

Amey Digital Approaches to: Blending data sets with Mobile Network Data

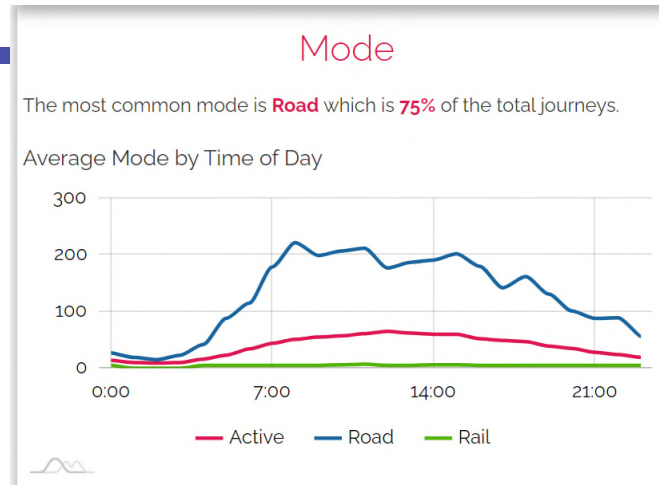
August 2024

Amey

Data Baselineing – Integration of MND, GPS, Strava, Mosaic etc for;

- Travel patterns
- Dwell
- Parking
- Economic Spend
- Active Travel
- Rail Travel
- Freight/Public/Private travel
- Historic Patterns
- Population density

[People Movement Portal](#)



Automated Dashboards

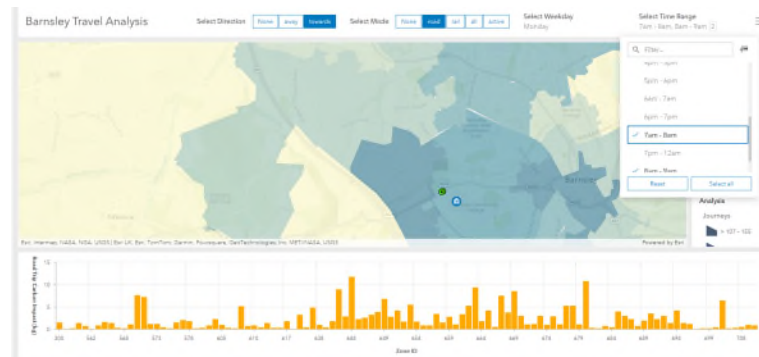
- Highlights updates and change in data
- Can be refreshed on set frequency or as required
- Can incorporate other (economic, population or transport data sources)
- Can have alignment to specific metrics for particular funding agencies e.g. DfT, Sustrans etc

