

## Cycling Research

### BUILD IT AND THEY WILL COME

One of the most commonly asked questions when trying to justify cycle facilities is "how many more cyclists will there be as a result of building this?" Quite simply, there is no easy answer, as it depends very much on the facility in question and many other factors about both the location and local policies. Various anecdotal reports abound of how particular new facilities have seen a significant take-up in cycling. But only limited research has attempted to discern some general trends as a result of ongoing provision of cycle facilities.

Nelson & Allen (1997) carried out one of the first empirical studies, examining the relationship between cycle commuting and cycle pathways. They looked at 18 U.S. cities and their final linear regression model included length of bikeways, rain days, and percent of college students as significant variables. They found that each additional mile of bikeway per 100,000 people was associated with a 0.07% increase in cycle commuting to work, all other things being constant. However, they didn't infer a cause-and-effect relationship from this; the study couldn't tell which came first - the cyclists or the facilities.

More recently, Dill & Carr (2003) tried to extend this work using data from 35 large (over 250,000 population) cities in the U.S. One advantage of using larger places was that it took out the effect of "university towns", where often there are additional cycle facilities because of the student population. The percentage of people commuting to work by bicycle correlated significantly with various cycle infrastructure variables, but not with any other transportation, environmental or demographic variables. The strongest correlation was with the number of on-road bike lanes per square mile. The resulting model indicated that, for typical U.S. large cities, each additional mile of bike lanes per square mile was associated with a 1.0% increase in the proportion of workers commuting by bicycle (it should be noted that such an increase in bike lanes is actually quite a lot - the studied cities averaged only  $\sim 1/3$  mile of bike lanes/mile<sup>2</sup>). Again, no cause-and-effect relationship can be claimed, but it does imply that commuters will use cycle lanes if they are provided.

Katz (1996) took a slightly different approach, using a stated preference survey to estimate the "elasticity" of providing bike facilities. The elasticity of demand for cycling with respect to the proportion of a trip served by designated bicycle facility was calculated at 0.6. For example, using this elasticity value, a 25% increase in the cycleway proportion of all possible cycle trips in a city would increase the numbers of cycle commuters by approximately 15% ( $25 \times 0.6$ ). As with the U.S. studies above, some confirmation of suitable local values would be needed for New Zealand.



The field of estimating cycle trip generation is still an evolving one, and there are now some useful guides available to help you predict likely future cycle numbers using a variety of techniques, including FHWA (1999) and Katz (2001). The methods range from simple comparisons of similar facilities previously built, to complex trip demand models.

It is important to remember that, on its own, building cycle facilities won't get everyone out on their bike. Firstly, cycle lanes and paths need to connect popular origins and destinations, and many people may not take up cycling until they consider the complete route from end to end is safe and convenient. Also, greater efforts should be made to educate and encourage people on cycling as an option, and to provide adequate and safe parking at their destinations.

### References

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- Nelson, A. & Allen D., 1997, "If You Build Them, Commuters Will Use Them", *Transportation Research Record 1578*

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