
Galway Cycling Campaign
http://www.galwaycycling.org/

Submission on the Galway City Integrated Traffic Management Programme Consultation
July 2015

## Contents

## 1 Overview

This submission is not intended to be comprehensive but is only intended to illustrate a cross section of issues that must be considered in any Integrated Traffic Management Programme. Most of the issues raised have been raised previously in a range of other submissions to the city council.

## 2 Vision

Galway is a small European university city and would still fit that category if the population doubled. The driving vision for Galway should be to manage the city in a way that matches this status. Galway should be seen, and should see itself, as the Irish equivalent of historical university cities like Oxford, Cambridge, Utrecht, Freiburg, Ferrara and so on. It is equally important to state what places are not models for Galway. Car centred cities from the 1970s places like Los Angeles, or the British city of Birmingham, are not models for Galway to follow.

## 3 Guiding principles

It is our expectation that any traffic management programme for Galway will follow the *Hierarchy of Road Users* starting with pedestrians at the top and ending with private car users. We also expect any programme to be drafted in accordance with the *Hierarchy of Solutions* set out in the 2009 National Cycle Policy Framework (copy appended). We also endorse the Road Danger Reduction Charter and the European Charter of Pedestrian Rights (also appended).

Summary of *Hierarchy of Solutions*

1. Traffic reduction, particularly of HGVs.
2. Traffic calming - reducing speed through enforcement and other measures
3. Junction treatment and traffic management, e.g. modifying or removing urban roundabouts, eliminating slip roads and left-only turns, adding Advanced Stop Lines.
4. Increasing road space and overtaking space for cyclists.
5. Cycle lanes and cycle tracks.
6. Cycleways – roads dedicated to cyclists.

There is also a need for a series of works outside the strict scope of the *Hierarchy of Solutions,* these include a cycle parking project and a project to deal with city-wide permeability issues. First and foremost there is an immediate need to boost the level and quality of cycle parking available in Galway.

## 4 Cycle parking project

Regardless of what kind of traffic management interventions are made, it is obvious that people cannot be expected to cycle to destinations that lack suitable cycle parking arrangements. The National Cycle Policy Framework sets a target of 10% of commuters travelling by bike. The 2011 census counted 30967 city based workers over the age of 15. Ten per cent of this number is 3096. The same census counted 4352 secondary school children, ten per cent of this is 435. To be credible, any cycling interventions need to start with a programme to provide 3500 cycle parking spaces at likely destinations. As of 2009, a cycle campaign census of public cycle parking in the city centre came up with a count of 169 spaces. A 2012 review came up with a figure of 3341 car parking spaces for hire in the city centre – not including car parking provided by employers for their workers. The profound and obvious lack of cycle parking around a small university city invites speculation that cycling levels are being actively suppressed by the city council. Schemes to construct "cycle facilities" without first providing cycle parking, invite speculation that the real purpose of the cycle facilities is not to increase cycling participation.


To be considered "fit for purpose" cycle parking must support the frame and allow the bike to be locked via the frame. Designs using wheel grippers are not generally suitable, leave bikes vulnerable to theft and can damage the wheels. Stands should be at well-trafficked locations as close as possible to the entrances of the buildings being served. Some form of weather protection is also desirable for long-term cycle parking.

## 5 Permeability project

Permeability or connectivity describes the extent to which urban designs permit (or restrict) movement of people or vehicles in different directions. In some parts of Galway, cul-de-sac based estates or even deliberate road closures have made walking and cycling awkward and inconvenient.

Restoring cyclist and pedestrian access to parts of the city, particularly for school travel, will require measures to restore or create permeability for walking and cycling. Measures will include knocking down walls between housing estates, providing wheeling ramps and steps, providing pedestrian and cyclist access from housing estates to local roads by the shortest possible route. In some locations, particularly Knocknacarra, it may be necessary to buy adjacent properties and demolish them in order to construct the type of secondary roads network found in cities like Utrecht or Freiburg.


Figure: This satellite photo of Knocknacarra from Google maps shows the routes forced on people from two neighbouring houses (red and green) when walking or cycling to local shops, businesses, and leisure facilities (yellow shapes). Because of "impermeable" car-centred planning, people on the red route have a much longer journey to go the same distance and, regardless of age, must use main roads for much of their journey.

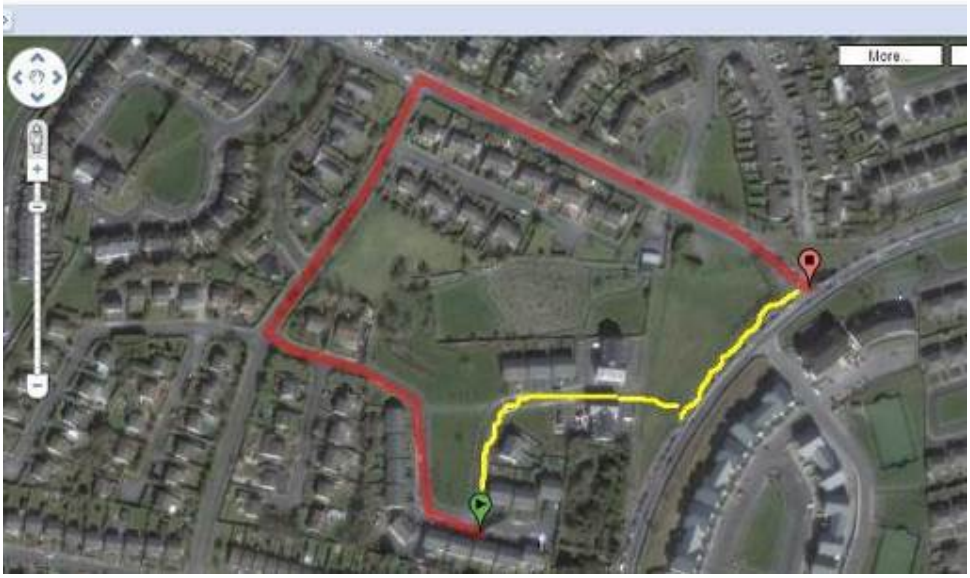



Figure: Another Google maps based example from Bun Caise, Rahoon. Theoretically a cyclist has a route through green areas to the Bishop O'Donnell Rd (the main road in the lower right corner). To use this however, means having to carry the bicycle over obstacles. Instead the road route requires cycling uphill through Cruachan Park to go across onto Rahoon Rd and cycle downhill to the Bishop O'Donnell road. Shortest path route (Yellow) 278m, Required route (Red) 648m, Detour imposed 370m.