Track Change

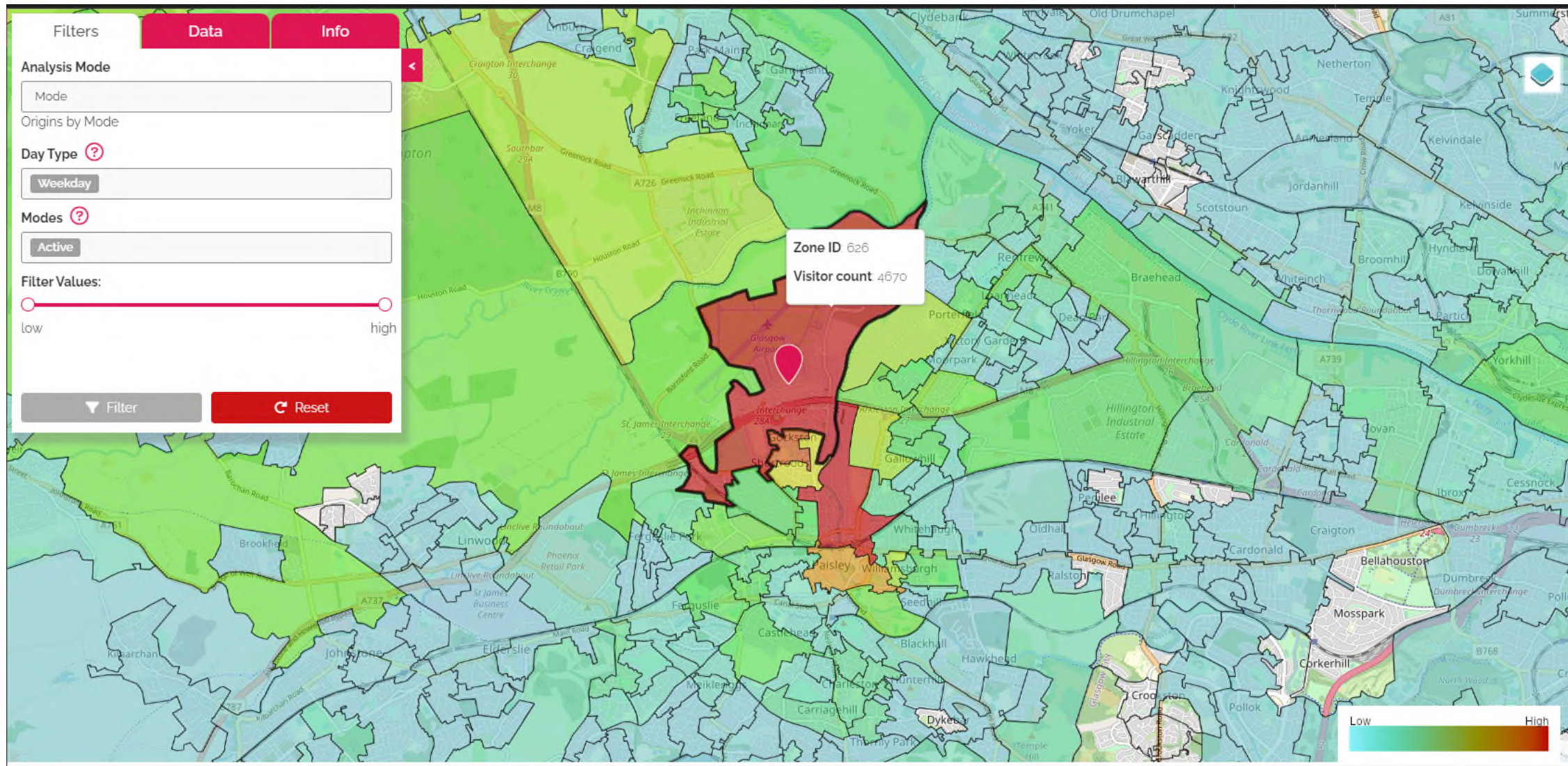
- From 2017 baseline or before (where data exists)
- Show trend analysis against spend
- Highlight active travel increase
- Calculate carbon reduction from spend
- Provide basis for similar initiatives

[Utilising mobile network data for transport modelling](#)
(publishing.service.gov.uk)

- Processing of big data sets using AI algorithm to sort trip, mode, destination, origin, dwell etc and population upsizing
- Set up of GIS (Esri ArcGIS Pro) project and import of processed data, projected to British National Grid
- Feature layers and publishing/access permissions, symbology, labels, pop-ups, editing, and analysis set up
- Published to Amey Enterprise Portal, user access set up via login/publish to LA Enterprise GIS
- Information dashboard to visualise the information derived from the data.
- Options include visualising key performance indicators, metrics, and other information using charts, gauges, maps, and other elements.



Example from People Movement Portal



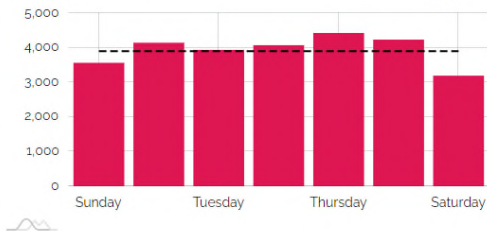
Example Location Specific Summary

Visits

The busiest day is **Thursday** which is **39%** busier than the quietest day **Saturday**.

The average number of daily visits is **3898**.

Average Daily Visits

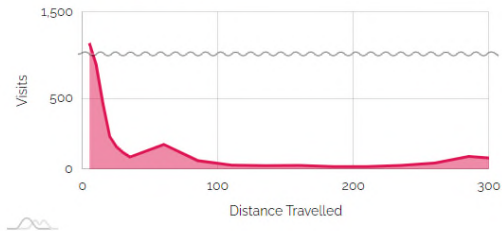


Journeys

78% of journeys are local (within 35km).

The average journey distance is **67.2km**. The median journey distance is **10km**.

