whether respondents usually travel to the same workplace and this has been used as a proxy data source for this measure in the interim. This data source has enabled us to publish breakdowns by gender and age, however as we do not have access to the raw data, cross tabulation is not possible across these breakdowns.

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer | GOV.WALES (**Broad Topic:** Local Area and environment, **Topic:** Transport)
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Ad-hoc
Statistical Designation	National Statistics

The National Survey for Wales includes the following question: *'Please think about travelling from home to your work. Which of these best describes what you do most often?'.*

The answer options available to respondents are:

- Travel to the same workplace;
- Travel to a few different workplaces;
- I don't have a specific workplace;
- Work from home (or the same building/grounds as my home);
- Other (please specify); and
- I live away from home for work

The headline figure for this measure has been determined by calculating the percentage of respondents indicating they 'Work from home (or the same building/grounds as my home)' from the full sample population who responded to this question.

M6 Greenhouse gas emissions from the transport sector

Kilotonnes of carbon dioxide equivalent (KtCo2e) emissions from the operation of vehicles within Wales (domestic only).

Data is sourced directly from the Department of Environment, Farming and Rural Affairs' (Defra) National Atmospheric Emissions inventory.

We have used the same transport type disaggregations that have been used in the Welsh Government's Net Zero Wales Carbon Budget 2 (2021-25) report, although we have not included any share of international aviation or shipping in our data. The disaggregations published are cars, light trucks, heavy trucks and buses, domestic shipping, railways, domestic aviation, motorcycles and 'other' (which includes all of the other categories detailed below).

Data Owner	Department for Environment, Food and Rural Affairs
Data Source	Report: Greenhouse Gas Inventories for England, Scotland, Wales & Northern Ireland: 1990-2019 - NAEI, UK (beis.gov.uk)
Quality	Methodology Reports - NAEI, UK (beis.gov.uk)
Frequency	Annual
Statistical Designation	National Statistics

The National Atmospheric Emissions Inventory (NAEI) estimates and publishes annual Kilotonnes of carbon dioxide equivalent (KtCo2e) emissions from a wide range of industry sectors, including transport. Data for KtCo2e emissions attributable to transport are broken down into the below classifications:

    1A3a Domestic aviation

    1A3bi Cars

    1A3bii Light duty trucks

    1A3biii Heavy duty trucks and buses

    1A3biv Motorcycles

    1A3bv Other road transport

    1A3c Railways

    1A3d Domestic navigation

    1A3eii Other Transportation

    1A4ai Commercial/Institutional

    1A4ciii Fishing

    1A5b Other:Mobile

    2D1 Lubricant Use

    2D3 Non-energy products from fuels and solvent use: Other

To calculate the level of greenhouse gas emissions from the transport sector, the KTCo2e emissions attributed to each of the above transport classifications in Wales have been added together to provide the transport total.

Note: No KtCo2e emissions data has been reported in NAEI published data for the Commercial/Institutional category since 2005, however it is listed above for ease of reference.

S1 Average travel time to education, health and leisure services

Average travel times to education, health and leisure services.

This measure looks at the average travel time (minutes) to a range of key services by walking, cycling, public transport (bus and rail) and motor vehicles. The key services included in this measure are primary and secondary schools, General Practitioner (GP) surgeries and publicly owned sports facilities. Average travel times to town centres has also been included for reference purposes.

Data for this measure has been published at a national and regional level and by rural/urban locations.

Data Owner	Transport for Wales
Data Source and Quality	Data published on WTS monitoring website and details within this report
Frequency	Annual
Statistical Designation	No statistical designation

Step 1 – Defining the transport network

To calculate average journey times to key services the latest version of Basemap's TRACC accessibility software has been used (version 2.0). Quarter 4 2019 public transport timetables (sourced from the latest National Public Transport Data Repository (NPTDR) created by Basemap) have been used for public transport journey times as this is the most recent stable public transport timetables before the impacts of the COVID-19 pandemic. For future calculations the most up-to-date timetable data will be used.

To ensure the greatest possible representation of routes that can be taken to reach the key services, the detailed OS Highways & Paths network is used. This includes dedicated footpaths and cycle paths that may otherwise be excluded.

Within the TRACC software, an 'Origin-Destination' calculation is used to assess the accessibility and journey times. This type of calculation allows for more accurate representation of walking and cycling journeys on the existing road and path network, including when walking forms part of an end-to-end predominantly public transport journey, instead of a crow-flies measurement from stations and stops. Calculations are based on real timetabled services and the associated interchange times/penalties between services

Step 2 – Defining origin and destination points

An origin grid is overlaid onto the three regions, set at an equal distance of 250m between points.

The destination points are assigned as follows for each of the key services:

Health: GP surgeries are included using their locations as defined by OS AddressBase Plus point data, downloaded annually

Education: Primary and secondary schools are included using their locations as defined by OS AddressBase Plus point data, downloaded annually.

Leisure locations: sports facilities information was provided by the Welsh Government (using data received from Sport Wales). The locations are filtered by "Local Authority" ownership and for locations that have two or more individual sports facilities available on site. This provides a list of publicly owned sports facilities, removing any sports facilities that are under private ownership. Note that local authority owned leisure facilities under private management are included in the analysis.

Town Centres: Town centres are defined using those identified in the Welsh Towns | Understanding Welsh Places 0.1 publication. This includes all contiguous built-up areas (CBUAs) in Wales which have a population of at least 2,000 people. The understanding Welsh Places report identified 193 towns in Wales. Further details of the methodology used to identify these CBUAs can be found in the Understanding Welsh Places methodology report - Methodology | Understanding Welsh Places 0.1

Due to the size of some of the town centres a specific point-based location is identified for each town centre to enable average travel times to be calculated to that specific point in the town centre. For this purpose a manual process was undertaken to identify the main clustering of retail and services for each CBUA to assign each town centre with a specific destination point for calculation purposes.

Step 3 – Journey time calculations

Average travel time calculations have been completed on a regional basis (North Wales, Mid & South West Wales, South-East Wales) to provide a regional disaggregation. Regional data is then aggregated to calculate average travel times at the national (All Wales) level.

When calculations are undertaken for the three regions, the origin location points are limited to points within the region's boundaries. The public transport network, highways and paths network and destination points are included at an all-Wales level to ensure that destinations outside a particular region's boundaries can still be included in the calculations if they are accessible to those living outside the destination points region.

As these measures have been designed to monitor the Wales Transport Strategy there are no key service destination points included in England, even though on occasions the nearest key service (as defined above) for some Welsh residents could be in England.

For each region average travel times to each of the key services and town centres is calculated for walking, cycling, public transport (bus and rail) and motor vehicles. When conducting these calculations the average travel time is calculated from each origin location point to the nearest destination point for each key service/town centre. It does not take into account personal preference, where people may travel further to access a more specific service (ie Welsh or English language schools).

All available timetabled bus and rail services are combined to create a joint public transport mode.

To calculate the average travel time to primary and secondary schools a two-hour time period between 07:00 and 09:00 on a Tuesday (neutral weekday) has been used to calculate the average public transport to these services to ensure journeys are possible prior to the start of a typical school day.

For other key services an all-day time period between 07:00 and 19:00 on a Tuesday (neutral weekday) is used allowing for the more flexible timing of these journey purposes.

