

Securing Coventry's Footpaths: Citizen Science, Cultural Collaboration and Public Engagement in Right of Way Preservation

Project Website: <http://rowresearch.coventry.domains/>

# Finding and viewing Public Rights of Way (PRoW) data using ArcMap

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## Learning Objectives

1. To examine a Definitive Map and Statement
2. To load PRoW data into ArcMap Desktop
3. To learn about the different types of PRoW and how they can be used

*Have you ever walked down a path, cycled down a track and hesitated, wondering if it was private land or a 'Right of Way'? It's an interesting question, as most people think that the track they are walking on is a 'right of way. This isn't quite true. Public Rights of Way (PRoW) are a fundamental part of our transport network. They are not the paths, tracks or roads we can walk, ride, cycle and even drive down; they are the rights that let us pass and repass along specific routes. There are 4 types of PRoW: Footpath, Bridleway, Restricted Byway and Byway Open to All Traffic. Without them, we'd be dependent on pavements and the goodwill of landowners if we wished to travel in urban and rural spaces*

*In 2026, any PRoW that is not registered on a Definitive Map and Statement in England and Wales will be removed, threatening around 10,000km of PRoW. To protect these routes, we must find them and register them with the local authority. Volunteers up and down the country are now scouring the PRoW in their area to find out which are at risk.*

*This tutorial will teach you how to start identifying a PRoW that is at risk of being removed, or 'extinguished'. You'll do this by comparing a map of official Public Rights of Way (PRoW) with a map of local knowledge from a website called OpenStreetMap. Using these two sources of data, we can start to identify routes that aren't officially registered on a local authority's Definitive Map and Statement.*

*We will show you how to load Public Rights of Way data of your local area into ESRI's ArcMap Desktop version. We will then examine these against a basemap from OSM (Open Street Map) to identify at risk Public Rights of Way.*



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*This project uses What3Words (W3W) locations to help you precisely locate the features we are discussing. If you are not familiar with W3W, you can [learn more here](#).*

*NOTE: This Tutorial uses ArcMap for desktop from ESRI. This is proprietary software that requires a license to use properly.*



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## Step 1: Examine a Definitive Map and Statement

The first step is to decide which area you'd like to download PRoW data from. We're going to use data from Worcestershire's County Council. County Councils and Unitary authorities are legally obliged to retain an official, updated record of the Public Rights of Way in their area. This is called a Definitive Map and Statement. It's important for walkers, cyclists and horse riders, but also for people buying houses, developers and surveyors. People want to know if a PRoW crosses their land before buying a house!

1. For this exercise, we will use data from Worcestershire's County Council's Definitive Map and Statement. We can visit the website ourselves and look at the data. Follow the link to do this.

<https://gis.worcestershire.gov.uk/website/Countryside/>

- The link takes us to the online version of their 'Definitive Map and Statement'. The official version is always a paper copy you have to visit in person but many local authorities create digital versions. If you zoom in, you'll see coloured lines with labels representing PRoW in Worcestershire. The colour line tells us what type of PRoW the route is and the label (for example, 518(C), is the name of the route).
- The website lets us look at this data, we can't interact with it or perform more research on this data. To do that, we can download the data ourselves and load it into GIS software.

## Step 2: Download the data on [www.rowmaps.com](http://www.rowmaps.com)

The data we will be using stored on [www.rowmaps.com](http://www.rowmaps.com). This website stores data from County Councils on PRoW in different formats.

2. Navigate to [www.rowmaps.com](http://www.rowmaps.com). From there, you'll see a menu of the left-hand side. There are four subheadings starting with 'original data' and ending in 'GeoJSONs'. These are types of geospatial data (data with a spatial component). As well as recording how many PRoW there are in Worcestershire, they also show us where they are. We will go through each briefly:



