

## ‘Turnpike roads of England and Wales 1667-1892 GIS shapefile documentation’

by Dan Bogart, Alan Rosevear and Max Satchell

### **Turnpikes.shp**

This shapefile represents the network of turnpike roads in England and Wales and gives their opening and closing dates from 1667 to 1892. The work to create this dataset was funded by grants from the NSF Modelling the Transport Revolution and the Industrial Revolution in England (SES-1260699), the Leverhulme Trust Transport and Urbanization c.1670-1911 (RPG2013-093) and the British Academy Riots and the Great Reform Act of 1832 (SG121870).<sup>1</sup> The majority of the work was executed by Max Satchell and Alan Rosevear with valued input and assistance from Dan Bogart.

A turnpike trust was an organization authorized by acts of parliament to build, maintain and operate toll roads. Trusts were most prominent in the 18<sup>th</sup> and early 19<sup>th</sup> century prior to railways. They maintained individual roads previously maintained by local governments, specifically parishes. The finances of turnpike trusts were distinctive because they levied tolls on road users and issued bonds mortgaged on the tolls. In addition, they were locally managed and financed. Our goal in this was to identify the specific roads managed by each and every turnpike trust and the date that each road segment came under the authority of the Trust and the date, it left the authority of the trust. The general pattern was that the road was improved shortly after it was adopted, but this could vary from one trust to another. Each trust consisted of one or more road segments, which could be adopted over different years.

### **Method**

Max Satchell identified Cary's 'New Map of England and Wales and part of Scotland' as the primary source for an initial digitisation of the network.<sup>2</sup> Cary's sheets were published individually between 1820 and 1828 at a scale of 1:126,720 with the whole work being republished, but not updated in 1832. Cary's line work distinguishes three classes of potentially important roads: post roads, turnpikes, and an amorphous category referred to as "other main roads". It is important to note that Cary's map does not identify the individual turnpike trusts and the road segments they managed.

Photographs of the Cary mapping were obtained from the Cambridge University Library and georectified by Ziyue Chen under the supervision of Satchell.<sup>3</sup> In itself, the Cary mapping was not sufficiently accurate to digitise from directly. To deal with this problem Satchell overlaid using the Cary photographs over geo-rectified tiles of the Ordnance Survey 1:10560 first edition map series (1842-1890). Once identified from Cary, turnpike and post road alignments were digitised directly from the Ordnance Survey mapping but the category "other

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<sup>1</sup> The BA grant was held by Toke Aidt and Gabriel Leon of the Faculty of Economics, University of Cambridge

<sup>2</sup> Our thanks to Yolande Hodson (formerly of the British Library's Map Library) for suggesting the Cary to Satchell for creating a turnpike GIS, and the staff of the Cambridge University Library Map Room for helping him with Cary and numerous other cartographical issues.

<sup>3</sup> J. Cary, Cary's improved map of England and Wales with a considerable portion of Scotland, planned upon a scale of two statute miles to one inch (London, 1832). The "map", though bound as an Atlas consists of 65 separate sheets, an engraved title, and index sheet. The version photographed is Cambridge University Library, classmark Atlas.1.83.9.

main roads” was not digitised.<sup>4</sup> For some counties some road polylines were recycled from earlier turnpike digitisation by Bogart and Satchell (eight counties), Satchell (four counties) and by Keith Sugden (two counties). In each instance, the recycled road data was carefully checked against the Cary mapping. We are very grateful to Sugden for letting us use his road data. At the end of this phase, the shapefile consisted 12553 polyline segments, which represented 22,171.4 miles of road.

For England the next step, Satchell used two online resources that identify the limits of turnpike trusts. These resources had been created by Alan Rosevear, prior to his joining the project, from surviving wayside features, parliamentary records, acts of parliament and historic county maps. The first of these was a digital dataset of known milestones and tollhouses created by the Milestone Society available in kml format in Google Earth.<sup>5</sup> Rosevear had digitised these records and added the turnpike trust authority name. The second was a series of marked up county maps (generally Thomas Moule’s County series ca 1830) with the roads under the jurisdiction of each trust and its opening date clearly identified. Satchell took the milestones digital data converted it from kml format to an ArcMap points shapefile and using the spatial join tool from the Analysis tools link the trust names and dates attributes to the turnpike polylines he had previously digitised from Cary. From that we acquired the provisional road segments of each trust. Rosevear’s marked up county maps were then georectified by Max Satchell and Rachel Taylor, and used to correct and upgrade the trust data acquired from the milestones. The output of this step was a provisional dynamic turnpike network for England.

In the final step, Alan Rosevear undertook the time consuming and difficult task of checking the trust name and dating was correct and the inter-trust boundaries were clear for each road segment and added the date of closure using parliamentary records and acts of parliament. The acts of parliament are drawn from the Portcullis database of all acts at the Parliamentary Archives in London. These data were extracted, processed and supplied in a digital database by Bogart.<sup>6</sup> The main parliamentary record used in this exercise is the ‘Appendix to the Report of the commissioners for inquiring into the state of the roads in England and Wales,’ British Parliamentary Papers (BPP 1840 XXVII). The appendix of this report records the mileage of individual trusts in each parish in 1838. This task was made easier by access to Bogart’s digitized transcript to the appendix which was linked by Satchell to a parishes and places GIS. Rosevear used tollhouse locations, which he had recorded during mapping, to confirm the allocation of sections to trusts and better specify trust boundaries. Local history studies of individual trusts were also used to date and plot diversions made by the trusts where possible, and the recorded trust mileage in 1820, 1838 and 1847 used to interpolate a date for improvements seen on maps where no records were found. This added c.5% more miles to the dataset in terms of length but far more in terms of functionality. Unless specified in the Act, it was assumed that the older section of road lapsed at the date the improvement was made. To ensure accuracy of the roads pertaining to each trust for the entire dataset, Rosevear did extensive checking of the GIS mileage derived from each trust’s polylines against the published trust mileages as given in the 1838 report.

