

Shotley Peninsula Cycling Campaign

Potential impact on numbers of cyclists following the completion of the proposed traffic-free path

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Sustrans' Research and Monitoring Unit has pioneered the development of monitoring and evaluation techniques for sustainable and active modes of transport. We monitor and evaluate outcomes and assess the impacts of Sustrans' work, and we evaluate the interventions of partners and clients across the UK. We also undertake research and evaluation collaborations with consultant and academic groups.

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Executive summary

A new traffic-free path is proposed on the Shotley Peninsula. Shotley Peninsula Cycling Campaign (SPCC) has commissioned Sustrans to estimate the potential use of the new path by cyclists. In order to provide an estimate, a manual count was performed at two locations in the area during summer 2011 – at the sewage pumping station, The Strand, Wherstead, and the Primary School in Shotley Street. On the basis of these counts, the current annual usage estimates for cyclists at these two locations is **14,601** and **12,223**, respectively.

A number of case studies broadly similar to the Shotley Peninsula were identified where annual usage estimates were available before and at some time after route development. Taking the current annual usage estimate as a baseline, the annual usage estimate for cyclists at the sewage pumping station site could increase from **14,601** to almost **29,000**. The annual usage estimate for cyclists at the primary school site could increase from **12,223** to over **24,000**. These estimates are based on the assumption that **100%** of the change in the annual usage estimate observed at the case study sites would be attained following route development on the Shotley Peninsula.

Scenarios of 75% and 125% uplift at the two manual count locations on Shotley Peninsula have also been explored using the same methodology. The ranges generated using the upper and lower scenarios are presented in the main body of the report.

Introduction

Shotley Peninsula Cycling Campaign has commissioned Sustrans Research and Monitoring Unit to carry out research into the potential impact on numbers of cyclists following the completion of a traffic-free path.

Manual count data was collected in summer 2011 at two sites on the Shotley Peninsula. This has been used to generate an annual usage estimate for cyclists at these locations. Potential changes in usage following route development were explored using three case studies. These were based on similar schemes elsewhere in the UK where Route User Intercept Surveys were performed to monitor use before and at some time after the completion of route construction or improvement. We assume that uplift of a similar order of magnitude as observed in the three case studies may also occur following delivery of the proposed Shotley Peninsula route development.

Annual Usage Estimate

Sustrans Research and Monitoring Unit have delivered Route User Intercept Surveys (RUIS) in locations across the UK since 1998. RUIS are widely used to monitor use on the National Cycle Network. They also form an important part of the monitoring programmes for national projects such as Connect2 for the Big Lottery Fund, for which surveys were developed in consultation with the iConnect consortium of academics. RUIS are also used in the Department for Transport commissioned monitoring of the Cycling City and Towns programme, and are a core tool in monitoring the use of Links to Schools schemes, part funded by the Department for Transport.

Estimates of total annual usage are generated by comparing manual counts conducted over four days with observed distributions of use from continuous counts at sites of a comparable nature. The proportion of total annual use that is comprised by four days from months commensurate with the months when the route user survey is undertaken is calculated for a site with continuous usage count data and an annual usage estimate. The proportion generated is assumed to be equivalent to the proportion of annual usage represented by the four day manual count. The total annual usage estimate is calculated on the basis of this proportion. The resulting value reflects the total number of trips passing the survey point in a one year period.

Manual counts were carried out in accordance with the standard RUIS methodology at two sites on the Shotley Peninsula. The first count site is situated at the Sewage pumping station, The Strand, Wherstead (B1456) at the northern point of Shotley Peninsula. The second count site is located near a Primary School in Shotley Street, (B1456) near the southern end of Shotley Peninsula. Counts of cycles were used to generate an annual usage estimate for the two count locations. No surveys of route users were carried out alongside the manual counts.

The manual count carried out at the Sewage pumping station (Thursday 4th August, Saturday 13th August, Thursday 22nd August and Sunday 25th August 2011), recorded a total of 221 bicycles over four days between 7am and 7pm. The annual usage estimate based on the manual counts for this location is **14,601**.

The manual count carried out at the Primary School (Thursday 18th August, Saturday 20th August, Thursday 8th September, Sunday 11th September 2011), recorded a total of 185 bicycles over four days between 7am and 7pm. The annual usage estimate based on the manual counts for this location is **12,223**.