All other TRACC calculation parameters (detailed below) are set as default within the software, with the exception of '*Return accessible result only*' which is enabled for these calculations, with the aim of reducing the overall processing time of the calculation:

Walk parameters
Walk speed: 4.8 km/h
Walk variance (when not on network): 1.2
Max O/D distance (crow flies): 100 km
Time catchment: Off
Return accessible result only: On
Limit number of destinations per origin: Off
Max. external connection distance 800 m

PT parameters
Max internal connection distance: 500 m
In vehicle and walk interchange penalties: 5 min / 5 min
Stop clustering: Off
Max connection distance to first stop: 2000 m
Max number of first stops: Off
Max number of interchanges: Off
Use road network for internal interchange: On

PT and road network buffer: Off
Normalise road network: Off

The TRACC software produces a set of contours which details a maximum journey time of up to 60 minutes, which is split into six equal 10-minute bands

Step 4 – Population Analysis in GIS

The journey time contour set is exported into a Geographic Information System (GIS) application, where it is overlaid with weighted population centroids. These centroids are based on census output areas and joined with the most recent mid 2019 population estimates from the Office of National Statistics (ONS). The most up-to-date population estimates will be used in future calculations.

The sum of population figures from all centroids within the contour is then presented for each of the six 10-minute time bands.

To present the data by region, the catchment area layers are clipped in GIS to create separate catchment areas for the three regions. These regions follow local authority boundaries and include the following areas:

- North Wales: Isle of Anglesey, Gwynedd, Conwy, Denbighshire, Flintshire, Wrexham.
- South West & Mid Wales: Ceredigion, Powys, Pembrokeshire, Carmarthenshire, Swansea, Neath Port Talbot.
- South East Wales: Bridgend, Rhondda Cynon Taf, Vale of Glamorgan, Cardiff, Merthyr Tydfil, Caerphilly, Newport, Blaenau Gwent, Torfaen, Monmouthshire.

Once the regional catchment areas are created, they are overlaid with the weighted population centroids in the same way to give a similar set of population estimates.

To present the data by rural and urban areas, a similar clipping method is applied to the original catchment area layers in GIS. For the purpose of this analysis, the definition of rural and urban aligns with the Office for National Statistics' (ONS) Rural-Urban Classification, based on the boundaries of 2011 census output areas. Each census output area is assigned one of ten categories (six rural and four urban) which is calculated based on settlement population, land characteristics and the context of the surrounding areas. Further details of the classification methodology can be found here: https://www.ons.gov.uk/methodology/geography/geographicalproducts/ruralurbanclassificati ons/2011ruralurbanclassification

Each of the urban categorised output areas in Wales are dissolved into a single polygon feature, which the regional outputs are clipped to, giving an output which shows only the areas within the specified catchment of the key services and town centres and within urban areas. These clipped layers are then overlaid with the weighted population centroids in the same way as the original regional versions to give a similar set of population estimates which can be grouped by age. Once the population estimate for urban areas by region is calculated, they are combined to provide an all-Wales urban catchment for each respective travel mode with the remaining population being assigned as the rural population estimate.

Step 5 – Final Calculations

To calculate the average travel times to each key service the population figure within each of the six 10-minute travel time bands is multiplied by the middle point of each time band. This provides a total travel time for the population within a 60-minute journey of each key service.

Not all of the regional population is able to access the key services by each travel mode within 60 minutes. To ensure that this element of the population is not excluded, a 90-minute journey time is allocated to the remaining population. This total travel time is then added to the total travel time for those who fall within the six 10-minute time brackets.

The average travel time is calculated by dividing the total travel time by the total regional population. Calculations have been undertaken across the three regions, by each mode to each of the key services and town centres. This regional data is aggregated to calculate average travel times for the full population at the National (All Wales) level.

S2 % people satisfied with their ability to access services in their local area

Percentage of people satisfied with their ability to access services available within a 15-to-20-minute walk of home.

The National Survey for Wales includes a question asking for respondents' satisfaction with their ability to get to local services. Local services as outlined within the National Survey include shops, restaurants, parks, sports centres, schools and GP surgeries.

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer	GOV.WALES **Broad Topic:** Local Area and Environment; **Detailed Topic:** Local Area Facilities; Survey Question: Satisfaction with the ability to get to local services
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Every two years
Statistical Designation	National Statistics

Satisfaction level breakdowns have been published by gender, age, material deprivation, local authority, region and rural/urban. However, as we did not have access to the raw data, cross tabulation is not possible across these breakdowns.

The National Survey includes the following question:

'How satisfied or dissatisfied are you with your ability to get to these services and facilities?' within a 15-to-20-minute walk from home.

The answer options available to respondents are:

- Very satisfied;
- Fairly satisfied;
- Neither satisfied nor dissatisfied;
- Fairly dissatisfied; and
- Very dissatisfied.

The headline figure for this measure has been determined by combining the percentage of respondents who were either 'very satisfied' or 'fairly satisfied' with their access to services to create a percentage of respondents who were 'satisfied' with their access to local services.

S3 % people within walking distance of sustainable modes of transport

Percentage of people within a five-minute walk of an hourly bus service, a ten-minute walk of an hourly rail service and a five-minute walk of an active travel route.

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales monitoring data
Frequency	Annual
Statistical Designation	No statistical designation

Data for this measure has been published at a national and regional level, by age and by rural/urban locations.

To calculate this measure there are three separate calculations that are undertaken to identify the percentage of the population within a:

a) 5-minute walk of an hourly bus service;
b) 10-minute walk of an hourly rail service; and
c) 5-minute walk of an active travel route.

Step 1 – Calculating walking distances within 5/10 minutes

Average walking distances have been calculated to inform this measure. The DfT's National Travel Survey 2019 table (NTS0303) publishes details of walking trips made, including the average trip length (miles) and average trip duration (minutes).

The average trip length (miles) has been divided by the average trip duration (minutes) to provide an average walking speed (miles per minute). This figure is multiplied by 5 and 10 to provide the average distance (miles) that people can walk within 5 and 10 minutes. These distances (miles) are converted into metres for use within the TRACC software used to perform the calculations for this measure.

The average walking distances calculated are:

5 Minutes: 326 metres
10 Minutes 652 metres

Note: Individual walking speeds are highly variable, this calculation uses an average, therefore not everyone will be able to reach the stops/routes within a 5 or 10 minute walk, similarly others may be able to walk to further destinations within 5 and 10 minutes.

Step 2 – Estimating population within distance buffers around stops and stations

a) Percentage of people within a 5 minute walk of an hourly bus service
b) Percentage of people within a 10 minute walk of an hourly rail service

GIS software has been used to support these calculations. Within the GIS software buffers are created, at a distance slightly greater than the calculated average walking distances achievable within 5 and 10 minutes. Buffers of 400m around all applicable bus stops and 800m for all applicable rail stations were created. Using buffer zones slightly larger than the average walking distances avoids sudden stops to any accessibility areas purely as a result of reaching the edge of the precise walkable distance.

Once the buffers are created, a set of regular origin points is plotted (100m apart), to the full extent of the buffer layer. Once completed, the grid of origin points is clipped to only include those within the buffer, which is then imported into the TRACC software.

Combined with the Ordnance Survey (OS) Highways & Path network, the 'Local Accessibility' calculation is then used to determine the accessibility to bus stops and rail stations in Wales (1 service per hour or more). The time period selected for this analysis is a neutral Tuesday between 07:00 and 19:00, which means that a bus stop or rail station must be served by at least 1 bus or train an hour, every hour, for the 12-hour time period. All other parameters within the TRACC software were left as default.

Once the calculations are complete, contours are created for both bus and rail to visualise the result. This is drawn with a cell size of 100, up to a single walking distance of 326m (bus stops) and 652m (rail stations) in line with the average walking distances within 5 and 10 minutes). The outputs are then saved as a shapefile and imported back into the GIS application.

These contours are then overlaid with a set of weighted population centroids, based on Office of National Statistics (ONS) 2019 mid-year population estimates at Output Area (OA) level. The sum of population from centroids that lie within each contour's boundary is given as the output, with a percentage proportion compared to the total population of Wales or region being calculated.