Even at places in the city where theoretically some links already exist, it is not unusual to find they are blocked for cyclists and other users such as wheel chair users or parents with baby buggies. The combined effect is to push cyclists into awkward contortions or push them onto longer journeys via main roads. The following photos show examples.

Figure: Two examples from Rockfield park where access to adjacent areas and roads has been made difficult for cyclists and other users. This is just an example, similar problems can be found in various places in Galway City. They must become more permeable if cycling is to really flourish in Galway.

Figure: Road closures at old entrance/exit for the Monivea Park estate on the Ballybane Road. Road closure between Beechwood Park and McHugh Avenue in Mervue. Was there really any need to apply this to cyclists as well?

Figure: Kissing gate at access to Wellpark on old Dublin

In Galway, some of the most bizarre examples of the council obstructing cyclists (and others) are the so called "kissing gates". In the example above from Wellpark, cyclists have been shut out of an obvious access route to the Galway Mayo Institute of Technology Art campus on the Monivea Rd. In Galway, state funds were spent on a custom built cycle facility following the sea shore at South Park in the Claddagh. Access to this was then blocked with kissing gates – requiring cyclists to either dismount and try and wheel their bikes through the gates or lift the bikes over the gates.

# 6 Hierarchy of Solutions

## 6.1 Traffic Reduction: Environmental Traffic Cells for Galway

In most European cities with high cycling levels, a key feature is active motorised traffic removal and reduction programmes. Even in the neighbouring UK, Cambridge, Oxford and York are distinguished from other cities by the fact that they have long had policies in place to limit traffic growth.

Bremen was one of the first cities to use traffic cells. The Swedish city of Gothenburg has adopted a similar system. The Dutch city of Groningen removed motorways from the city centre and implemented a system of four zones that cannot be crossed by private motor-traffic, which must use the ring road instead. Cyclists and other traffic pass freely between the zones, and cycling now accounts for at least 50% of trips.[1] In the 1970s the Dutch city of Delft began restricting private car traffic from crossing the city centre.

> *1970's: Necessary repairs on two bridges in the middle of the city center were an opportunity to get rid of most of the motorized through traffic. In some parts of the historic center (about 1,000m wide and 1,500 long) a system of loops was introduced, meaning that cars entering from one side have to leave on the same side of the city center. An exception is made for the local buses. Nowadays it hard to imagine how many cars used to force themselves through narrow streets and tight corners.*[2]

A similar system is readily applicable to Galway City by closing off the Salmon Wier, O'Briens and Wolfe Tone bridges over the River Corrib to private motorised traffic. Access could be retained for pedestrians, cyclists, public transport and taxis. There is an alternative ring route available for private cars via the Quincentenial Bridge.

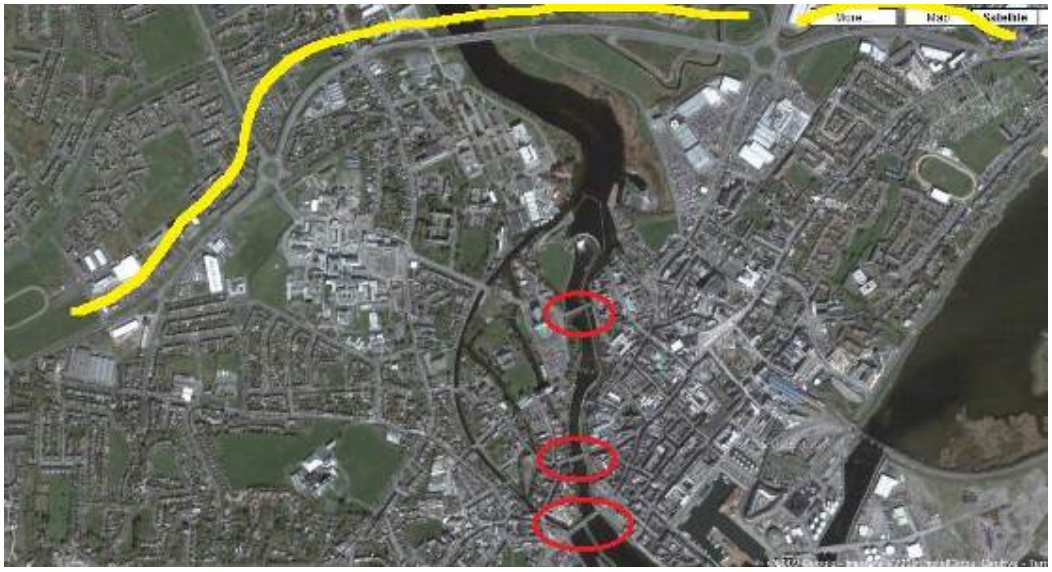


Figure: A "Delft like" traffic restraint sytem applied to Galway. The red circles show the three bridges that could be closed to private motor traffic or tolled. The yellow route shows the outer ring road.

The road closures do not have to be "permanent" but could operate like the College green bus gate in Dublin. Alternatively an electronic toll could be applied much like the M50 West link bridge (technology which is now well established). Tolling the bridges would in effect provide a congestion charge for Galway which could offset the costs of other measures such as car parking removal in the city centre.

