

2013

Groody Roundabout Cycle Audit

This document is an audit of cycle traffic volume and behaviour carried out on the Groody Roundabout, Castletroy, Limerick

This document was prepared by Limerick Cycling at the request of Limerick City / County Council in association with Limerick Smarter Travel

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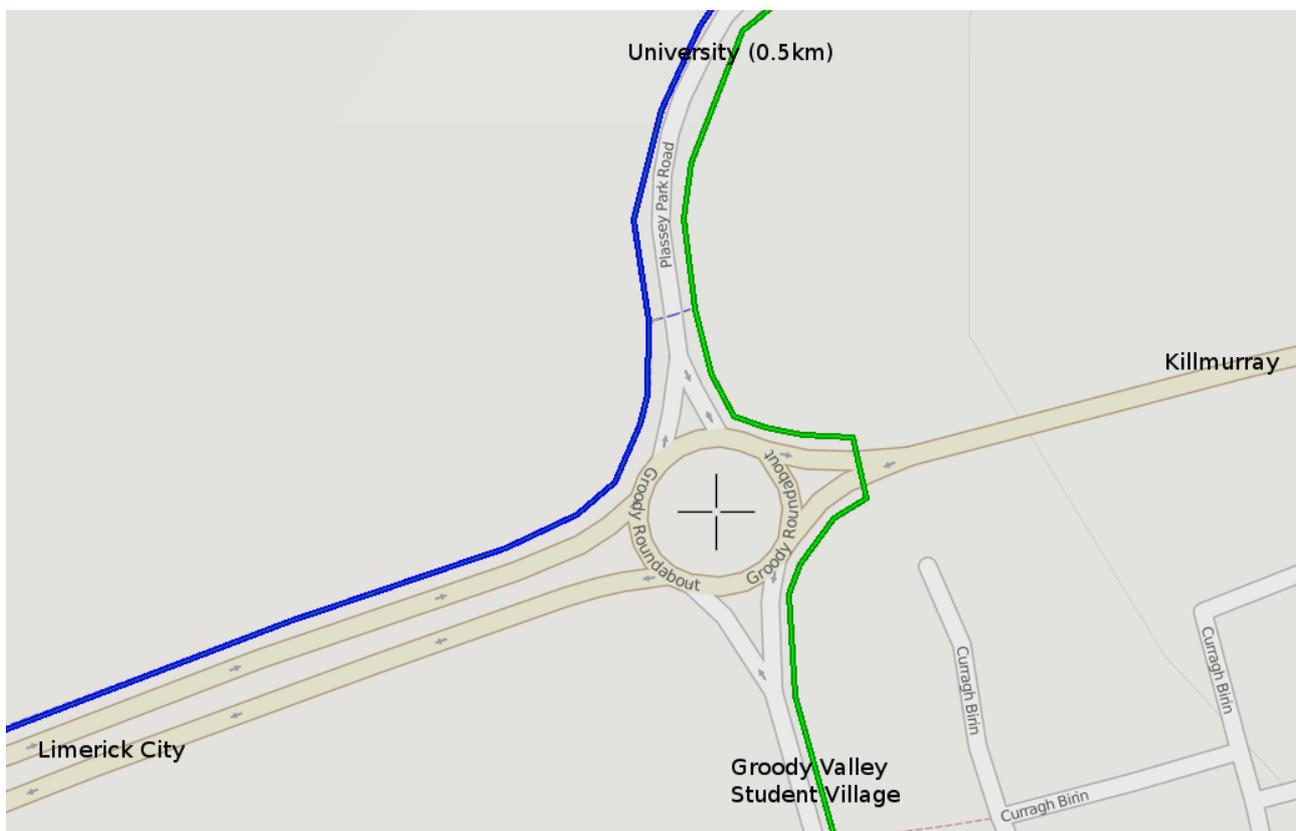


Groody Roundabout Cycle Traffic Audit

This cycle traffic audit has been prepared for Limerick City / County Council in association with Limerick Smarter Travel¹, by John Dawson, representing Limerick Cycling². This audit has arisen from an earlier proposal to examine a number of junctions and junction types around Limerick City.

This audit looks quantitatively at cycle traffic patterns, examining cycle traffic volumes and junction use. The data presented are based on a number of cycle traffic surveys taken at particular dates and times.

The present audit looks at a single junction: the Groody Roundabout on the Dublin Road, some 2km from the city centre and about 0.5km from the University of Limerick. A schematic map of the roundabout is shown below³:



The Blue and Green tracks represent the *dominant* cycle traffic flow ($\frac{3}{4}$ of cycle traffic); these routes, and their variants, are all off-road i.e. using cycle tracks / pavements.

Green: cycle traffic between the University (or beyond) and the Groody Valley (or beyond): these cyclists use the pedestrian crossing over the Killmurray approach.

Blue: cycle traffic between the University (or beyond) and destinations towards the city

A proportion ($\sim\frac{1}{4}$) of users on both routes also used the pedestrian crossing on the Plassey Park Road i.e. switching between the Blue and Green routes.