The contour outputs are merged and dissolved (to avoid double-counting at overlaps) within the GIS software. This combined feature is analysed using the same overlaying with ONS weighted population centroids to give a combined population estimate for accessibility to either bus or rail with the respective walking distances of 326m (5-minute average walking distances) and 652m (10-minute average walking distance).

c) % Percentage of people within a 5 minute walk of an active travel route

Active travel routes are designed for walking and cycling as a means of transport, rather than for leisure purposes.

To calculate this measure the Welsh Government's Approved Active Travel Routes, available from Active Travel Approved Routes (lle.gov.wales), have been used. All sub-categories (e.g. on-road, off-road, foot path, cycle path etc.) have been imported into the GIS software.

Due to the nature of this dataset being in a line format, a standard buffer has been created around these active travel routes in GIS at a distance of 326m, representing the average

distance travelled within a 5-minute walk.

The buffered area is then overlaid with a set of weighted population centroids, based on ONS 2019 mid-year population estimates at Output Area level. The sum of population from centroids that lie within the contour's boundary is given as the output, with a percentage proportion compared to the total population of Wales or region being given in addition to the actual figures.

Urban/Rural Analysis

In order to calculate and publish these results based on urban and rural locations, the same process as detailed in the *'Step 4 – Population Analysis in GIS'* section of Measure S1 was used.

S4 % people who walk or cycle at least once a week as a means of transport

People who walk for ten minutes or more, or cycle at least once a week as means of transport

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer | GOV.WALES **Broad Topic:** Local area and environment; **Detailed Topic:** Active travel-adults; **Derived Data:** Walks (10mins+) or cycles at least once a week as means of transport.
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Annual
Statistical Designation	National Statistics

The National Survey for Wales publishes data that shows the percentage of respondents who "*Walk (10mins+) or cycles at least once a week as means of transport*".

This is not a question which is directly asked as part of the National Survey, it is a derived dataset based on responses to the following two questions:

- *In the last three months, how often have you used a bicycle as a means of transport?*
- *In the last three months, how often have you walked for more than 10 minutes as a means of transport?*

The derived dataset has been used directly for this measure with no further calculations undertaken. Breakdowns are published by gender and rural/urban locations. However, as we do not have access to the raw data, cross-tabulation is not possible across these breakdowns.

S5 % Journeys to a rail station by walking, cycling or bus

The data for this measure will be collected through the Wales National Travel Survey, once available. It will comprise the percentage of all journeys made to a rail station by walking, cycling or bus. A breakdown is likely to be available by some protected characteristics, including age, gender and some socio-economic factors.

In the interim, data from two rail passenger surveys undertaken in 2015 and 2019, which asked how the respondent travelled to the rail station has been used. Breakdowns have been published at a regional level.

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales monitoring data
Frequency	Ad-hoc
Statistical Designation	No statistical designation

Rail passenger surveys were conducted at rail stations in North Wales, South West Wales and Mid Wales over a period of four weeks in October and November 2019. The same type of survey was also conducted at rail stations in South East Wales during May 2015.

Rail stations included within the survey (shown in Table 2) were selected as they were deemed to be some of the busiest rails stations within their respective regions:

Table 2: Rail passenger survey rail station locations by region

South-East Wales	South-West Wales	North Wales	Mid-Wales
Cardiff Central	Carmarthen	Wrexham General	Welshpool
Cardiff Queen Street	Swansea	Shotton	Newtown
Newport	Haverfordwest	Flint	Aberystwyth
Abercynon	Milford Haven	Bangor	
Cogan	Pembroke Dock	Rhyl	
Pengam	Tenby	Colwyn Bay	
Pontyclun	Pembrey and Burry Port	Prestatyn	
Bargoed	Port Talbot Parkway	Llandudno	
Bridgend	Britton Ferry	Llandudno Junction	

Caerphilly	Neath		
Pontypridd	Llanelli		
Radyr			
Severn Tunnel Junction			
Trefforest			
Ystrad Mynach			
Ebbw Vale Parkway			
Rhymney			
Merthyr Tydfil			
Aberdare			
Treherbert			
Taffs Well			
Llandaf			
Cathays			
Cardiff Bay			

The surveys were conducted through face-to-face interviews on rail station platforms. Each station was visited for one 12-hour period with respondents being randomly selected as they either alighted from a train or waited to board a train.

The survey included several questions relating to the respondent's rail journey, including their starting location and their final destination. The survey also asked a question relating to the mode of transport they used to travel to the rail station, with the following options being available:

- Car (Driver);
- Car (Passenger);
- Walk;
- Cycle;
- Bus; and
- Other.

To calculate the outturn for this measure the number of trips to the rail station recorded by

walking, cycling or bus have been divided by the total number of survey responses.

Notes:

Since the surveys are conducted over one 12-hour period it is possible that differences in early morning and late-night travel habits may not be reflected in the data.

It is noted that there are likely to be limitations in combining 2015 and 2019 data to enable the production of this all-Wales statistic. However, it was considered a reasonable assumption that the mode of travel to a rail station would not have significantly changed between the 2015 and 2019 surveys.

S6 % trips to visitor attractions by sustainable modes of transport

Percentage of journeys to visitor attractions (arts, culture and sporting events, historic sites and monuments, national parks and landscapes and coastal areas) in Wales by walking, cycling and public transport (including organised coach tours).

Data Owner	Visit Wales
Data Source and quality	Great Britain day visits survey 2019 report (gov.wales)
Frequency	Annual
Statistical Designation	No statistical designation

Visit Wales, in partnership with Visit Scotland and Visit England, conducts the annual Great Britain Day Visits Survey. This annual survey is conducted to understand the number of visits to Wales or within Wales and the mode of transport that visitors have used for these trips.

The destinations/activities included within the survey are wide-ranging and not all are applicable to this measure. The destinations/activities included in the survey that have been analysed and included as part of this measure are:

- Watched live sporting event (not on TV);
- Went to visitor attractions such as a historic house, garden, theme park, museum, zoo, etc;
- Went to a special public event such as a festival, exhibition, etc;
- Went out for entertainment, to a cinema, concert or theatre;
- Went on general days out/ to explore an area; and
- Went on day trips/excursions for another leisure purpose not mentioned above.

The survey asks respondents how they travelled to these particular destinations/activities, providing them with the following transport modes as travel options.

- Car (driver or passenger);
- Car (hired);
- Public Bus/Coach;
- Organised bus trip;
- Train;
- Walk;
- Bicycle;
- Taxi;
- Campervan;
- Plane;
- Boat/Ferry;
- Lorry/Truck/Van; and
- Other.

Due to low data volumes for some modes we have combined the above modes as follows for reporting purposes:

- Car (Includes Car (driver or passenger), Car (hired), Campervan, Lorry/Truck/Van)
- Public Transport (Public Bus/Coach, Train)

- Walked (Walk)
- Cycle (Bicycle)
- Taxi (Taxi)
- Organised coach tour (Organised bus trip)
- Other (Plane, Boat/Ferry, Other)

Totals for the mode of travel used to visit each of the six destinations/activities have been combined and then the headline figure for this measure is calculated by dividing the number of trips to these destinations/activities by sustainable modes (Public Transport, Walking, Cycling, Organised coach tour) by the total number of trips by all modes of transport.

S7 % rail network that is electrified

Proportion of the rail route in Wales open for traffic that is electrified.

Data Owner	Network Rail & Office of Road and Rail
Data Source	Rail kilometres electrified (table-6320)- ORR (orr.gov.uk)
Quality	Rail infrastructure assets and environmental quality report- ORR (orr.gov.uk)
Frequency	Annual
Statistical Designation	No statistical designation

The Office for Rail and Road (ORR) publishes information on the electrification of rail track by country in Table 6320 – Infrastructure on the mainline.