### 6.2 Traffic Reduction: Car Parking

Reducing car parking capacity is an associated traffic restraint method: Copenhagen's renewal as a sustainable city can be traced to a policy, adopted in the 1970s, of reducing available car parking capacity by several per cent a year. Between 1986 and 1996 Copenhagen reportedly eliminated 600 car parking spaces. In Amsterdam, car parking availability and tarrifs are a key component of the traffic management program. As part of ten year plan formulated in 1992 up to half the car parking spaces were to be removed. To quote a recent story on Amsterdams transport policy: *The number of trips by car, compared to 1990, has fallen in all districts (-14%), whereas the number of trips by bicycle has only risen within the ring road (+36%). The bike is used most often in the town centre (41% versus an average of 28%) and the car least often (10% versus an average of 28%). This can be attributed to the restrictive parking policies enacted here since the 1990s.*[3]

In Groningen (pop 180,000), city centre zones wtih strict limits on car parking have been implemented with the maximum number of parking spaces set at one for every 10 employees. Galway will need to follow these best practice examples by removing car parking from the city centre. The priority will have to be those locations where road capacity has been removed from cyclists to provide parking thereby creating traffic lanes of unsuitable width on roads with heavy traffic. Examples include Bohermore, Headford at Wood Quay, Marys Rd, University Rd. If combined with tolling the bridges this measure could be revenue neutral for the council. It is also noteworthy that the current concentration of multi-story car-parking on the east side of the river has the effect of forcing car-traffic from the west to cross the river looking for parking.

### 6.3 Traffic Reduction: HGV Management

Figure: Turning HGV near NUI, Galway. HGVs have a high association with cycling fatalities.

Heavy Goods Vehicles are not compatible with walking and cycling. It has long been recognised that HGVs are disproportionately involved in fatal collisions and in particular in fatal collisions involving cyclists. The presence of HGVs also results in a large reduction in the comfort and perceived safety of the shared roads environment for vulnerable road users. A prominent urban collision type is where a left turning HGV crosses the path of a cyclist going ahead. There is a requirement for a HGV management strategy for the city. The National Cycle Policy Framework states in Policy Objective 2.4 HGV Strategies. "We will require local authorities to develop Heavy Goods Vehicle (HGV) Management Strategies for every town in the country. We will consider a ban on the movement of HGVs on routes to schools / other specific routes with mixed traffic between 08.30-09.30 and 15.00-17.00."

We provide a series of statements on the issue from various sources

- Dublin City Council have reported that of the 11 cycling fatalities that occurred in the city between 2002 – 2006, 8 of these deaths were of cyclists killed by left turning HGVs

A review of cycling deaths in London found as follows[4]:

> "HGVs were involved in 103 of 242 (43%) of all incidents and the vehicle was making a left turn in over half of these (53%)."
>
> "HGVs are disproportionally involved in collisions fatal to cyclists: using the data from our study, freight vehicles are approximately 24 times more likely to be involved in a fatal incident than cars, 4 times as likely as buses and 8.5 times as likely as motorcycles."

### 6.4 Traffic calming – tackling speed through enforcement

Of all the measures available to encourage more cycling and ensure cyclist safety, the most important are speed limit enforcement and reduction. Many adult Irish cyclists are able to tolerate sharing the ordinary roads network with even quite heavy traffic, provided base speeds are kept to 50km/h or below. The primary sense of threat does not come from "traffic" as such but from speeding, aggressive acceleration and close overtaking. Parents cannot be expected to let their children use cycle lanes if cars are being driven at excessive and dangerous speeds an arms-length away.

Many of the problems caused by inappropriate roads infrastructure, such as one-way streets and slip roads, derive from the fact that they encourage higher traffic speeds. Other problem locations, such as roundabouts, cannot be expected to function safely for cyclists unless speed restrictions are stringently applied. The speed limits currently being applied in many cases are too high; 30km/h is often more suitable for residential streets while for minor rural roads and country lanes 60km/h is more appropriate. Achieving speed restraint on roads used by cyclists, both urban and rural, must be given top priority. To be credible any traffic management programme for Galway must be matched by efforts by other state agencies to tackle speeding. There must be absolute priority to rolling out random speed camera enforcement, especially to routes used by cyclists. Arguments that enforcement is only needed at identified crash locations are spurious and self-serving in our view and should be rejected. The council must develop a speed management strategy for the entire road network that falls within the traffic management programme. The strategy will be underpinned by regular audits and surveys of free traffic speeds which will be published and used to identify appropriate remedial action.

As of 2001, the Netherlands had an estimated 1,500 speed/red-light camera installations.[5] The Netherlands set targets for 30km/h limits on 70% of urban roads. Graz in Austria has applied 30km/h limits to 75% of its streets since 1994 and has achieved steady growth in cycling.[6] In Hilden, Germany, 24% of trips are taken on two wheels – this rate was achieved mainly with traffic calming and 30km/h zones.[7] Portsmouth is working toward becoming the UK's first "20mph city", with the lower limit being applied to all residential roads. In rural areas, speed limits must match both the function and layout of the road. If the ribbon development of households with children has been permitted along a rural route, then the speed limits must be revised to take account of the road's residential function. Lower limits such as 60km/h must be applied on narrow country lanes, and the need for care around pedestrians and cyclists in constricted environments must be stressed in publicity campaigns.