Case Studies

Sustrans RUIS programme has been in place since 1998 and Sustrans Research and Monitoring Unit have a large number of RUIS to refer to. Survey locations are frequently dictated by the location of specific projects and, although a number of surveys are performed to monitor the National Cycle Network more generally, their geographic distribution is not uniform. The Shotley Peninsula is unusual in its geography and identifying suitably similar RUIS on which to base case studies was challenging. In the first instance, the database of surveys was reviewed to create a short list of surveys meeting the following criteria:

- At least two surveys performed in the same location before and after route development or improvement
- Surveys showing a moderate change in the annual usage estimate between survey iterations
- Survey locations on routes of a similar distance and linking villages or towns to each other and the wider cycle network

The distribution of population around the routes and socio-demographic factors were not considered in selecting case studies.

An initial list of five surveys was discussed in detail with the Shotley Peninsula Cycling Campaign, and three case studies selected which were agreed as being broadly similar to the proposed scheme at Shotley. The changes in use by cyclists observed in each of the case studies forms the basis for estimates of potential uplift in usage following the completion of the proposed route against base levels of cycling in the area calculated from counts of cyclists performed in summer 2011.

Great Shelford, Cambridge

This mostly traffic-free route links Great Shelford with Waterbeach via Cambridge. The survey site is on the rural traffic-free path which links the village of Great Shelford with Cambridge. The section of the route where the survey site is located is approximately 10 km in length. From Great Shelford, the route follows a path alongside the railway to Addenbrooke's Hospital before joining roads and cycle paths heading towards the centre of Cambridge. An initial survey was undertaken in 2006 before the route was developed. A second survey was performed in 2010 after the route had been constructed.

Year of survey	Annual usage estimate (cyclists)	% change in annual usage estimate
2006	80,215	98.6%
2010	159,278	

Thornhill, Dewsbury

The survey site is at Thornhill approximately 1km from the Dewsbury ring road along a riverside section of the Calder Valley Greenway (NCN 66) which, when complete, will extend to Huddersfield via Mirfield. The site is between an urban fringe residential area and industrial area to the south-west of Dewsbury town centre. The section of the route where the survey site is located is approximately 6.5km in length. A survey was undertaken in 2006 before construction started on the entrance to the Calder Valley Greenway section at Thornhill. A second survey was performed in 2008 once construction had been completed.

Year of survey	Annual usage estimate (cyclists)	%change in annual usage estimate
2006	16,083	69.9%
2008	27,325	

Nantgarw, Wales

The survey site is at the junction of National Cycle Network national routes 4 and 8, the Celtic Trail and Taff Trail, on a key section of traffic-free route through attractive woodland. Users following the Celtic Trail east-west pass through the site from Caerphilly or Pontypridd and those on the north-south Taff Trail access Cardiff and the Taff Valley. The route is approximately 6km in length to the urban area of Pontypridd and is part of the extensive Valleys Cycle Network. Surveys have been performed at this location in 2006, 2007, 2010 and 2011. A number of improvements were made to the route following the initial survey in 2006. For the purposes of this case study, the annual usage estimates for 2006 and 2011 are compared.

Year of survey	Annual usage estimate (cyclists)	% change in annual usage estimate
2006	28,260	76.6%
2011	49,897	

Forecast of change in estimated usage following route development

Changes over time in the annual usage estimates from the three case studies identified above were used as the basis for forecasting the potential uplift in cycling following route development on the Shotley Peninsula. It is assumed cyclists using existing facilities would use the new route, and that the base level of usage estimated from the counts of cyclist performed in summer 2011 has the potential to increase over time following route development by the same order of magnitude as observed in the case study examples.

In the following sections estimates are made of the forecast annual usage estimate at each of the Shotley survey sites if the same percentage change in the annual usage estimate was to occur over time at these sites as in the case study surveys. Further calculations are made based on 75% and 125% of the percentage change in use at the case study sites. The selection of these boundaries is arbitrary and is intended to give an indication of potential levels of cycling at the Shotley survey sites should uplift over time be lower or greater than that seen at the case study sites.

Two iterations of surveys are considered from each of the case studies. However, the period of time between surveys at each site varies. The forecast annual usage estimates reported below do not therefore relate to change over a standard period of time. We do not have sufficient evidence to support an assumption of linear growth in use between the pre and the post survey period and so cannot robustly standardise growth in usage to a common period of time based on these case studies.