Using this published data, the outturn for this measure is calculated by determining the length of rail route electrified in Wales (km) compared to the total rail route in Wales that is open for traffic (km).

S8 % land-based freight moved by rail

Proportion of road and rail freight moved to, from and within Wales that is transported by rail. This measure takes account of both the volume of freight and the distance that freight is transported.

Dataset 1: Goods lifted by road

Data Owner	Welsh Government
Data Source and quality	Goods lifted by road within, to and from Wales by UK registered HGVs, by commodity group (gov.wales)
Frequency	Annual
Designation	National Statistics

Dataset 2: Rail freight market share

Data Owner	Office of Rail and Road
Data Source	Table 1350 - Rail freight market share	ORR Data Portal
Quality	Freight rail usage and performance (orr.gov.uk)
Frequency	Each Rail Period
Designation	National Statistics

Dataset 3: Freight moved by rail

Data Owner	Office of Rail and Road
Data Source	Table 1314 - Freight Moved by commodity (periodic)	ORR Data Portal ORR publish data at a Great Britain wide level. Network Rail have provided us with Wales only data.
Quality	Freight rail usage and performance (orr.gov.uk)
Frequency	Each Rail Period
Designation	National Statistics

Several calculations across differing datasets are required in order to calculate the outturn figure for this metric.

Road freight calculations

Using the data published by the Welsh Government ('Goods lifted by road within, to and from Wales by UK registered HGVs, by commodity group') a total is calculated for the volume of freight lifted ('000 tonnes) moved to, from and within Wales. This total ('000 tonnes) is then divided by 1,000,000 in order to change the freight moved by road in Wales unit to billion tonnes. This gives us the total volume of freight moved but not the distance.

Using the data published in the ORRs Table 1350 - Rail freight market share, calculations are undertaken to identify the average distance travelled by road (HGV) by each billion tonnes of freight (miles) in Great Britain.

- The ORR data for freight lifted in Great Britain is published in million tonnes. This is divided by 1,000 to calculate freight lifted in billion tonnes.

- The published figure for freight moved (billion net tonne kms) for Road (HGV) is then divided by the freight lifted (calculated above in billion tonnes) to estimate the average distance travelled (kms) by each billion tonnes of freight moved by road (HGV) in Great Britain.

- The average distance travelled is converted from kilometres to miles, providing the average distance travelled (miles) by each billion net tonnes of freight by road (HGV).

The total volume of freight moved to, from and within Wales (billion tonnes) is then multiplied by the average distance travelled by each billion tonnes of freight (kms) to calculate the billion net tonne miles of freight moved by road in Wales.

Rail freight calculations

The ORR publishes data on freight moved by rail in Table 1314 – Freight moved by commodity, which details the amount of freight moved on the rail network (billion net tonne kms) at a Great Britain level. Network Rail have provided us with this data for freight moved to, from and within Wales (billion net tonnes miles).

% land-based freight moved by rail

To calculate the % of land-based freight moved by rail, the volume of freight moved by rail (billion net tonne miles) is divided by the total freight moved by rail and road (billion net tonne miles).

Notes:

The data used to calculate the average distance travelled (miles) by each billion net tonnes of freight by road (HGV) is published at a Great Britain level only. However, we have assumed that the average distance travelled by road freight to, from and within Wales would be consistent with distances travelled at a Great Britain level.

In this calculation we have compared road data from 2020 with rail data from 2020-21.

Some freight may be moved to, from and within Wales by Light Goods Vehicles (under 3.5 tonnes). As freight moved by LGVs is not accounted for in this calculation there may be an element of under representation of the freight volume moved by road. The level of underestimate cannot be quantified as LGVs are involved in a range of activities besides transporting freight.

S9 % bus and rail services on time

% Bus and rail services on time. This measure covers timeliness of buses and trains (both passenger and freight) in Wales.

Dataset 1: Bus services timeliness

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales via third party monitoring and reporting systems
Frequency	Monthly
Designation	No statistical designation

Bus services

Bus timeliness data is obtained by Transport for Wales through third party reporting systems, captured from bus ticketing machines that are Global Positioning System (GPS) enabled and can gather data for timing points along a scheduled route. These timing points are captured and compared to scheduled timetable data. A bus service will be recorded as 'not on time' if it departs either one minute earlier, or 5 minutes later than its scheduled departure time.

For this measure data from all GPS enabled bus operators/routes that are accessible to the third party monitoring system have been reported. The dataset used is based on the timeliness of buses during weekdays between 7am and 7pm for a full calendar year 1 January to 31 December.

Note: Bus timeliness data is not currently available to the third party reporting system for services in South West Wales. In the North Wales region data is only available from services operated by Arriva and in Mid Wales it is only available for TrawsCymru services.

Dataset 2: Passenger rail services timeliness

Data Owner	Office of Rail and Road
Data Source	Table 3114 - Public Performance Measure by operator and sector (periodic)	ORR Data Portal
Quality	Passenger rail performance: (orr.gov.uk)
Frequency	Annual (By Rail Period)
Designation	National Statistics

Passenger rail services

The Office for Road and Rail (ORR) publishes data for the timeliness of TfW passenger rail services using the public performance measure (PPM). This measure looks at the percentage of passenger trains arriving at their final destination within 5 minutes of the scheduled arrival time. The latest published data has been used and the percentage of passenger rail services on time is displayed across the 13 rail periods.

Note: In later versions of the data TfW will be moving to a rail passenger timeliness measure that is based on passenger time lost.

Dataset 3: Rail freight services timeliness

Data Owner	Office of Rail and Road
Data Source	Table 1324 - Freight Delivery Metric by Region (FDM-R) | ORR Data Portal
Quality	Freight quality report- ORR (orr.gov.uk) (Rail Freight)
Frequency	Annual (By Rail Period)
Designation	National Statistics

Rail freight services

The Office for Road and Rail (ORR) also publishes information on the timeliness of commercial freight trains at a regional level. Network Rail has provided us with freight timeliness data for the Wales route. This measure considers freight trains that arrive at their planned destination within 15 minutes of their booked arrival time or with less than 15 minutes of Network Rail or passenger operator delay. The latest data has been used and the percentage of rail freight services on time is displayed across the 13 rail periods.

Note: These figures do not include any freight delays experienced on the Core Valley Lines (CVL) through Cardiff Queen Street.

S10 Number of publicly available electric vehicle charging points

Number of publicly available electric vehicle charging devices in Wales.

Data Owner	Department for Transport
Data Source	EV Charging map- Department for Transport (gov.uk)
Quality	Electric vehicle charging device statistics background notes and limitations- Department for Transport (gov.uk)
Frequency	Quarterly
Statistical Designation	Experimental Statistics

The Department for Transport (DfT) publishes quarterly data on publicly available electric vehicle charging points (by type). This data is sourced from a third party.

The total number of publicly available chargers for Wales has been published along with a breakdown of this data at a Wales local authority level and by charger type (standard and rapid).

Data has also been published that details the number of charging points per 100,000 people, which has also been published at a local authority level.

Note: The DfT has stated that this data is experimental, and therefore might be subject to some discrepancies.

S11 % people satisfied with their journey

There is no data source currently available that identifies the percentage of people who are satisfied with their journey across all transport modes and in connection with a number of aspects of their journey (eg information availability, safety, punctuality, reliability and ticketing).

Data for this measure will be collected through the Wales National Travel Survey, once available. Breakdowns are likely to be available by age, gender, households in material deprivation, region and by rural/urban locations.

The National Survey for Wales has identified respondents' overall satisfaction levels with bus and rail services and this has been used as a proxy data source for this measure in the interim. This data source has enabled us to publish breakdowns by gender, age, disability, ability to speak Welsh and whether the respondent has access to a car. As we did not have access to the raw data, cross-tabulation is not possible across the two services or across these breakdowns.