It is important to note that there is no alternative, such as though engineering measure, to some form of blanket enforcement

### 6.5 Traffic calming – tackling speed using appropriate engineering

While there is a need for speed management it is not acceptable to achieve "it at any price" through the use of unsuitable methods. It has long been recognised that engineering measures that restrict road-width are not appropriate means for achieving speed reduction. Examples of unsuitable engineering include so called NRA "gateway" and "entry" treatments, build outs, pinch-points and chicanes. There is a particular problem with pinch points caused by traffic islands. Such measures force cyclists and moving motor vehicles into close proximity, putting cyclists at risk and creating a threatening roads environment. Some cyclists respond by cycling on footpaths which interferes with the rightful users - pedestrians.

In the National Cycle Policy Framework, Policy Objective 2.6 Remedial Measures recognises road narrowing schemes as a cyclist-unfriendly and needing to be fixed. There is a strong argument that on urban roads, a main "speed-reducing" factor at pinch points is the presence of cyclists in the traffic stream. In the words of one UK report, *"the cyclist is the principle speed reducing "feature""*[8]. It is clearly unacceptable to use unprotected human beings in this way even in an unintended side effect. In Galway, the Headford road is an example of a road that has in effect been "sterilised" as a cycling environment through the use of a series of hostile pinch point features.

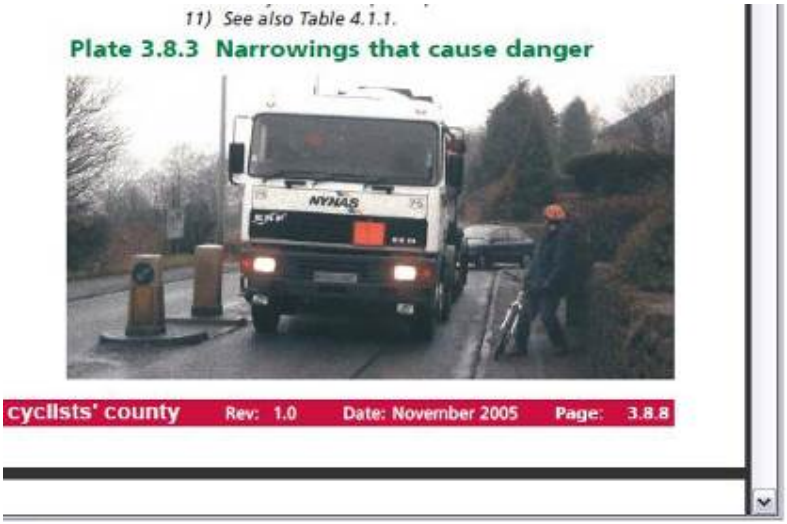
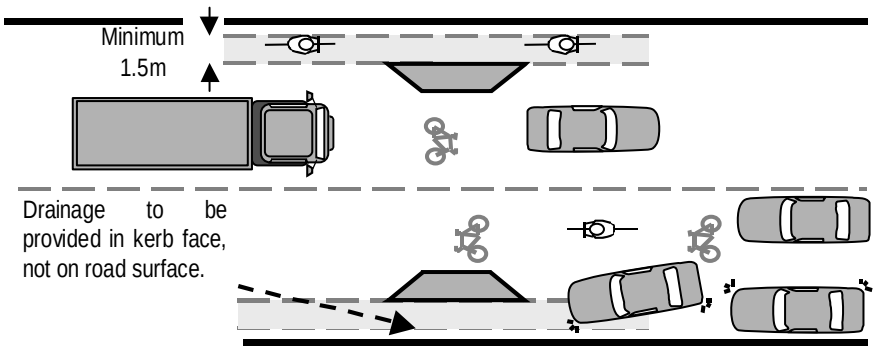



Figure: Illustration from UK design manual showing hostile pinch point.
Source: Lancashire a cyclists' county.

The Traffic Management Programme should prioritise speed enforcement and the use of horizontal measures such as ramps, speed tables and raised junctions. If central islands are being used for pedestrian crossings, then the programme should prioritise the use of Zebra Crossings as an alternative to cyclist unfriendly central islands. Where higher traffic speeds make Zebra Crossings difficult to use, the first response should be to reduce traffic speeds or build the Zebra Crossings into traffic calming measures such as speed tables. Where pinch points are used, they should include measures to protect cyclists such as speed tables or cycle bypasses as previously used in the "build outs" on the Siobhan McKenna Road.




Note: Where the intent is to slow traffic, pinch points should be used in conjunction with other measures such as ramps/speed cushions. If bypasses are provided for cyclists, these should be at road level, of adequate width, and follow a "straight through" layout. They may be used in conjunction with a short length of lane marking. Adequate and suitable drainage arrangements are also required. Bypasses tend to collect glass and debris, and can be blocked by illegal parking. This requires that cyclists can clearly and automatically opt out from trying to use the bypass. This might be provided for by using cycle logo markings on the carriageway approaching, and within, the gap.

Road geometry and driver behaviour

As discussed below there is a need to widen kerbside lanes around the city to increase cyclist access and road user comfort. Wider lanes are one of the most easily applied types of cycle facility, and are most useful where there might be high numbers of buses and commercial vehicles in the traffic stream. However, the issue of speeding is central to the issue of cyclist safety and there is the danger that, if applied simplistically, wide kerb lanes might encourage speeding. In the US, a study on the relationship between geometry and accidents on residential roads has found a positive (increased accidents) relationship with increased width, alignment (absence of curvature) and low flow[9]. European research has identified several features of road geometry as being associated with increased speed, including[10].