Visits by Journey Distance

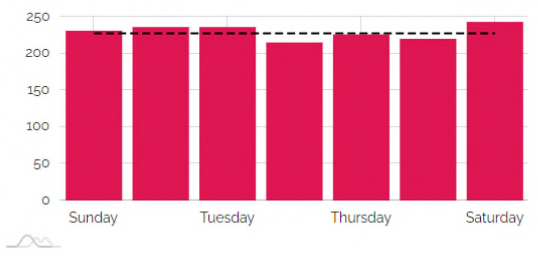


Dwells

The average dwell time over all days is **228** minutes.

Dwells are longest on **Saturday**.

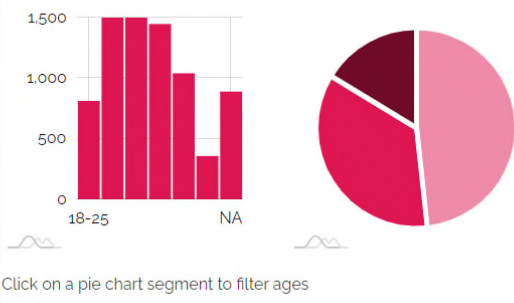
Average Dwell Time (minutes)



Demographics

The largest demographic is **Male** and aged **35-44**.

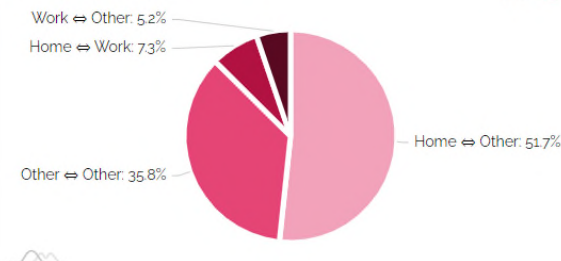
Age Bands & Gender



Purpose

The most common purpose is **Home ⇌ Other** which is **52%** of the total journeys.

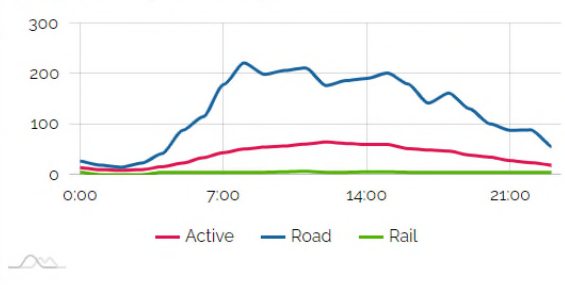
Journeys by Purpose



Mode

The most common mode is **Road** which is **75%** of the total journeys.

Average Mode by Time of Day



- Currently proposed metrics:

- ✓ Access to active travel
- ✓ Trip generators/Rail Access
- ✓ Active travel network length
- ✓ Active travel to work journeys
- ✓ Perception findings – digital survey

D&G Storymap

- ✓ Residents with 400m access to active travel
- ✓ Active travel mode share to stations increase

- Additional measures

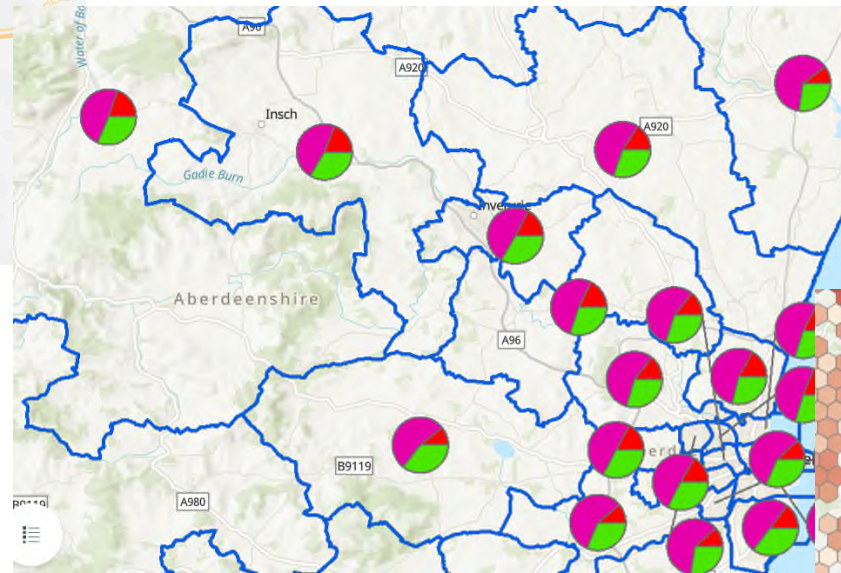
- ✓ Carbon equivalent reduction calculator/mapping
- ✓ Dwell/spend
- ✓ Origin for tourism/day tripping
- ✓ Link active and rail journeys
- ✓ Scalable to wider region and beyond
- ✓ Refresh as often as required
- ✓ Rewind to pre-covid baselines from 2017
- ✓ Engage TOC's and other operators to drive impact through further initiatives