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer	GOV.WALES **Broad Topic:** Local area and environment; **Detailed Topic:** Transport: **Questions:** Overall satisfaction with train services & Overall satisfaction with bus services
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Ad-hoc
Statistical Designation	National Statistics

The National survey includes the following questions:

"Overall, how satisfied or dissatisfied are you with bus services?"
"Overall, how satisfied or dissatisfied are you with train services?"

The answer options available to respondents were:

- Very satisfied;
- Fairly satisfied;
- Neither satisfied nor dissatisfied;
- Fairly dissatisfied; and
- Very dissatisfied.

The percentage of people satisfied with both bus and rail services is calculated by combining the published percentage figures for respondents who have stated that they are either "Very Satisfied" and "Fairly Satisfied" with the respective services.

S12 % people satisfied with their ability to access public transport independently

There is no data source currently available that identifies the percentage of people who are satisfied with their ability to access public transport independently.

Data for this measure will be collected through the Wales National Travel Survey, once available for all public transport modes. Breakdowns are likely to be available by age, gender, disability, households in material deprivation, region and by rural/urban locations.

However, Transport for Wales operates an ongoing 'Wavelength' panel survey of individuals who have travelled by train in the past 7 days. It includes a question asking respondents whether they required assistance as part of their rail journey and we have used responses to this question as proxy data for this measure. Where a respondent has indicated that they required assistance we have broken this down into whether or not the respondent identified as disabled.

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales – Ongoing Wavelength survey of rail passengers (data not published)
Frequency	Annual
Statistical Designation	No statistical designation

The ongoing Wavelength survey of rail passengers includes a question asking whether rail passengers (in the last 7 days) required assistance as part of their train journey. From this survey we have published the percentage of respondents who required assistance as part of their journey as a proportion of the total number of responses to the survey.

S13 % rail stations that are step-free

Percentage of Rail stations in Wales that are step-free.

Data Owner	Transport for Wales
Data Source	Station accessibility- Transport for Wales (tfw.wales)
Quality	Accessible travel policy guidance-ORR (ORR.gov.uk) (Page 46)
Frequency	Annual
Statistical Designation	No Statistical Designation

The Office of Rail and Road (ORR) has published information for train and station operators setting out three different step-free access categories that a train station's accessibility should be assessed against. Transport for Wales has assessed each of the rail stations (including newly built stations) that fall under its direct control in both Wales and England against these categories/criteria and published the step-free category for each of its individual stations on the TfW website.

The outturn for this measure is calculated by determining the percentage of rail stations in Wales which have been assessed as compliant with the requirements of Category A (Station has step-free access to all platforms/the platform) as a percentage of all TfW train stations in Wales.

Note: For the purposes of this measure all TfW managed stations in England have been excluded from this calculation.

S14 % buses & trains with audio visual information

Buses used as public service vehicles in Wales with audio visual information and trains operated by TfW with a public address system and visual information screens.

Dataset 1: Buses with audio visual information available

Data Owner	Department for Transport
Data Source	Annual bus statistics- Department for Transport (gov.uk)(Table BUS0610)
Quality	Buses statistics guidance- Department for Transport (gov.uk)
Frequency	Annual
Designation	National Statistics

The Department for Transport publishes annual bus statistics covering Wales including the percentage of buses with audio visual information. This data covers all operators who run local bus services, including those who also do non-local work (e.g. private hire, school contracts).

Dataset 2: TfW Trains with audio visual information available

Data Owner	Transport for Wales
Data Source and quality	Train accessibility- Transport for Wales (tfw.wales)
Frequency	Ad-hoc/Ongoing
Designation	No statistical designation

Transport for Wales publishes accessibility information about each type (class) of train that are operational across Wales, including which classes of train have a public address system and audio visual information screens.

The percentage figure for TfW trains that have audio visual information has been published directly without any further analysis or breakdown.

S15 % Welsh speakers using Welsh language services in the transport sector

The data for this measure will be collected through the Wales National Travel Survey, once available. The National Travel Survey will try to identify the percentage of Welsh speakers using Welsh language services in the transport sector. Breakdowns will cover a number of transport modes (particularly public transport) and are likely be available by some protected characteristics, including age, gender and some socio-economic factors.

The National Survey for Wales identified the language used by Welsh speakers to speak to staff when visiting a supermarket in the last 7 days and this has been used for context purposes in the interim. Data for the supermarket sector provides a benchmark against which we can assess Welsh language usage in the transport sector when new data becomes available. There are no breakdowns available for this data.

Data Source	National Survey for Wales: results viewer	GOV.WALES
	Broad Topic: Culture and Welsh language; Detailed Topic: Welsh language-use; Question: Language spoken when visited a supermarket in last 7 days
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Ad Hoc
Statistical Designation	National Statistics

The following question is included in the National survey and is asked of Welsh speakers:

'Which language did you speak with staff the last time you visited a large supermarket?'.

The answer options available to respondents are:
- Welsh with all staff
- Welsh with some staff and English with other staff
- English with all staff
- I didn't speak with any staff

The interim/benchmark outturn for this measure is calculated by adding together the percentages of people who spoke *"Welsh with all staff"* and "*Welsh with some staff and English with other staff*".

S16 Average delay per kilometre travelled

This measure considers delay on the rail and road networks in Wales (seconds/km).

Passenger Rail delay

Dataset 1: Passenger rail delay (minutes)

Data Owner	Office of Rail and Road
Data Source	Table 3184 - Delay minutes by operator and cause (periodic) | ORR Data Portal
Quality	Passenger rail usage: Quality and Methodology Report (orr.gov.uk)
Frequency	Annual
Designation	National Statistics

Dataset 2: Total passenger train journeys (kms)

Data Owner	Office of Rail and Road
Data Source	Table 1243 - Passenger train kilometres by operator | ORR Data Portal
Quality	Passenger rail usage: Quality and Methodology Report (orr.gov.uk)
Frequency	Annual
Designation	National Statistics

The Office for Road and Rail publishes details of the following information for each train operating company:

- Number of minutes that passenger rail services are delayed per year (by train operating company)
- Total passenger train kilometres (millions) travelled by passenger rail services per year.

The figures attributable to Transport for Wales have been used for this measure.

To calculate the outturn for this measure, the number of minutes delay are converted into seconds and the total train kms (millions) travelled by passenger rail services are converted into kms.

The total number of seconds delayed per year is then divided by the total train kms travelled by passenger rail services per year to provide the annual average delay (seconds) per kilometre travelled by passenger rail services operated by Transport for Wales.

Note: The measure does not include any details of any delays caused by train cancellations as it only takes into account services that arrived late against their scheduled arrival time.

Road Network Delay

Dataset 3: Average delay on the Strategic Road Network and A-Roads

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales calculated data using INRIX
Frequency	Ad-hoc
Designation	No statistical designation

Average delays (seconds) per km travelled on the Welsh road network are calculated using INRIX Roadway Analytics, which is available under contract to the Welsh Government. INRIX uses real-time GPS data and traditional real-time traffic flow information to calculate the current and historical average speeds for the road network.

The data is calculated using a full year of data from January to December.

The average delays (seconds per km) are calculated by comparing morning (am) and afternoon (pm) peak period flow speeds to a late evening (assumed free-flow) speed:

- Peak period flow speed = Average of am peak period (8:00am-9:00am) and pm peak period (5:00pm-6:00pm) speeds; and
- Free flow speed = Average off-peak period (7:00pm–11:59pm) speed.

Strategic Road Network (SRN) delays

The Strategic Road Network (SRN) refers to motorway and primary A-roads, and is identified using the Trunk Road Network layer available from Lle - Trunk Road Network (2016) (gov.wales).

