

GIS for Visualising Scotland's Toll Roads - Exploring the Past to Explain the Present



There are still a handful of bridges, tunnels, and roads in the UK where tolls are still collected, along with a couple of more recent road-pricing schemes. In Scotland, all tolls on roads or bridges have been removed. In the past, there were frequent references to turnpikes or toll roads in Scotland's guide books - although none were ever mapped. Today, we still use the same roads and there are some 400 surviving toll houses scattered across Scotland's landscape as evidence.

Most of us are blissfully unaware of the major impact that these had on the development of our current road transport network. The legacy of Scotland's turnpikes is hard to escape owing to the sheer size of the network that once existed, and the fact they were Scotland's most important routes of transport for well over half a century. Between 1750-1870, there

were some 370 road and bridge acts passed in Scotland to establish turnpike trusts leading to a road network that ran for thousands of miles with construction costs running well into millions of pounds.

Revolutionising Scotland's Transport

In 1750, Scotland was on the brink of a period of major industrial and agrarian change that would ultimately transform the lives of the Scottish people. Key to this change was the simultaneous arrival of the turnpike era that would revolutionise Scotland's road network and play a pivotal role in the coming century. But how big was this network, when, and where did it develop?

A recent study by McEwan (2018) used a combination of historical sources and GIS mapping of the toll road network to begin to visualise the scale and extent of Scotland's first industrial revolution, and also to examine the importance of communications and connectivity in the formation of modern day Scotland.

The historical evidence was gathered from the *Old Statistical Accounts*, the *New Statistical Accounts*, various volumes and editions of the *Statutes at Large/ Public General Statutes*, the *Journals of the House of Commons*, minutes of road authorities, and a variety of other information notably the 'improving' literature of the late 18th century. This information was also used in conjunction with the English turnpike literature for comparison, and with early modern Scottish histories for placing these roads in their wider context.

Mapping the Toll Roads

ESRI's ArcGIS 10.5 GIS software was used to map Toll Roads for three time periods: 1750-1770, 1770- 1790, and 1790-1800. Toll Roads were identified with the aid of historical literature, a Road Atlas, Google Maps, and two freely available digital datasets of the road network of Scotland: [OpenStreetMap](#) and [OS OpenData](#). GIS tools were used to search for the road of interest identified, to sub-set the map dataset to create a new road map layer, and then add two new fields into the road attribute tables of the sub-setted data: Toll Road (Text: Y/N) and Year (Integer: 1750, 1770, or 1790) to allow the toll road network to be mapped. Using the ArcGIS View function and the Year field to represent the three years, the layers were mapped.

The Turnpike Map

Chronological mapping of the toll roads in Scotland has provided a visual way to help improve our understanding of an innovation that was to play a critical role in a critical period of Scottish history. The maps produced have helped to visualise the evolution of the toll road network over both space and time, opening a door to further study of this largely forgotten road network. The result is a simple GIS map, but one that provides significant insight into the major periods of growth and decline in the Scottish toll road network and one that can clearly be linked to major economic, operational, and social transformations. Whilst it is clear that turnpikes were economically influential, Scotland's turnpikes also played an influential role in the social and cultural transformations of their era and ultimately in transforming the very fabric of Scottish life.