The manual counts collected at the two sites have been treated individually throughout the analysis. Whilst it is plausible that cyclists counted at the first count location may also be counted at the second, it is not possible to be certain that this is the case, and annual usage estimates represent the point on a route at which the count was performed.

Case Study 1: Great Shelford

Manual count site	Annual Usage Estimate			
	Baseline	% of change from case study applied to Shotley baseline		
		75%	100%	125%
Sewage pumping station	14,601	25,395	28,992	32,590
Primary School	12,223	21,258	24,270	27,281

Case Study 2: Thornhill, Dewsbury

Manual count site	Annual Usage Estimate			
	Baseline	% of change from case study applied to Shotley baseline		
		75%	100%	125%
Sewage pumping station	14,601	22,256	24,807	27,359
Primary School	12,223	18,630	20,766	22,902

Case Study 3: Nantgarw, Wales

Manual count site	Annual Usage Estimate			
	Baseline	% of change from case study applied to Shotley baseline		
		75%	100%	125%
Sewage pumping station	14,601	22,985	25,780	28,575
Primary School	12,223	19,241	21,581	23,920

Conclusions

Based on the manual counts collected at two locations on the Shotley Peninsula an annual usage estimate has been generated which indicates a baseline annual usage estimate reflecting current use

on the existing facilities. The annual usage estimates at the sewage pumping station site and the primary school site were **14,601** and **12,223**, respectively.

Levels of cycling on the proposed Shotley Peninsula route following development were estimated from three case studies where annual usage estimates were calculated before and at some time after route development. The baseline usage estimate for each site was adjusted by the percentage change in the annual usage estimate for cyclists at each case study site. A forecast was also made of usage should changes in levels of cycling in Shotley be either lower than or greater than in the case study examples; 75% and 125% of change in the case studies were applied in these scenarios.

Assuming that **100%** of change observed at the case study sites occurred, the annual usage estimate for cyclists at the sewage pumping station site could increase from **14,601** to almost **29,000**. The annual usage estimate for cyclists at the primary school site could increase from **12,223** to over **24,000**.

In the scenario that only **75%** of change observed at the case study sites occurred, the annual usage estimate for cyclists at the sewage pumping station site could increase from **14,601** to over **25,000**. The annual usage estimate for cyclists at the primary school site could increase from **12,223** to over **21,000**.

In the scenario that **125%** of change observed at the case study sites occurred, the annual usage estimate for cyclists at the sewage pumping station site could increase from **14,601** to over **32,000**. The annual usage estimate for cyclists at the primary school site could increase from **12,223** to over **27,000**.

Appendix: manual count data

Survey location: Sewage pumping station, The Strand, Wherstead (B1456)

Direction: Ipswich to Shotley															
Day	Category	Start time	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	Total
Thursday	Bicycles		2	3	1	0	0	0	0	0	3	0	4	1	14
4th August	Motorcycles		4	3	1	0	1	3	2	6	2	1	6	5	34
	Cars		124	164	160	153	206	245	259	241	264	321	453	290	2880
[WET]	LGV's		53	70	46	43	35	26	38	37	34	35	43	2	462
	HGV's		14	15	21	9	12	9	6	13	6	6	1	0	112
	Buses		2	1	1	2	1	3	2	2	1	2	3	1	21
	Total		199	256	230	207	255	286	307	299	310	365	510	299	3523
Saturday	Bicycles		3	5	7	0	2	5	0	0	2	1	1	1	27
13th August	Motorcycles		2	1	1	4	2	4	3	4	1	6	6	6	40
	Cars		50	111	208	224	306	350	345	281	308	295	285	280	3043
[SUNNY]	LGV's		13	21	29	25	25	30	28	15	24	15	17	17	259
	HGV's		4	2	6	1	0	0	0	2	2	1	0	0	18
	Buses		1	2	1	3	1	2	1	2	1	2	4	1	21
	Total		73	142	252	257	336	391	377	304	338	320	313	305	3408
Thursday	Bicycles		3	3	13	0	1	2	1	2	3	2	2	5	37
22nd Sept	Motorcycles		5	1	3	2	4	6	6	2	7	3	8	4	51
	Cars		205	273	159	175	220	266	230	290	355	389	504	316	3382
[SUNNY]	LGV's		48	58	36	61	45	44	37	41	42	40	55	25	532
	HGV's		13	8	8	10	5	8	12	13	10	5	1	2	95
	Buses		9	11	2	2	1	3	3	11	13	6	4	2	67
	Total		283	354	221	250	276	329	289	359	430	445	574	354	4164
Sunday	Bicycles		3	2	1	2	4	9	2	0	1	6	1	3	34
25th Sept	Motorcycles		0	2	11	10	7	18	14	4	6	4	5	4	85
	Cars		49	258	280	322	415	456	426	320	302	261	252	170	3511
[SUNNY]	LGV's		5	16	18	13	19	23	23	24	14	8	20	12	195
	HGV's		0	0	1	3	1	2	0	1	4	2	0	1	15
	Buses		0	0	1	0	0	0	0	0	0	1	1	0	3
	Total		57	278	312	350	446	508	465	349	327	282	279	190	3843