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<sup>4</sup> The scans were created by the Landmark Group and distributed by Edina, University of Edinburgh: <http://edina.ac.uk/>. Our thanks to Edina and Landmark for allowing us to use these scans.

<sup>5</sup> <http://www.msocrepository.co.uk/google-earth-maps> (consulted 04.12.2014) .

<sup>6</sup> <http://www.portcullis.parliament.uk/calmview/>

Bogart and Rosevear established that the wording of the acts of parliament also provide an indication of whether the road was pre-existing or newly constructed. Wording mentioned repairing of roads implied the road was old. Wording mentioning the diversion of the road suggested there was some improvement. Wording mention the making of the road suggested that it was new. This data was also added as an attribute of the shapefile in the column headed “Old\_or\_new”.

For Wales there was no comprehensive milestone record or marked up county maps with which to work. Alan Rosevear took the raw Cary turnpike data and added the trust name and date of opening and closure using parliamentary records and acts of parliament described above. The network for South Wales was further refined using the maps and commentary in ‘The Report from the Royal Commission on Turnpike Roads and Outrages in South Wales’ (BPP 1844 XVI) made after the Rebecca Riots.

### Attribute data

<i>Field</i>	<i>Data type</i>	<i>Description</i>
<b>FID</b>	Object ID	Unique ID for each row in the table
<b>Shape</b>	Polyline	Polyline of road
<b>Trust_name</b>	String	Name of Trust in standardised format (note that the names are normalised to 1838 so names in curled brackets {} had lapsed and were toll free by this date, those in {{}} brackets were managed but toll free (usually Improvement Commissions) and those in square brackets [] were turnpiked after 1838.
<b>Dateofact</b>	Numeric	Date road section came under the authority of the trust
<b>Datelapsed</b>	Numeric	Date section of road ceased to be a turnpike when this occurred before closure of trust (normally when a Diversion/Improvement was built)
<b>DateExstinguished</b>	Numeric	Date when the trust expired and a section of road ceased to be under the authority of the trust
<b>Old_or_new</b>	text	Identifies where road was already in use before turnpiking (A) or was newly built by the trust (N) or was an improvement made when the trust built a diversion (I) or a long diversion (IX). Allocation generally based on wording of the act or local study papers on the trust. This field is left blank where it is unclear from wording of the Act is ambiguous
<b>Shape_leng</b>	Numeric	Polyline length in miles
<b>wasTP</b>	Text	Sections of road or bridge that were subject to toll during the period (T & TB), those maintained by Improvement Commission (I), those shown as Turnpike by Cary but no evidence of a trust (UNK) or not a turnpike (X) (generally urban link roads connecting turnpikes or bridges)
<b>TP1725</b>	Numeric	Section of road that was a turnpike in 1725
<b>TP1750</b>	Numeric	Section of road that was a turnpike in 1750
<b>TP1775</b>	Numeric	Section of road that was a turnpike in 1775
<b>TP1800</b>	Numeric	Section of road that was a turnpike in 1800

<b>TP1838</b>	Numeric	Section of road that was a turnpike in 1838 – the year for which there is comprehensive data on turnpike mileage by parish
<b>County_1</b>	Text	The county of the road section
<b>ISE_ID</b>	Numeric	Internal ID for cross referencing in databases

## Co-ordinate system

British\_National\_Grid

Projection: Transverse\_Mercator

False\_Easting: 400000.000000

False\_Northing: -100000.000000

Central\_Meridian: -2.000000

Scale\_Factor: 0.999601 Latitude\_Of\_Origin: 49.000000

Linear Unit: Meter

GCS\_OSGB\_1936

Datum: D\_OSGB\_1936

## Citation guidelines

The citations in this document should be used to reference any maps and/ or data when they have been included in any essays, dissertations or other academic works. Even if it does not appear as an image or map in your work, you should cite the data if it has been used to generate findings or a new dataset that is used.

## Citation

Rosevear, A., Satchell, M., Bogart, D., Shaw Taylor, L., Aidt, T. and Leon, G., 'Turnpike roads of England and Wales, 1667-1892', 2017. This dataset was created with funding from the Leverhulme Trust (RPG-2013-093), the NSF (SES-1260699), and the British Academy (SG121870). A description of the dataset can be found in Bogart, D, Rosevear, A. and Satchell, M., 'Turnpike roads of England and Wales 1667-1892 GIS shapefile documentation' available at:

<http://www.geog.cam.ac.uk/research/projects/occupations/datasets/documentation.html>

## Principal Sources

Report of the Commissioners for enquiring into the State of the Roads in England and Wales (BPP 1840)

Report from the Royal Commission on Turnpike Roads and Outrages in South Wales (BPP 1844)

J. Cary, Cary's improved map of England and Wales with a considerable portion of Scotland, planned upon a scale of two statute miles to one inch (London, 1832).

Ordnance Survey County Series First Edition 1:105650 (1842-1890)