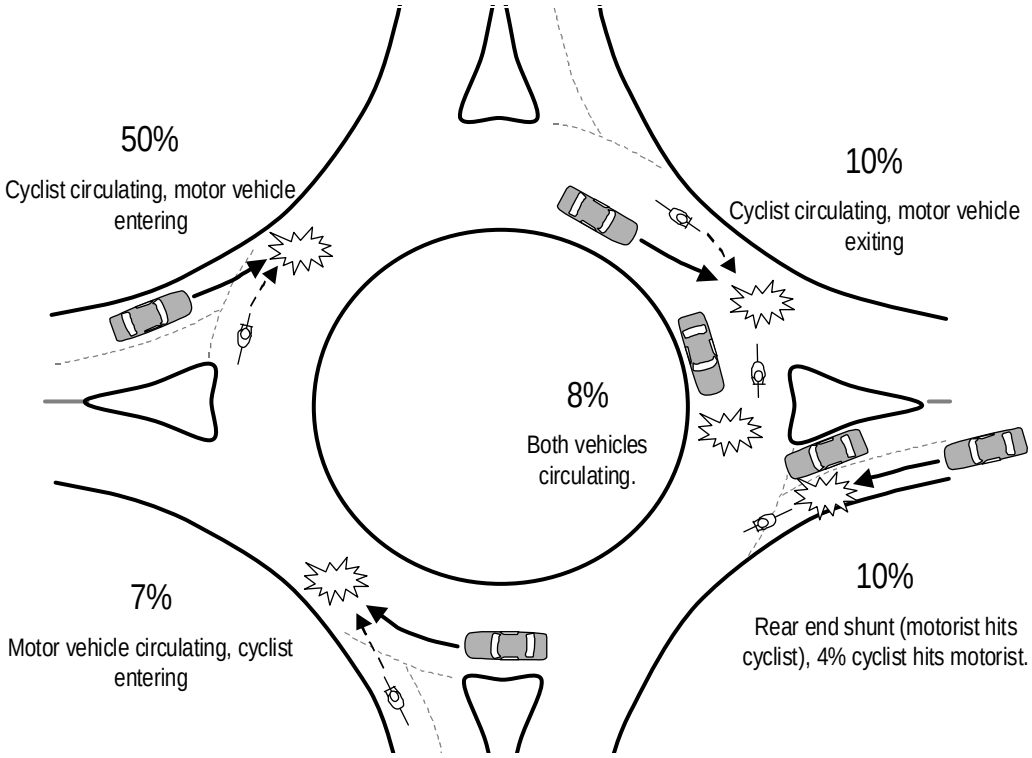
- lateral clearance
- effective road width
- perceived road width
- absence of buildings and prominent features
- absence of curvature
- visibility available along the road axis

These are all aspects of road design that can be taken into account, and modified, preferably at the design stage, in order to create a road that has a self-explanatory speed limit/design speed. This, of course, applies to all routes and not just those with wide kerb lanes. A study based on Galway City Councils *own CT 68 accident report forms* specifically associated long straight stretches of distributor road running through residential areas with fatality accidents[Error! Bookmark not defined.]. This requires a clear shift in road design philosophy away from concepts like "minimum sight distances" and "passing sight distances". This also means that measures to reduce lateral clearance should be seen as a benefit and should be pursued, such as positioning lampposts and other street furniture adjacent to the carriageway rather than behind

footpaths. A long term program is also needed to ensure that any long straight stretches are engineered out of existing roads and lampposts and other street furniture repositioned on the carriageway side of the footpath so as to discourage speeding and provide some measure of protection for pedestrians. This could be achieved by making such works a condition of planning permissions granted to developers along existing roads.

6.6 Junction treatment and traffic management: Roundabouts project

Roundabouts of the design used in Galway are hostile to cyclists and pedestrians. Because of the effect of cutting off communities they are also hostile to the growth of public transport. It is impossible to discuss the issue of cyclist access to Galway City without discussing the issue of roundabouts. For pedestrians, cyclists, motorcyclists and many motorists, these junctions are the most loathed and feared locations on the roads network. On multilane roundabouts of the design specified by Irish road design guidance, cyclists have an injury accident rate that is 14-16 times that of motorists. Motorcycle/scooter users are only marginally better off at 10-13 times the injury rate. For cyclists the main crash type is being hit by vehicles entering the roundabout. This is not something that can be solved by adding cycle lanes to the roundabout – indeed adding cycle lanes can increases risk.




Note: 68% of cycle motor vehicle collisions involve circulating cyclists (who have right of way) Source: Pedal Cyclists at Roundabouts, R.E. Layfield and G. Maycock, Traffic Engineering and Control, pp. 343-349, June 1986.

For pedestrians as for cyclists, the roundabouts in Galway are hostile places. Galway's roundabouts are characterised by traffic that in an "ideal" situation never has to stop. The roundabout shape is meant to allow a quick entrance onto the roundabout followed by a quick exit on a path designed to allow a smooth acceleration off the junction. There is a common failure to signal turns by drivers. This means that at the exits especially, pedestrians must guess a motorist's intentions by using other clues. Gaps or potential gaps can be quite short, so in many cases a crossing pedestrian will need to break into a run in order to get clear of the danger area. There are reliable reports of elderly Galwegians simply standing in tears at the side of roundabouts crying with fear and frustration at their inability to get across. It is likely that vulnerable road users such as the elderly respond to roundabouts by severely curtailing

their own trips i.e. restricting their own access and participation. This will be a factor to some extent for all pedestrians, as very few people would voluntarily subject themselves to the type of stress associated with trying to negotiate a high-speed roundabout crossing.

Although some progress has been made on removing roundabouts in Galway, there remain some communities blighted by the presence of unsuitable roundabouts. The roundabout at Corrib Park blocks access to the University and Hospital, while the roundabout at Menlo Park blocks access to the city from estates along the Headford road. In Knocknacarra, the Western Distributor road with its string of roundabouts is an example of a road design that is wholly unsuitable for the location.

Solutions to roundabouts could include:

- Imposing lower speed limits.
- Physically changing the roundabout to reduce speeds, particularly by entering traffic.
- Replacing the roundabouts with traffic signals.
- Adding to cycle lanes to roundabouts has been shown to make them more dangerous to cyclists, not less.