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- A. **Original data:** takes you to the original source of the data from the data host (for example, Worcester County Council). In this instance, we can use a URL to That data is connect to Worcestershire County Council's data server. From there, we could directly download the data to ArcMap.
  - B. **KML:** stands for Keyhole Markup Language. This is a type of file (XML) that is used by Google to create files in Google Earth. It's essentially a database. We can read it in ArcMap with some editing.
  - C. **CSV:** stands for Comma Separated Value. This is like an excel spreadsheet, but the important values are separated by commas.
  - D. **GeoJSON:** Is based on a coding language called Javascript Object Notation (hence JSON) but it also gives the data a geographical location that the computer can read (hence the GEO).
    - We don't need to know everything about these different types of data, but it's worth knowing that some are more useful than others for specific tasks. For instance, we would have to prepare the CSV data for ArcMap first by heavily editing it. The GeoJSON file is larger to download and has to be unzipped and then ordered in ArcMap. For simplicity's sake, we will download the KML data, which can easily be edited to work in ArcMap.
3. Click on the KML link and navigate to Worcestershire.

### *Quick Question: can you use this data without an attribution?*

- If you read through the text on the webpage carefully, you'll see there are instructions on how we can correctly cite and reference the data. Since we the didn't create the data, we need to provide a citation and reference the people who did create it. This is good academic practice.
- There are also three files we can download. An original file, a converted file and an augmented file. The augmented file is the one we want, as it's the one with the most information. According to Barry Cornelius, the website author, the augmented file has the length (in miles), the longitude and latitude of its first point, the longitude and latitude of its last point, the eastings and northings of its first point and the eastings and northings of its last point.



## Step 2: Preparing the data for display in ArcMap

4. Create a file on your desktop called 'PRoW Exercise'.
  - Before we download the data, it's important that we save it in a place where we can find it again easily.
5. Download and save the augmented.kml file to 'PRoW Exercise'. Rename the file 'PROW Data'.
  - It's good practice to rename your files so you know which is which
6. Open ArcMap.
7. From the 'new maps' menu select 'Blank Map'.
8. Save this map as 'PRoW Worcestershire'.
9. We first need to create a basemap from which we can add our PRoW data to. In the toolbar, navigate to the add data icon and select 'add basemap'.
10. Select OSM as your basemap.

### *Quick question: Why not just use Google Maps as our basemap?*

*A: Google Maps and other services do not often have data for PRoW. Load up a Google Maps and look for a footpath. Chances are you won't find the detail needed to tell if a route is a PRoW or not. OpenStreetMap is an open-source user created Geographical Information System (GIS). People update it with their local knowledge. If we find a road, lane or path that's included on OSM and not on the Definitive Map and Statement, it may well be an unregistered PRoW.*

11. Load up the catalogue pane on the righthand side of ArcMap (or from the view tab). On 'folder connections', right click and select 'connect to folder'. Navigate to the file you saved on the desktop. ArcMap has now created a file connection to our folder.
  - Next, we want to add our KML file to the map. But ArcMap won't read it if we simply try and drag and drop it onto our map from a file. This is because it's not correctly formatted to display in ArcMap. We need to convert the data to a format ArcMap can read. This will be in the format of a geodatabase (.gdb file). We'll turn it into a layer file that'll save the PRoW as features. Features are data in the form of lines, points and polygons that have a spatial location. ArcMap can read and display these on a map.



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12. Navigate to 'geoprocessing'. Click 'search for tools' and type 'KML to layer'. The tool should appear on the righthand side of your screen.
13. For input layer select 'PRoW Data'. This is the .kml file we downloaded and renamed.
14. For output location select 'PRoW Exercise'. This is the location we want our new file to save into
15. For output data name select 'PRoW Layer File'. This is the name we will give the file.
16. Do not check 'include ground overlay'.
17. Run the tool.
  - This will create a new .gdb file which you can view in the 'contents' tab on the right-hand side of the screen called 'PRoW Layer File'.
18. Right click on 'PRoW Layer File' and Click 'Zoom to Layer'.
  - You'll notice that the file contains 4 coloured lines labelled 0,1,2,3,4. These refer to the different type of PRoW we have recorded: Footpath, Bridleway, Restricted Byway and Byway Open to All Traffic. It's important we know which is which, because different types of PRoW allow you to travel in different ways. But the labels 1,2,3,4 don't help us find out which is which! To do this, we need to look at the data itself.
19. Right click on the 'polylines' label in the contents panel. Open the attributes table.
  - The attributes table is a list of all of the data points, or features, that ArcMap has created from our KML file. You'll see various columns, called *fields* in ArcMap and rows (called *records*). We can tell which file is which from the file name. In the FolderPath field, we can see the designation of the PRoW:  
/WorcestershireRightsofWay/ followed by one of the following:  
Footpath/Bridleway/Restrictedbyway/BOAT'. This corresponds to the 'SymbolID' field value of 0,1,2,3. Let's change these numbers to their proper labels.
20. Right click on 'polylines' in the contents pane. Click 'properties'. Navigate to 'symbolology'.
21. Double click on the 0 under Symbol ID and rename it to "Footpaths". Do this for the following values.
  - 1= Bridleway
  - 2= Restricted Byway
  - 3= BOAT (Byway Open to All Traffic)