The average delays are calculated for every road on the SRN (e.g. M4, A55, A470,) in both directions. This is achieved by converting speed in kilometres per hour, into seconds per kilometre and calculating the difference between peak hour and free-flow period (off-peak) times. The total SRN delay is calculated by multiplying the delay (sec/km) on each road by its length (km), adding these outputs together, and then dividing by the total length of the SRN network (km). This provides an average delay per km travelled for the entire SRN (sec/km).

A-Road delays

All A-Roads in Wales are included in this calculation, with the exception of any primary A-Roads that were included in the calculations for the SRN.

The A-Roads are identified using the OS Highways Road Network. Average delays are calculated using the same method used to calculate delays on the strategic road network. However the A-road delay has been calculated as an average per region, instead of per road link. The three regions are North Wales, South-East Wales and Mid & South West Wales. If a particular A-Road is in more than one region, then it is included in the region in which the majority of the road length is located.

The average delay for the entire A-Road network across Wales is also calculated in the same way.

Note: All roads included are within the Wales national boundary.

S17 Average cost per kilometre travelled by public transport

There is no single data source available that allows the average cost per km travelled by public transport to be calculated. Data for this measure will be collected through the Wales National Travel Survey, once available. The National Travel survey will try to identify the average cost per kilometre travelled on all public transport modes with breakdowns likely be available by some protected characteristics, including age, gender and some socio-economic factors.

The TAS Partnership Limited – Passenger Transport Specialists, conduct a National Bus Fares survey every 2 years. This survey covers the whole of the UK and identifies the average cost of a single ticket based on a three-mile journey and provides this data by ticket type, by nation and by urban and non-urban locations. This survey has been used as a proxy data source for this measure in the interim

Data Owner	The TAS Partnership Limited
Data Source and quality	National Fares Survey 2019- TAS Partnership (taspartnership.co.uk)
Frequency	Every 2 years
Statistical Designation	No Statistical designation

The average cost of a single ticket for a 3-mile bus journey in Wales has been used in order to calculate the outturn for this measure. The 3-mile distance has been converted into kilometres and then the average cost of the single ticket is divided by the new distance (km) in order to calculate the average cost per kilometre for a single bus journey in Wales.

Note: The TAS Partnership survey captures samples of tickets from across the UK for bus only. Within the survey the reported sample size achieved for bus ticket information in Wales was very low (53 responses) when considering the bus coverage and number of bus journeys undertaken in Wales. The data has been provided for indicative purposes in the absence of any other data but should be treated with caution and may not be representative of the actual cost of a single bus trip per kilometre.

S18 % people who feel they can't afford to travel by public transport

There is no single data source available that allows the percentage of people who feel they can't afford to travel by public transport to be calculated. Data for this measure will be collected through the Wales National Travel Survey, once available and it is likely that breakdowns will be available by some protected characteristics, including age, gender and some socio-economic factors.

The Office for National Statistics conducts an annual Living Costs and Food Survey (LCF) each financial year, which collects information on spending patterns and the cost of living that reflect household budgets. Indicative information from this survey has been published as a proxy data source for this measure.

Data Owner	Office of National Statistics
Data Source	Family expenditure by region (workbook 3)- ONS (ons.gov.uk)
Quality	Living Costs and Food Survey technical report: financial year ending March 2020 - Office for National Statistics (ons.gov.uk)
Frequency	Annual
Statistical Designation	National Statistics

From information gathered in this survey the ONS publishes a *Family spending workbook 3: Expenditure by region*. Table A35 publishes the *Detailed household expenditure by countries and regions*, which includes information for Wales.

The published data sets out the average weekly household spend (£) for a large range of expenditure types, one of which is transport. The Transport section of this weekly household spend is broken down into the following three main categories:

- Purchase of vehicles
- Operation of personal transport
- Transport services

The transport services category includes sub-categories that include public transport costs and other travel and transport costs.

We have published the average weekly spend (£) for each of the above categories, but we have shown public transport costs and other travel and transport costs separately for indicative purposes.

S19 People killed or injured on the transport network

People killed or injured on the transport network.

Stats Wales publishes information relating to injuries (slight and serious) and fatalities in road accidents reported to the Police.

Stats Wales also publishes information relating to fatalities on the rail network. Published information for rail does not as yet include information relating to injuries on the rail network. We are investigating additional data sources relating to injuries on the rail network and these will be included in future updates where possible.

Dataset 1: Road accidents – number of people killed or seriously injured in reported road accidents

Data Owner	Welsh Government
Data Source and quality	Recorded road accidents by severity and area (gov.wales)
Frequency	Annual
Designation	National Statistics

Welsh Government collects and reports on the number of fatalities and injuries (slightly and seriously) resulting from accidents on the road network in Wales that are reported to the Police. This data has been used directly for this measure with no additional calculations being undertaken.

Dataset 2: Rail fatalities

Data Owner	Welsh Government
Data source and quality	Rail fatalities by year (gov.wales)
Frequency	Annual
Designation	National Statistics

Welsh Government collects and reports on the number of fatalities on the rail network in Wales. This data has been used directly for this measure with no additional calculations being undertaken.

S20 % people who feel safe & welcome when travelling

There are limited data sources currently available that identify the percentage of people who feel safe when travelling across a small number of transport modes and there are no data sources that identify whether people feel welcome whilst travelling. Additional data for this measure will be collected through the Wales National Travel Survey, once available and it is likely that breakdowns will be available by some protected characteristics, including age, gender and some socio-economic factors.

The latest National Survey for Wales has identified the level of respondents who feel safe using public transport after dark, who feel safe walking alone in their local area after dark and who feel safe travelling by car after dark.

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer	GOV.WALES **Broad Topic:** Local area and environment; **Detailed Topic:** community safety
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Every 2 years
Statistical Designation	National Statistics

The National Survey includes three separate questions relating to perceptions of respondent safety whilst:

- Travelling on public transport after dark;
- Travelling by car after dark; and
- Walking in their local community at night after dark.

The answer options available to respondents are:
- Very safe
- Fairly safe
- A bit unsafe
- Very Unsafe

To calculate the outturn for each of the individual questions included as part of this measure, the percentages of responses for "Very Safe" and "Fairly safe" are combined to provide an overall total of respondents who feel 'safe'.

Breakdowns by age, gender and urban/rural have been published for the latest survey year.

Note: The National Survey question asks for people's perceptions about safety whilst walking and driving at night-time rather than at any time during the day and there is no differentiation between a respondent's feeling of safety whilst using bus or rail as discrete transport modes.

S21 % transport infrastructure in good condition

There are a significant number of assets that form part of the road and rail network across Wales. We have presented condition data on the key asset types: rail track, pavement and structures on the strategic road network, and pavement on the local road network. The pavement condition data covers the road surface driven by traffic.

Transport for Wales is responsible for maintaining the rail track that forms part of the Core Valley Lines. Network Rail is responsible for maintaining the remainder of rail track in Wales. Network Rail has not provided any information on the condition of its assets in Wales at this time.

Welsh Government is responsible for maintaining the strategic road network. Local authorities are responsible for maintaining the local road network. Due to differences in assessment methodology, data for pavement condition on the strategic and local road networks is presented separately.

The condition data for structures on the strategic road network is based on the £ value condition of each structure rather than the number of individual assets in each condition bracket.

Dataset 1: Rail Track Condition

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales monitoring data
Frequency	Annual
Designation	No statistical designation

Transport for Wales is responsible for monitoring and maintaining the rail track that forms part of the Core Valley Lines (CVL).

CVL rail track condition is monitored on an ongoing and yearly basis across a number of aspects including residual track life, which is the data used for monitoring purposes. Rail track condition is assessed in 220-yard sections (or the actual track length where it is less than 220 yards).

