City of York Council DfT Challenge Fund Bid 2017/18

Benefit and Cost Calculations

The ‘Value for Money: An Economic Assessment of Investment in Walking and Cycling’ document prepared for the Department of Health reviewed a range of projects and source materials to calculate the Benefit Cost Ratio of cycling schemes.

The report highlighted to work of SQW Consulting in their 2008 Planning for Cycling document which was prepared for Cycling England.

Monetary values have been calculated to illustrate the benefits that a single new cyclist cycling regularly for a year could attain. The benefits for an urban cyclist are approximately £600 per year, see below:

Benefits (annual for each additional cyclist)	**Urban**	
Health Benefits	On Road	Off Road
Value of loss of life	£408.67	£408.67
NHS Savings	£28.30	£28.30
Productivity gains	£47.69	£47.69
Pollution	£34.57	£34.57
Congestion	£68.64	£68.64
Ambience	£13.20	£53.60
Total Benefits	£601.06	£641.46

Source: SQW

Table 1

As part of other transport initiatives, including the Scarborough Bridge access improvements, we plan to double the number of cyclists in the city and therefore the number of users of NCN65, however, for a conservative and reasonably foreseeable increase in benefits we can evidence that cycling levels have increased by 50% in the city (Active People’s survey).

September 2016 traffic count figures show an average of 463 cyclists on the route at North Street/Skeldergate. A 50% increase would deliver 232 new cyclists on NCN65 at this location.

From Table 1, using an average benefit of £600 per cyclist over a 30 year period this would give a benefit figure of £4,176,000 and a BCR of 3.73:1.

This figure is based only on the direct benefit to cyclists. Any proposed increase in cycling won't all be attributable to new cyclists as some of the increase will be due to higher levels of cycling by existing cyclists. To balance this out there are many benefits which have not been monetised which will increase the BCR (The DfT's recent publication "Value for money assessment of the integrated transport block, 2016" suggests that capital spending on cycling schemes varies between a BCR of 5.1:1 and 13.1:1.) The non-monetised benefits of our proposed scheme include:

- benefits to motorists on the shared routes
- reduction in cycle casualties on the parallel road network through the provision and protection of the safer off-road alternative
- increased flood resilience of the route
- undertaking the works now will be better value for money than delaying the repairs where future costs could be substantially more due to the asset being in a much poorer state
- there will be less risk to cyclists and pedestrians who use the route as a result of the improvement in quality and removal of hazards
- the decongestion benefits used in the SQW calculation will be understated due to the city centre of York being very busy and congested due to the historic, constrained nature of the road network, in a similar vein the air pollution benefits will also be understated

In addition to the above the works to upgrade Scarborough Bridge and maintain an access to Millennium Bridge have not been taken into direct consideration at this time and will deliver a much stronger BCR when complete.

The route will be in very close proximity to the York Central site, a large brownfield development site to the rear of York Station which is ear-marked for a large residential site, employment area and an improved National Railway Museum site. The route will be used by residents, employees and visitors and will help achieve the objectives of reducing the transport impacts of the site.

Table 2 Number of cyclists needed to achieve a benefit to cost ratio of 1:1

Cost of Project	Urban		Rural		Average
	On Road	Off Road	On Road	Off Road	
£10,000	1	1	1	1	1
£25,000	3	3	3	3	3
£100,000	11	10	12	11	11
£250,000	27	25	30	28	27
£500,000	54	50	60	56	55
£750,000	80	75	90	83	82
£1,000,000	107	100	120	111	109
£1,250,000	134	125	149	139	136
£1,500,000	161	151	179	167	164
£1,750,000	187	176	209	195	191
£2,000,000	214	201	239	222	218

Source: SQW

Table 2

The SQW report outlined a further high level assessment based on Table 2 above, where an average of 109 new cyclists are required to give a £1m scheme a BCR of 1:1. Clearly the scheme BCR as calculated from table 1 exceed this.