There is precedent for the use of zebra crossings at Roundabout entries/exits (Limerick). On roundabouts in Portlaoise, raised zebra crossings have been put on flat topped speed ramps. If applied in Galway, the same design would also help cyclists by making it hard for motorists to accelerate on, or off, the roundabouts. Increased pedestrian access would also provide a larger pool of potential customers for public transport operators. The use of raised zebra crossing is an obvious and low cost solution to dealing with the remaining roundabouts for the moment.

Figure: A parent runs from behind obscuring signage to cross a roundabout exit as quickly as possible. The need to be able to break into a run results from a roundabout shape that encourages speed and the fact that drivers often don't signal.


Figure: GCC poster comparing Galway roundabouts, the right hand pictures show a roundabout with raised zebra crossings, a low-cost solution which quickly restores cyclist and pedestrian access

Figure: Limerick: Zebra crossings on Groody roundabout

Figure: Belfast: Zebra crossings on a roundabout on the Stranmillis Rd

Figure: Belfast: Zebra crossings on a roundabout on the Stranmillis Rd

### 6.7 Junction treatment and traffic management: One-way streets project

One-way streets and one-way street systems demonstrate an attitude to traffic management that is hostile to vulnerable road users and emphasises “flow” for cars. One-way streets are associated with speeding, reduced quality of life and increased danger to child pedestrians. An attractive project for the city would be to eliminate one-way streets wherever possible. Where one-way streets remain, they should be made two-way for cyclists. There is rarely any traffic management reason for applying one-way streets to cyclists.

The provision of two-way cycling on suitable one-way streets has a good safety record abroad and is provided for under Irish law (SI273/98, SI274/98). The German city of Bremen started providing two-way cycling in 1980. In Belgium, all one-way streets in 50kph zones can be made two-way for cyclists where conditions allow. A similar situation applies in France for 30kph zones.

In 1979 a report published by An Foras Forbartha (The National Institute for Physical Planning and Construction Research) recommended the provision of contra-flow cycling on the one-way streets in Galway city[11]. The 1999 Galway City Development Plan had an objective of providing a contraflow cycle lane on a one-way street in the city. In 2004, Galway's elected city council put specific objective into the 2005–2011 city development plan to provide two-way cycling on one-way streets where feasible. This objective was restated in the 2011 city development plan. In 2011, the National Transport Authority commissioned a report on the possibility of a Bikeshare scheme for Galway and other cities. This report makes several references to a need for two-way cycling arrangements on one-way streets, it states "Recommendations are made on the complementary measures which would be needed as a new scheme is introduced. Perhaps the most important one would be an increase in permeability for cycle traffic in the city centres through the provision of two-way cycling on one-way streets, and by opening up pedestrianised areas to cycling where conditions allow."[12]

There is a 35 year history of official proposals for two-way cycling on Galway's one-way streets. Despite this nothing has been done. A bike share scheme for Galway has been put in with state funds without also bringing in one of the key supporting measures.


Figure: GCC poster highlighting issue of one-way streets and severance for school children.

6.8 Junction treatment and traffic management: Unresponsive traffic signals in Galway

There is a problem in Galway with the treatment of cyclists when designing and configuring traffic signals. In effect, Galway roads engineers have been "training" Galway cyclists to ignore red traffic lights.

It seems that some road engineers design some junctions by assuming that cyclists must pass red lights if the junction is to work for motorists. An example in Galway is at the junction of Fr Griffin Avenue and Fr. Griffin Rd. A cyclist stopped at the stop line waiting to enter Fr Griffin Rd. will occupy the sensor loop. In that case what will happen is that the lights will stay red and a queue of cars will build up behind the cyclist along Fr Griffin Avenue. The only way to get the lights to change is for the cyclist to pull forward of the stop line, which is technically an offence, and beckon a car from behind into the sensor loop. This junction is configured so that cyclists must "run the light" if it is to work for cars.

There are similar examples at junctions that have cycle tracks. There will be sensors in the "car" lanes, but no sensor system for cyclists in the cycle tracks. At junctions with "Advanced Stop Lines" or "Bike Boxes" it is not unusual to find that there is no sensor system associated with the bike box. In these situations, although cycle "facilities" have been "provided", it seems the designers don't intend that the lights should work for cyclists unless a car happens to come along and trigger the detector. This is a consistent pattern at traffic signals with cycle facilities across the city.

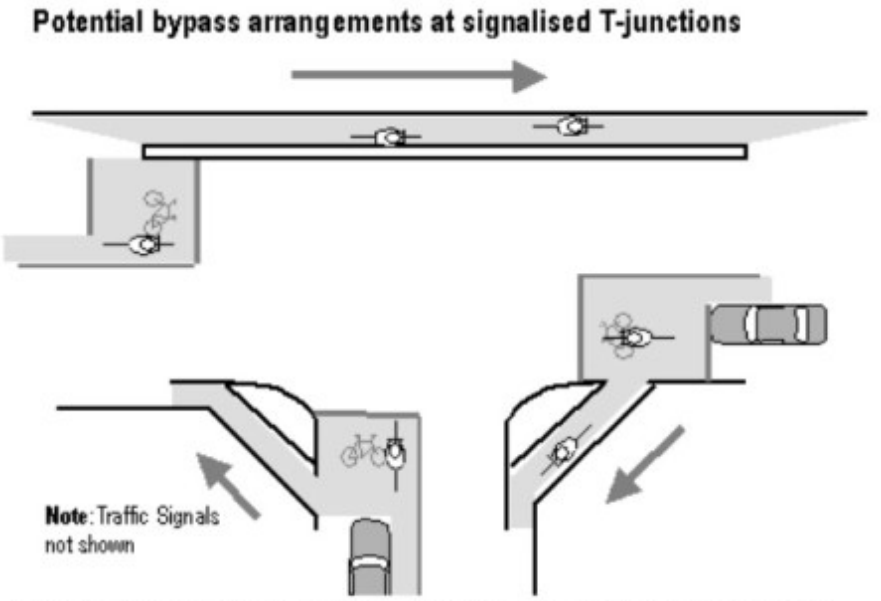
Figures: Galway junctions showing traffic signals with sensor loops for cars but not for cyclists. If only cyclists are present, the lights will stay red.