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22. Click apply.

- In the contents page, we can now tell the colour of our lines correspond to specific types of PRow.

*Quick Question: What's the difference between a footpath, Bridleway, Restricted Byway and Byway Open to All Traffic? Find your [answer here](#).*

23. In the contents pane, right click on the polylines features. Select 'Label Features'. This will add the name of the PRow to the line.

24. Right click on polyline and click 'zoom to layer'. This will give you an overview of the spatial extent of all of the PRow in the dataset.

- You can now view the PRow in Worcestershire or for the authority you picked. Because we have added the data to the OSM basemap, we can see the difference between what the local authority view as PRow and the other tracks that people use.

25. First, we'll need to view the legend for the OSM basemap to compare the two sets of tracks. Navigate to <https://www.openstreetmap.org/>. On the righthand side click the small 'i' for map key.

26. OSM has its own categories for measuring routes that aren't roads. These are:

- Track
- Bridleway
- Cycleway
- Footway

These labels and symbols roughly correspond to names of the PRow. Footways are red, like footpaths and have a similar name. But unlike our data, OSM makes no claim that its data is legally correct. It's entirely possible that somebody mistakenly uploads a route they think is a legal right of way but is not. If you used it, you could be trespassing!



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Much more research is needed to prove that a route is an unregistered PRoW. In mapping this data, we've taken the first step towards revealing at-risk PRoW and helping protect them for the future.

In 1949, The **National Parks and Access to the Countryside Act** was passed. This was the Act that created the Definitive Map and Statement. It required each Local Authority to survey all of the Rights of Way within its borders and add them to the Definitive Map and Statement. The Local Authority often delegated this task to the local parish authority. Parish Councils are civic local councils with local powers in their areas. Some parishes did an excellent job of recording at risk routes, over parishes did not.

Sometimes, we can see disparities in the number of PRoW from one parish to the next just using our eyes. There's a couple of things to look for as you browse the data. Often, a PRoW may well stop at a parish boundary where one parish recorded a PRoW and another did not. If we can identify these sites, they are prime targets for further research. We can also use the analysis tools in ArcMap to examine the data quickly and efficiently. We'll cover this in later tutorials.

## Optional Extra Task

If your interested in nuancing your search, you can begin to prepare the date for more advanced analysis, for example by comparing the number of PRoW in different parishes. To do this, we will need to upload parish boundary data to our map.

In this next step, we will add a new layer to our map that shows the parish boundaries in Worcestershire.

1. Navigate to add data and 'add data from ArcGIS Online'. Type 'Worcestershire' into the map. The first file that loads should be 'Worcestershire\_basemaps'. Add this to your map.
2. If necessary, move 'Worcestershire\_Basemaps' in the contents pane so it is underneath the 'PROW Layer File'. In the contents page, uncheck every box except Ward.
  - We can now see the ward boundaries, although there's a lot of colour there. Let's make it less distracting
3. Right click on 'Worcestershire\_Basemaps'. Click 'Properties'. Navigate to 'Symbology'. On 'Ward', remove the fill colour so we can just see the outline of the boundaries.
4. Right click on 'wards'. Check 'label features'. The name of each ward should now appear in on the map.



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- We can now, using our eyes, scan the data to see which wards, or parishes have more PRoW in than others.

Our next tutorial will use more advanced tools in ArcMap to analyse and identify at risk PRoW.

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