- Bring into the model data from fixed counters, video capture and other methods of sample
- Digitally survey for perception findings supplemented by MND travel pattern change
- Use travel pattern change to calculate tonnes equivalent carbon
- Present all above in dashboard graphics comparing before and after

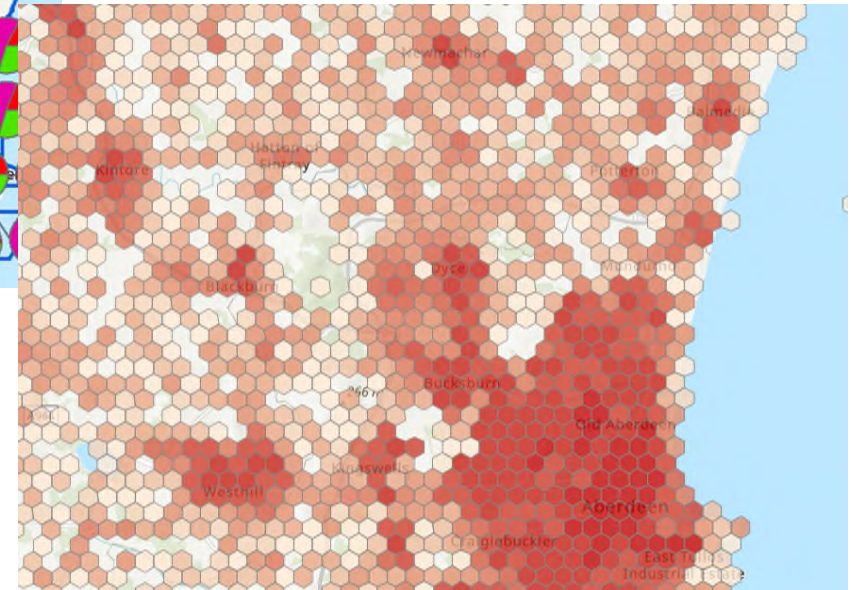