Figure: Galway, junction at NUI, Galway showing traffic signals with bike box and cycle lane before the red overlay was applied. The main lanes have sensor loops for cars but cycle lane and bike box have no sensors for cyclists. The buried wires cross the cycle track but there is only a rectangular sensor loop for motor vehicles.

Figure: Galway, junction at Ballybane Industrial Estate, Galway showing traffic signals with right-turn pocket. Cyclists who wish to turn off the N6/Bother na dTreabh corridor are supposed to wait here for the lights going in the new direction. The bike box are has no sensors for cyclists. There is no way the lights can changer unless another vehicle comes along to trigger the lights. This design is repeated across the city.

### 6.9 Junction treatment and traffic management: Cycling measures at traffic lights

Various cyclist-specific measures can be applied at traffic signals. In some cases these are adaptations to standard signal-controlled junctions, such as pre-green for cyclists, four-way flashing amber at off-peak times, bypass arrangements with or without signals, and Advanced Stop Lines (Bike Boxes). Other junction designs, such as those using cycle paths, have an explicit requirement for separate traffic signals for cyclists.




**Note**: Left-turning and straight-through cyclists could be given an advantage at signalised T-junctions by providing bypasses for use during the red light phase. Also shown are advanced stop lines and which allow other cyclists, particularly those turning right, to filter to the top of the queue and position themselves properly for the turn.

## Bypasses and free left turns


Figure: Dutch plate permitting right turn on red for cyclists

Many cyclists cannot see any logic to forcing left-turning cyclists to always wait at red lights. Common sense dictates that when due caution is shown, cyclists should be able to make the turn without any conflict with crossing traffic or pedestrians. This is particularly the case at traffic lights where the cyclist is turning into a cycle lane. In some countries, left (right)-turning cyclists are simply granted an exemption at traffic lights. Under Article 68 of the Dutch Traffic regulations, cyclists can be granted a right turn on red through a simple plate attached to the traffic signal (see Figure, right).[13] "Right turns on red" for all vehicles has been longstanding practice in the U.S. Some junctions in Galway show a flashing amber signal for left-turning traffic. Galway cyclists are entitled to ask why similar exemptions should not be provided to them at wider spread of locations, given that the case is arguably much stronger for cyclists than for motorists. An engineering approach uses a simple bypass or channel constructed through the corner (see Figure above). Care is needed to ensure that the merge between turning cyclists and crossing traffic minimises conflict.

These are not just issues for left-turning cyclists. At some signalised T-junctions, cyclists continuing straight on the crossing arm could argue that they might reasonably proceed through a red light without causing conflict with turning traffic. Again this is especially the case when the cyclists are already in a cycle lane. The current traffic regulations permit the use of a flashing amber signal that applies only to cyclists this could be used either with or without bypass arrangements.

6.10 Junction treatment and traffic management: Narrow and long stacking lanes

Figure: substandard stacking lanes at traffic signals on Fr Griffin Rd.

A growing problem in Galway is the unfortunate practice of splitting roads into narrow lanes at traffic signals for storing or "stacking" queues of peak-hour traffic. This blocks out cyclists because all the available road space has been dedicated to cars, creating a situation where some cyclists feel directed or forced to take to footpaths. Once they manage to reach the traffic signals and get through the junction, cyclists are forced into a narrow gap on the other side, into a lane barely wide enough for a single vehicle, let alone a car and bicycle travelling side by side. (See discussion on pinch points in greater detail above.) Forcing cars and cyclists to race each other for narrow gaps also gives cyclists a safety incentive to pass red lights and try to clear the junction before the other traffic starts moving. This is another situation where roads engineers have in effect been training cyclists to disregard the law. A related problem is excessively long stacking lanes, which are again focused on accommodating peak-hour traffic and which effectively turn sections of the road into dual carriageways (for an example see University road at the Hospital). These designs create a hostile cycling environment, where cyclists lawfully manoeuvring for right turns can find themselves caught with speeding traffic on their left and impatient drivers behind them.

It is a repeated lesson that simply 'throwing' road capacity at rush hour traffic tends to drive traffic growth and increase congestion. In essence, Galway has a situation where road capacity for cyclists at traffic signals is being systematically removed, and cyclist safety and comfort are being systematically compromised, so as to promote the growth of motorised traffic. On corridors like the Fr. Griffin Rd this is being done to communities that have the highest levels of cycling to work in the city.

Example of hostile scheme on Fr Griffin Rd. The pictures below show the effect of a so called "traffic calming" scheme on Fr. Griffin Rd at Raven Terrace/Fairhill. In the old junction layout there were stacking lanes for cars but most traffic stayed out of them as there was no advantage. This meant there was still room for cyclists to keep moving. The city council then rearranged the junction so as to push the queueing cars into the kerb. The result was that cyclists were blocked out on one of the busiest cycling routes in the city.

Before

After

6.6 Redistribution of the carriageway: Shared bus and cycle lanes

It is likely that bus lanes will be part of any Traffic Management Programme best practice and the National Cycle Policy Framework gives shared bus/cycle lanes a higher priority than other measures such as roadside cycle paths and shared-use footways. Under Irish Traffic Law, the signage for all bus/cycle lanes, other than contra-flow bus lanes, also designates them for use by cyclists. All bus/cycle lanes in the city will be prominently marked with cycle logos in addition to the "bus lane" markings. In designing bus lanes and corridors in the city, the council will always work from the assumption that cyclists will also be using the bus lanes. In planning bus/cycle lanes schemes, designers will be required to ensure that cycling conditions on the opposing traffic lanes are not adversely affected by the scheme. This requirement will take precedence over level of service considerations for the bus/cycle lane itself. As with the issue of stacking lanes at junctions it is not acceptable to remove road space from cyclists in order "squeeze" bus lanes into an existing corridor. This happened previously with the Renmore bus

lane. A second project was needed after the bus lanes went in to widen the outbound lane so that cars could actually overtake cyclists.