1 <http://www.limerick.ie/smartertravel/>; dedicated website pending

2 <http://limerickcycling.wordpress.com>

3 <http://www.openstreetmap.org/>

Collected Data

Groody Roundabout Route Details		Day / Date / Time / Weather							Overall totals	Percentage of total
		Wed 20	Tue 26	Wed 27	Wed 6	Thu 21	Wed 3			
		Feb 2013 08:45-09:45	Feb 2013 08:00-09:00	Feb 2013 16:45-17:45	Mar 2013 13:00-14:00	Mar 2013 8:15-09:15	Apr 2013 16:55-17:55			
		Dry, cold	Dry, cold	Dry, cold	Overcast	Windy, cold	Sunny, cool			
Green	Per map	27	17	20	6	19	19	108	44%	
	Also crossing PPR	7	10	2	1	8	4	32		
Blue	Per map	16	14	19	8	15	10	82	31%	
	Also crossing PPR	3	3	6	0	2	4	18		
	All other routes	4	9	6	6	5	15	45	14%	
	All routes	5	4	8	5	6	8	36	11%	
	Totals	62	57	61	26	55	60	321		
Additional analysis										
	Wearing a helmet	11	10	11	4	10	10	56	17%	
	Gender	54	50	53	25	48	49	279	87%	
		8	7	8	1	7	11	42	13%	
	Walking over crossing	1	2	2	0	4	3	12	4%	
	Child, with adult	3	0	1	0	0	0	4	1%	

Explanatory Notes

1. *Per map*: i.e. following the Green / Blue routes as shown above
2. *Crossing PPR*: also using the pedestrian crossing on the Plassey Park Road i.e. switching between the Blue and Green routes, presumably to avoid crossing the same road elsewhere
3. *Walking on crossing*: all other cyclists rode over the pedestrian crossings
4. *Children, with adult*: an adult with one or more children is counted as a single unit in the main figures; the number of such children is identified here separately
5. *Gender*: Male / Female
6. *Highlighted in yellow*: estimate, not accurately counted

Notes on Data Collection

1. Data was collected for one hour at a time in every case
2. Data was collected mostly at times considered likely to carry most traffic, that is the morning and evening peak hours; the one survey at lunchtime shows significantly reduced traffic
3. The spread of values, across the six samples taken is quite small, particularly for the total volume, for the hour; i.e. discounting the lunchtime sample as an outlier, the five other values are: 62, 57, 61, 55, 60; other sub-analysis shows a broadly similar spread
4. Data is direction independent; most traffic is heading towards the university in the morning and away from it in the afternoon; there may be asymmetries in cyclist behaviour, that is, doing something different on the outward and return journey, which is not uncommon, but this was not particularly in evidence in this audit
5. The Open Street Map does not give a clear impression of the roundabout lane approaches, which are as follows:
 - Limerick City: dual carriageway; three lanes on approach, two on exit; the pedestrian crossing on this approach is “dog-legged”
 - Killmurray: three lanes on approach, two (wide lanes) on exit
 - Groody Valley: single lane each way, widening to double on approach
 - Plassey Park Road: two lanes on approach, two narrowing to one on exitBoth the N7 approaches (Limerick City and Killmurray) are five lanes (2 + 3)

Analysis & Observations

Cyclist Routes

The main observation is that the majority (~90%) of cyclists use the pedestrian crossings and cycle lanes i.e. off-road. This means that it is highly likely that the absence of these pedestrian crossings in this – or any large – roundabout would be a very significant inhibitor of cycle traffic.

The second point is that the Groody Valley – UL route carries the most traffic (~45%); there are also many pedestrians and a regular (free) bus following a similar route. The distance from the Groody student village to UL is only 2 or 3 km. This means the cyclists have other options, hence their choice to cycle is made against those other options.

It is noticeable that virtually none of Groody Valley – UL cyclists go round the other side (i.e. west) of the roundabout, particularly as ~1/3 of them cross (to the west side) on the Plassey Park Road approach crossing, before or after using the roundabout. This may be partly because there is no pavement, much less a cycle lane, on the west side of the Groody valley approach, but is perhaps also because the pedestrian crossing on the Dublin Road approach is perceived as harder to use as it is “dog-legged”.

Other Observations

The gender balance is heavily weighted towards males (87%); this is in line with generally observed norms. The proportion of cyclists wearing a helmet is 17%. The proportion of on-road cyclists is 11%; these on-road cyclists were also more likely to be male and more likely to be wearing a helmet (not counted). A very small proportion of cyclists walk over the crossings (4%), and some of those did so for social reasons i.e. talking to pedestrians. Very few children were noted (<1%); the nearest school (Milford National School) is next to the University (0.5km).

Pedestrian Crossings on Roundabout

Motorists sometimes come a somewhat abrupt stop at the pedestrian crossings, on exit from the roundabout. It is likely that motorists on the roundabout concentrate mostly on the traffic on the roundabout itself and on leaving it, may have to stop rather suddenly on seeing a pedestrian or cyclist on the crossing. It therefore follows that the placing and design of the crossing, and the visibility of pedestrians and cyclists on it, as well as cyclist behaviour, are all significant risk factors. Perhaps the most important infrastructure aspect is the width of the road, which, at five lanes on the N7 approaches is excessively wide, for an urban roundabout.

There is the “Safety in Numbers” effect: that is, the more motorists are used to pedestrian crossings, the safer these crossings become to use; for this reason, pedestrian crossings are in themselves a traffic calming measure. It is estimated (not counted) that pedestrians easily outnumber cyclists; it could therefore be inferred that the pedestrian traffic “protects” the cyclists – by raising the profile of both; in itself, this is an argument against the segregation of pedestrian and cycle traffic.

Technically, cyclists should walk, not ride, on pedestrian crossings; the data show that only a small minority (4%) comply. Hence the use of pedestrian crossings by cyclists is adaptative rather than planned traffic behaviour.

Lastly, the current arrangement could not easily accomodate a significantly increased volume of cyclists; two concerns are suggested: 1) if the pedestrian crossings were more heavily used, it would proportionally, and potentially significantly, affect traffic flow; 2) the pavements around the roundabout are too narrow to support much more mixed cycle / pedestrian traffic, particularly the north-west corner, overlooking the Groody valley; visibility round this corner is not good, for the width of the pavement:



Google maps: <https://maps.google.ie/maps?hl=en&tab=w1&authuser=0>