GPS Point Location Analysis



Combined mode data



Population Statistics



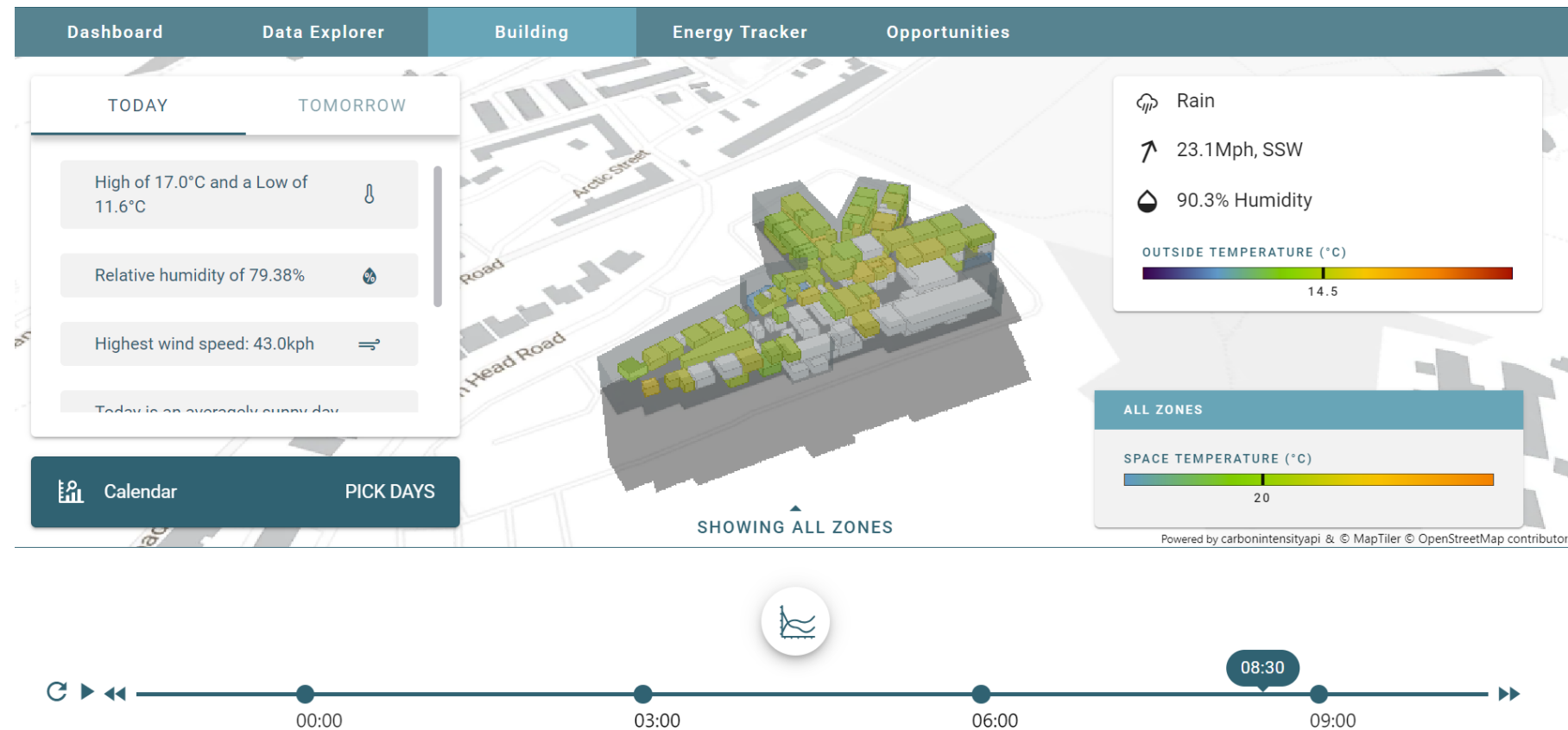
Example – ACC EV Charge and Tourism

[Visualising Travel Patterns
\(amey.co.uk\)](http://amey.co.uk)

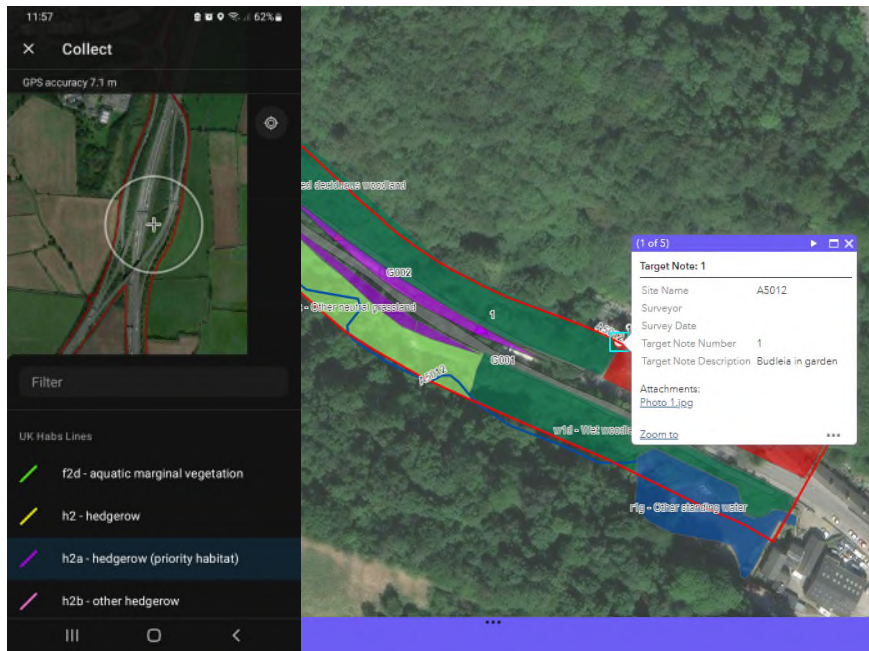
Example – CF Location and Carbon Analysis

[Barnsley_Travel_Analysis](#)
[\(amey.co.uk\)](#)