Direction: Shotley to Ipswich															
Day	Category	Start time	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	Total
Thursday 4th August	Bicycles	5	2	3	0	0	2	0	2	0	0	1	2	1	16
	Motorcycles	3	4	3	2	1	2	1	2	0	4	5	1	3	29
	Cars	282	387	260	265	215	238	215	252	219	197	244	177	206	2942
	LGV's	54	46	53	37	47	40	41	41	51	42	51	32	18	512
	HGV's	6	16	11	7	7	12	10	10	9	12	8	4	0	102
	Buses	1	3	4	1	2	2	2	2	1	2	2	1	2	23
	Total	351	458	334	312	293	293	272	309	280	257	311	217	230	3624
Saturday 13th August	Bicycles	0	3	1	3	2	2	1	2	4	1	1	4	4	26
	Motorcycles	3	3	4	3	0	3	0	2	3	9	3	6	5	44
	Cars	77	165	251	331	291	349	291	304	241	305	295	232	223	3064
	LGV's	10	17	36	26	19	28	19	17	32	21	13	21	9	249
	HGV's	0	5	0	6	2	4	2	1	0	4	0	1	0	23
	Buses	2	0	2	1	1	3	1	2	1	3	2	2	2	21
	Total	92	193	294	370	314	389	314	328	281	343	314	266	243	3427
Thursday 22nd Sept	Bicycles	4	4	0	6	1	1	1	3	2	3	0	2	6	32
	Motorcycles	4	9	9	4	3	5	3	1	1	2	6	2	3	49
	Cars	343	587	282	238	223	207	214	214	240	305	383	249	251	3522
	LGV's	52	46	35	33	52	41	40	40	46	61	63	43	19	531
	HGV's	1	11	9	10	10	10	11	11	9	11	2	4	2	90
	Buses	3	16	6	1	3	2	3	3	1	7	19	2	5	68
	Total	407	673	341	292	292	266	272	272	299	389	473	302	286	4292
Sunday 25th Sept	Bicycles	0	2	1	1	4	4	7	7	2	3	4	3	1	35
	Motorcycles	0	2	3	6	14	14	13	10	12	21	12	6	4	103
	Cars	44	113	231	294	327	327	405	310	407	497	567	499	241	3935
	LGV's	4	9	17	7	5	5	8	9	8	17	27	27	16	154
	HGV's	0	2	2	1	1	1	1	5	2	1	2	2	1	20
	Buses	0	0	0	0	0	0	0	0	0	0	2	2	1	5
	Total	48	128	254	309	351	351	434	341	431	539	614	539	264	4252

Survey location: Primary School, Shotley Street, (B1456)