There are a number of key factors that are considered when assessing overall rail track condition, including:
- Whether track section is straight or curved
- Date rail was installed
- Whether the installed rail was new or serviceable (i.e. existing rail taken from a higher category track location and cascaded to be re-used in this location)
- Rail type
- Jointed or continuously welded rail (CWR)
- Line speed

- EMGTPA (Estimated million gross tonnes per annum of rolling stock running over this section
- Track cant value (Super-elevation on curves)
- Radius of track
- Whether it is a left hand or right hand curve
- Headwear and sidewear readings at 40m intervals on curves and 100m intervals on straights for each rail
- Whether there is expected to be a line speed increase, service increase or change in rolling stock (as per CVL where we expect wear rates to increase by a factor of 1.9)

Using this information track length (kms) are assessed and categorised into the following residual track life (years) brackets.

- 0 to 4 years:
- 5 to 9 years;
- 10 to 14 years
- 15 to 19 years
- 20 to 25 years
- 25+ years

For the purpose of this measure the CVL track length (kms) that has been assessed as having a residual track life of 15 years and above has been included when calculating the published figure for the % of Core Valley Lines track (kms) in good condition.

Dataset 2: Condition of Structures on the strategic road network

Data Owner	Welsh Government – Highways Team
Data Source and quality	Welsh Government – Highways Team monitoring data
Frequency	Annual
Designation	No statistical designation

Welsh Government's Strategic Road Network Division is responsible for monitoring and maintaining highway structures assets on the strategic road network. The main structures are Bridges, Retaining Walls and Culverts.

Structures assets are inspected on a biennial basis in accordance with inspection standards.

For the purposes of this monitoring framework Welsh Government has reported the condition of all structures assets maintained using a Structure Condition Score (SCS) (critical) methodology. The SCS (critical) assessment/scoring system is based only on those elements of the structure which have a very high (or critical) importance classification for the particular asset type (e.g. for a bridge this would include the bridge deck).

Condition Category	Scoring Range	SCS (Critical) (Worst critical element)
Very Good	90 to 100	• Insignificant defects/damage • Capacity unaffected
Good	80 to < 90	• Minor defects/damage • Capacity unlikely to be affected
Fair	65 to < 80	• Minor to moderate defects/damage • Capacity may be slightly affected
Poor	40 to < 65	• Moderate to severe defects/damage • Capacity may be significantly affected
Very Poor	0 to < 40	• Severe defects/damage • Failure of possible failure of critical element • Capacity may be severely affected • Structure may need to be weight restricted of closed to traffic

Structural assets on the strategic road network vary significantly in their size, importance and asset value (gross replacement cost). To address this in part, once each asset has been assigned to a condition category in the above table, the individual asset value is reported in each of the condition categories. This method provides a combined asset value (£) for all structures assets within each condition category.

The outturn for this particular measure is calculated by combining the percentage of asset values (£) in both very good and good condition to provide us with an overall figure that represents the % of structures on the strategic road network in good condition.

Dataset 3: Condition of pavement on the strategic road network

Data Owner	Welsh Government Highways team
Data Source and quality	Welsh Government – Highways Team monitoring data
Quality	CS229- Data for pavement assessment (standardsforhighways.co.uk)
Frequency	Annual
Designation	No statistical designation

The Welsh Government Highways Team is responsible for monitoring and maintaining pavement on the strategic road network.

Pavement (surfacing) condition data is based on visual inspections by officers within the Trunk Road Agencies, providing a scoring based on criteria set out by the Standards for Highways: CS229- Data for pavement assessment (standardsforhighways.co.uk)

The visual element is captured via a GPS enabled dashcam, which records the road condition and location.

Through the visual inspections a score is developed for approximately 100m sections of Strategic Road Network and each 100km section is assessed against the following condition ratings:

- Sound – No visible deterioration
- Some deterioration
- Moderate deterioration
- Severe deterioration

For the purpose of this measure the pavement lengths (kms) assessed as 'Sound – No visible deterioration' and 'Some deterioration' have been included when calculating the published figure for the % of pavement (kms) on the strategic road network in good condition.

Dataset 4: Condition of the pavement on the local road network

Data Owner	Welsh Government
Data Source and quality	Percentage of local authority road network in poor condition by road type and year (gov.wales)
Frequency	Annual
Designation	National Statistics

Stats Wales publishes information on the percentage and length (kms) of the local road network that is in poor condition.

Published data splits the local road network into three categories
- A Country
- B Road
- C Road

To calculate the outturn for this measure we have combined the total (kms) across the three road categories that are deemed to be in poor condition and also combined the total length of road (kms) surveyed.

These totals have been used to calculate the percentage of the local road network that is in poor condition and, by definition, the remaining percentage has been deemed to represent the proportion of the local road network that is 'not in poor condition'.

The percentage of the local road network 'not in poor condition' is the figure that has been used for publication purposes.

S22 % transport infrastructure at risk of flooding

Strategic and local roads and rail at low, medium and high risk of flooding from rivers, the sea and surface water and small watercourses.

Data Owner	Transport for Wales
Data Source and quality	Transport for Wales analysis of Natural Resources Wales published data Lle - Flood Risk Assessment Wales (gov.wales).
Frequency	Annual
Statistical Designation	No Statistical designation

Flood Risk Assessment Wales publishes a national assessment of flooding risk from rivers, the sea and surface water and small watercourses.

Natural Resources Wales (NRW) has published three GIS layers detailing:
- Flooding Risk from Rivers;
- Flooding Risk from Sea; and
- Flooding Risk from Surface Water and Small Watercourses.

The NRW data for each of these flood risk types has been combined to create a combined flood risk layer including where the flood risk has been categorised as high, medium or low risk.

Road Network

The percentage of the road network at risk of flooding is calculated by overlaying the flood risk layer onto the road network layer (OS Highways Road Network) in GIS software and calculating the proportion of road length that falls within the flood risk layer.

The Strategic Road Network (SRN) refers to motorway and primary A-roads, and was identified using the Trunk Road Network layer available from Lle, Lle - Trunk Road Network (2016) (gov.wales). The Local Road Network (LRN) refers to all of the remaining road network across Wales, and the statistics were calculated by subtracting the total SRN length from the total values. LRN flood risk data has been published at a local authority level.

Rail Network

The percentage of the rail network at risk of flooding is calculated in the same way as the road network, using a rail network GIS layer. The rail network consists of commercial passenger lines only. It has been constructed using the Ordnance Survey (OS) Vector Map Railway Track, manually edited to only include commercial passenger rail lines, identified using the Transport for Wales served railways.

S23 Level of air pollutants from the transport sector

This measure focuses on the average concentrations of nitrogen oxides (NOx) and fine particulate matter (PM10) attributable to road traffic, rail and aviation. Measured in µg/m3.

The data presented relates to emissions directly attributable to the transport sector and does not include emissions from domestic, commercial or industrial sources.

The concentrations are not weighted by population density, as emissions from transport can affect ecosystems as well as people, particularly adjacent to motorways and major roads. The average concentration reflects levels of NOx and PM10 across Wales, including at both dwellings and habitats.

The data presented for this measure is not directly comparable to the air quality data published elsewhere by Welsh Government as part of the National Indicator, which uses population density weighting to calculate their published figures.

Defra currently publishes air pollution background concentration maps which provide estimates of background concentrations for specific pollutants.

Data Owner	National Atmospheric Emissions Inventory
Data Source	Air quality background maps- DEFRA (gov.uk)
Quality	Local air quality background maps report- DEFRA (gov.uk)
Frequency	Annual
Statistical Designation	National Statistics

The background pollutant concentration maps are presented in 1km x 1km grid squares across Wales and this measure has focused on the levels of NOx and PM10 (measured in µg/m^3) that are attributable to transport modes.