- Bring location travel analysis (integrated data sets) mapping together with:
 - ✓ Building facility modelling
 - ✓ Energy Consumption
 - ✓ Occupancy sensing
 - ✓ Asset performance monitoring



GIS Capability and Data Integration and Project Example



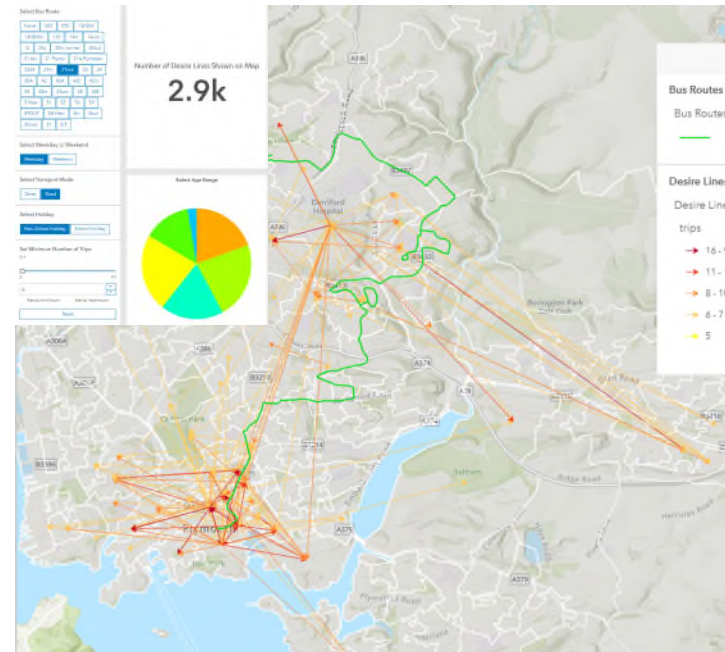
Data Collection

Ecological survey

- UK Habs
- Protected Species

Tree survey

- Ash Dieback
- Tree Condition



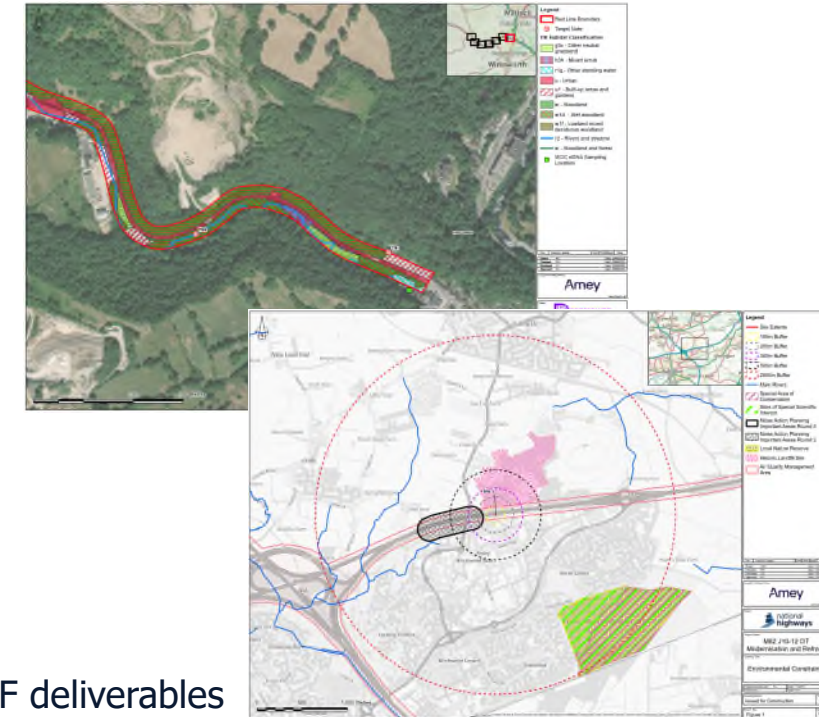
Online deliverables

Dashboards

- People Movement Data
- Survey Monitoring

Story Maps

- Optioneering/Public Consultation
- Otter Survey Results



PDF deliverables

Environmental

- Discipline Specific e.g. Noise, Air Quality
- Single or multiple sites

Geospatial Analysis

- Heatmapping (ecology/receptors)
- Site Analysis (distances)

Example – Plymouth Go Ahead Travel Analysis

Plymouth Go Ahead