Direction: Ipswich to Shotley															
Day	Category	Start time	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	Total
Thursday	Bicycles	1	1	3	0	0	0	3	2	1	2	2	0	1	16
18th August	Motorcycles	0	0	0	0	0	0	2	0	0	0	1	2	1	6
	Cars	20	28	58	60	77	89	65	87	88	98	152	153	975	
[CLOUDY]	LGV's	5	4	21	12	10	8	11	17	9	14	30	8	149	
	HGV's	1	0	2	2	2	3	0	2	2	0	0	1	0	13
	Buses	2	2	1	1	1	1	2	2	2	1	1	1	1	17
	Total	29	35	85	75	90	106	80	109	101	116	186	164	1176	
Saturday	Bicycles	0	0	1	11	3	5	9	4	4	0	0	1	4	38
20th August	Motorcycles	0	0	1	4	3	4	13	6	6	2	3	2	0	38
	Cars	22	22	39	88	98	111	98	124	105	98	95	115	1015	
[SUNNY]	LGV's	4	8	7	8	7	10	5	8	8	4	6	8	83	
	HGV's	2	3	0	0	0	0	0	1	0	0	0	0	0	6
	Buses	1	0	2	1	1	1	1	1	1	1	1	1	2	13
	Total	29	33	50	112	112	131	126	144	116	106	105	129	1193	
Thursday	Bicycles	1	1	4	2	0	1	1	1	4	1	1	1	2	18
8th Sept	Motorcycles	0	0	0	1	0	0	1	2	1	0	1	1	3	9
	Cars	24	62	57	47	73	63	78	57	126	130	220	151	1088	
[CLOUDY]	LGV's	10	10	9	9	13	10	13	7	10	18	19	13	141	
	HGV's	1	2	3	4	2	2	1	0	5	0	1	0	21	
	Buses	4	2	3	1	2	1	1	0	4	3	1	2	24	
	Total	40	77	76	64	90	77	95	66	150	152	243	171	1301	
Sunday	Bicycles	0	1	1	2	0	10	0	3	2	1	0	2	2	22
11th Sept	Motorcycles	0	0	2	1	0	3	0	5	3	7	3	2	2	26
	Cars	14	20	34	55	103	133	118	106	138	97	87	55	960	
[SUNNY]	LGV's	0	3	8	7	6	6	7	5	5	5	7	3	62	
	HGV's	0	0	0	1	0	0	0	0	0	0	0	1	0	2
	Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	14	24	45	66	109	152	125	119	148	110	98	62	1072	

Direction: Shotley to Ipswich															
Day	Category	Start time	7am	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm	5pm	6pm	Total
Thursday	Bicycles		2	0	2	1	0	2	6	4	0	0	1	0	18
18th August	Motorcycles		4	0	0	1	0	1	1	0	1	1	0	0	9
	Cars	120	139	90	83	64	73	74	74	61	73	58	73	58	966
	LGV's	19	14	24	7	10	9	11	9	11	14	5	5	7	134
	HGV's	1	1	0	4	2	2	2	2	2	0	0	1	0	15
	Buses	2	0	1	1	1	1	3	1	3	2	2	0	2	16
	Total	148	154	117	97	77	88	93	93	81	90	66	80	67	1158
Saturday	Bicycles		0	0	3	2	10	3	9	3	2	0	2	2	36
20th August	Motorcycles	1	2	1	5	2	2	1	6	5	8	0	0	2	33
	Cars	30	73	100	120	85	79	83	83	85	136	95	85	70	1041
	LGV's	8	12	10	10	12	11	6	6	4	5	3	5	7	93
	HGV's	0	1	0	0	0	0	0	0	0	0	1	0	0	4
	Buses	1	0	1	1	1	1	1	0	2	0	2	1	1	11
	Total	40	88	115	138	110	97	104	104	99	151	101	93	82	1218
Thursday	Bicycles		0	5	0	0	1	0	2	0	0	1	4	1	14
8th Sept	Motorcycles	1	2	1	0	0	0	0	1	1	0	1	0	0	7
	Cars	165	218	74	57	67	50	63	63	67	106	72	74	91	1104
	LGV's	22	17	13	11	9	8	13	13	10	6	6	10	5	130
	HGV's	1	3	2	1	5	3	1	1	0	4	2	2	0	24
	Buses	2	2	1	1	1	2	1	1	1	3	4	0	1	19
	Total	191	247	91	70	83	63	81	81	79	119	86	90	98	1298
Sunday	Bicycles		0	0	1	1	0	7	4	7	1	1	3	0	23
11th Sept	Motorcycles	0	1	1	0	3	0	0	0	1	5	6	3	3	23
	Cars	18	30	94	90	113	100	88	88	110	99	111	95	52	1000
	LGV's	2	1	5	6	6	11	8	8	5	6	2	10	5	67
	HGV's	0	0	0	0	1	0	0	0	0	0	0	0	1	2
	Buses	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	20	32	101	97	123	117	100	100	123	111	119	111	61	1115