The data provides a breakdown of these emission levels by local authority level and by source:

- Motorway;
- Trunk A-Road;
- Primary A-Road;
- Minor Road;
- Aircraft;
- Rail;
- Other (including offroad industrial machinery, offroad non-industrial machinery in addition to sources including ships.

Note: NOx emissions from aircraft are shown as an individual category, for PM10 it is included with the 'Other' category.

For each pollutant type (NOx and PM10) the emission value (µg/m^3) for each transport type has been averaged both nationally (All Wales) and at a regional level (based on the local authority within which each 1km x 1km grid square is located).

S24 % people regularly bothered by noise from outside the home caused by transport

Percentage of people regularly bothered by noise from outside the home caused by transport.

There is no regular annual data source currently available that identifies people who are regularly bothered by noise from outside their home by transport, broken down by different transport types. Data for this measure will be collected through the Wales National Travel Survey, once available and it is likely that breakdowns will be available by some protected characteristics, including age, gender and some socio-economic factors.

The National Survey for Wales identifies whether respondents were satisfied or dissatisfied with overall traffic noise in their local area.

Data Owner	Welsh Government
Data Source	National Survey for Wales: results viewer | GOV.WALES **Detailed Topic:** Local Area and Environment, **Broad Topic**: Pollution and Litter
Quality	National survey Wales technical information- Welsh Government (gov.wales)
Frequency	Ad-Hoc
Statistical Designation	National Statistics

The National Survey for Wales has identified the level of respondents who are dissatisfied with the level of traffic noise in a respondent's local area through the following:

"How satisfied or dissatisfied with level of traffic noise in local area"

The answer options available to respondents were:
- Very satisfied
- Fairly satisfied
- Neither satisfied nor dissatisfied
- Fairly dissatisfied
- Very dissatisfied

To calculate the outturn for this measure the total percentages of respondents who stated that they were either 'Fairly dissatisfied' or 'Very dissatisfied' have been combined to provide an overall total for the percentage of people bothered by traffic noise in the local area.

Breakdowns have been published by gender, age, region and urban/rural. However as we did not have access to the raw data, cross-tabulation is not possible across these breakdowns.

S25 Hectares of habitat on the transport estate maintained or improved for biodiversity benefit

Hectares of habitat maintained or improved on the road and rail networks in Wales.

Biodiversity on the strategic road network is the responsibility of the Welsh Government. Biodiversity on the local road network is the responsibility of local authorities. Transport for Wales is responsible for biodiversity on the Core Valley Lines rail network, while Network Rail is responsible for biodiversity on the remainder of the rail network in Wales.

There is no single data source currently available for areas of habitat on the rail network or local road network. Data for the rail network is anticipated to be available from 2024.

Welsh Government has provided biodiversity data for the Strategic Road Network.

Data Owner	Welsh Government
Data Source and quality	Welsh Government Monitoring Data
Frequency	Annual
Statistical Designation	No Statistical designation

The methodology used for calculating the outturn for habitat maintained or improved for biodiversity benefit in relation to the Strategic Road Network aspect of the transport estate is as follows:

1) Maintaining biodiversity through management.
   a. Area of habitats where management practices maintain the biodiversity value.
   b. Area of habitats lost or where management practices have changed that negatively impact on biodiversity value.

   a - b = Area of habitat where biodiversity is maintained.

2) Improving for biodiversity benefits
   a. Area of existing habitats improved (e.g. restoration, improving connectivity, improving species diversity, control of invasive non-native species, better management).
   b. Area of new habitat created or acquired and brought into better management. (Widening habitat extents would be included here)

   a + b = Area of habitat improved for biodiversity benefits.

1 + 2 = Biodiversity is maintained and enhanced, promoting more resilient ecosystems.

S26 % waste produced by the transport sector that is reused or recycled

This measure looks at the volume of waste attributable to the transport sector that is re-used or recycled.

Natural Resources Wales conducted a survey of Industrial and Commercial waste ('000 tonnes) generated in Wales during 2018. From the published data we have presented the waste that was attributed to businesses which operate within the Transportation and Storage sector as defined by their Standard Industrial Classification.

Data Owner	Natural Resources Wales
Data Source	Survey of commercial and industrial waste generated in Wales 2018- NRW (.cymru)
Quality	Survey of commercial and industrial waste technical appendices-NRW (.cymru)
Frequency	Unknown at present – potential that survey will be replaced with a new mandatory digital waste tracking system
Statistical Designation	No Statistical designation

The published data for waste attributable to the transport sector provides a breakdown of the manner in which the waste was managed. The following waste management categories are used:

- Preparation for Reuse
- Recycling
- Composting
- Land disposal
- Land recovery
- Incineration with energy recovery
- Incineration without energy recovery
- Treatment plant
- Transfer station
- Other
- Unknown

To calculate the outturn for this measure, the volume of waste that is managed by way of Preparation for Reuse, Recycling, and Composting has been combined and then this total has been calculated as a percentage total of the total volume of waste attributable to the transport sector across all waste management categories. No further analysis of the data has been undertaken.

S27 % Designated historic assets on the transport estate that are in stable or improving condition

Percentage of listed buildings and scheduled monuments on, or within 5 metres of the transport estate (road and rail network) in Wales that are in a stable or improving condition.

Cadw is responsible for assessing and maintaining listed buildings and scheduled monuments across Wales. Cadw has provided condition assessment information for all listed buildings and scheduled monuments which are on, or within 5 metres, of the transport estate in Wales (Road and Rail network).

Data Owner	Cadw
Data Source and quality	CADW management information Lle - Listed Buildings (gov.wales) Lle - Scheduled Monuments (gov.wales)
Frequency	Rolling programme of condition assessments
Statistical Designation	No statistical designation

To calculate the outturn for this measure the listed buildings and scheduled monuments that are on or within 5 metres of the transport estate have to be identified.

GIS layers created and maintained by Cadw showing the locations of all listed buildings and scheduled monuments have been gathered from the Welsh Government's GIS portal Lle. These GIS layers have then been combined with the OS Mastermap data maintained by Transport for Wales which shows the current road and rail infrastructure in Wales. To ensure all listed buildings and scheduled monuments that might sit just off the road or rail network are included in the dataset, a five-metre buffer from the transport network is used.

Cadw has reviewed this list of listed buildings and scheduled monuments and provided the latest condition assessment information for each asset type and provided separate percentages for listed buildings and scheduled monuments that are in a stable or improving condition in line with their condition assessment survey process for each asset type.

Scheduled Monuments
Cadw currently undertakes condition assessment surveys of scheduled monuments on a rolling ten-year programme during which 10% of all scheduled monuments in Wales are visited and evaluated each year using a consistent methodology.

Listed Buildings
Cadw currently undertakes condition assessment surveys of listed buildings on a rolling five year programme based on Local Authority areas. Each year approximately 20% of all listed buildings in Wales are surveyed using a consistent methodology that includes assessment of condition of principal building elements.

Note: The surveys provide a snapshot of the condition at the time of inspection and only considers what the inspector can see. Any defects that are hidden from view are subject to a separate survey undertaken as required and not subject to this measure.

7 Ensuring data reliability

Transport for Wales undertakes a three-stage internal auditing process to provide a commensurate level of assurance that the data published for each of the measures set out in the WTS Monitoring framework are both accurate and reliable.

The auditing process reviews the data that is gathered/collected and used directly from third party sources and also where data has been calculated by TfW staff, including where multiple data sets have been analysed and interrogated to produce final figures that are being published.

This auditing process includes quality assurance on the interpretation of the data into graphical representations (using Power Bi) and consistency of approach in calculating and presenting overall outputs in line with the detailed methodologies set out for each individual measure in this document.