Lane widths will be chosen to avoid the so-called critical width and either allow safe overtaking by buses or else require that buses leave the lane to pass (< 3.2m or > 4.5m)

### 6.7 Redistribution of the carriageway: Lane widths

There are various roads in the city where sub standard lanes (<3.65m) have been marked. This has the effect of making it difficult for cars and cyclists to pass each other. The use of substandard lanes of 3.00 or 3.25m is another example of roads engineers removing road capacity from cyclists. There is a need to identify roads with inappropriate lane widths and make them wider. In this regard design sources such as the Design Manual for Urban Roads and Streets and the DTO Traffic Management Guidelines are not appropriate and should not be used.

### 6.8 Providing more space for cyclists: Wide kerb lanes

The use of a "wide kerb lane" (4.25m) is widely cited as a standard treatment on main routes with mixed traffic and large numbers of buses or HGVs. A lane width of 4.25m or more theoretically allows large vehicles to pass cyclists with adequate clearance but without encroaching on the opposite lane. The use of wide kerb lanes is widely endorsed as a standard and readily applicable method for providing for mixed traffic. Road sections of 9.2m (2x 4.6m) are seen on distributor roads in Galway City, although the design source of this is not clear. It has been argued in the UK that widths greater than 4.25m are excessive since this permits car users to spontaneously make two lanes, thereby endangering cyclistsError! Bookmark not defined.. This issue may only arise near junctions and the additional width may be preferable on links with high flows of buses or HGVs. The current EU commission policy statement on cycling cites the widening of kerb lanes as a measure that does not require planning.

6.9 Cycle Lanes and Cycle Tracks: Mopeds as design users

The Galway (and Irish) experience of "Cycle Facilities" is that they are frequently unfit for purpose and have the apparent intent of "managing cyclists for the benefit of motorised traffic". Schemes like the Doughiska road have rightfully attracted wide spread ridicule and made Galway an international laughing stock.


Cycle facilities in the Netherlands are demonstrably of a higher quality, attractiveness and "usability" than much of the equivalents in Ireland. Irish cycle facilities are often of poor quality, unattractive and impractical for cyclists to use.

On reason why Dutch cycle paths are of higher quality is because they are actually designed for motorised traffic. Mopeds at speeds of up to 30km/h are "design users" of urban cycle paths and outside urban areas a moped with a speed limit of 40km/h is the "design user".

> Excerpt from Dutch Institute for Traffic Safety and Research (SWOV) Fact sheet Moped and Light Moped riders [14]
>
> "Mopeds are delivered with a maximum speed of 45 km/h, which is termed the 'design speed'. Light mopeds have a design speed of 25 km/h1. According to current legislation, moped riders must ride on the carriage way within urban areas (since 1999), with a speed limit of 45 km/h (since March 2008). On bicycle paths within urban areas and in 30 km/h zones, the speed limit for mopeds is 30 km/h. Outside urban areas, moped riders should ride on the bicycle path, with a maximum speed of 40 km/h. On roads outside urban areas (when no bicycle path is available) the limit is 45 km/h. Light-moped riders should ride on the bicycle path both inside and outside urban areas, with a maximum speed of 25 km/h. In the Netherlands, one can ride a moped or light moped from the age of 16. This makes mopeds and light mopeds popular modes of transport for young people who are not yet permitted to drive a car (16 and 17 years)."

Videos showing mopeds on Dutch cycle paths

http://www.youtube.com/watch?v=J-KNdIVh6ss&feature=fvsr
This one is all mopeds and scooters

http://www.youtube.com/watch?v=gAYjUHKlH9k
(Moped passes at 1 minute 31 seconds)

http://www.youtube.com/watch?v=z08Xq764dys
(Moped at 1 minute 13 seconds)

Any new Traffic Management Programme should assume mopeds as design users. This will anticipate the growing use of electrically assisted bicycles which often have performance approaching that of light mopeds.

## 7 Road surface maintenance and drainage project

A certain amount of rainfall is to be expected on the West coast of Ireland. It is pointless expecting pedestrians to walk to work if they are going to be soaked and sprayed by passing cars because of inadequately drained roads. It is likewise pointless to expect cyclists to use roads and paths that are inadequately drained. Pedestrians require smooth adequately surface footpaths. Cyclists require smooth adequately surfaced roads free of defects and free of engineered hazards such as sunken or raised drainage grates, manhole covers etc. There is a requirement for an audit of the city's roads and remedial works.

8. Logo-only routes and Shared lane road markings

Galway should pioneer the used of Shared Lane Road markings in accordance with the National Cycle Policy Framework.

The markings have the following objectives:

- Improve motorists' and cyclists' positions on roadways without cycle lanes or hard shoulders.
- Reduce aggressive motorist behaviour.
- Encourage correct cyclist behaviour.
- Inform motorists to expect cyclists on the roadway.
- Inform motorists that cyclists may legally adopt a prominent lane position.
- Inform cyclists how to position themselves safely in the lane with respect to the kerb, parked cars, etc.
- Increase the number of cyclists by helping them feel more comfortable.

A San Francisco project found that the markings caused an increase of over 2 feet in the distance between cyclists and passing motor vehicles, with the bike and chevron markings shown in the Figure (above) having the greatest effect and causing the least confusion. An additional benefit was an increase in passing distances used by cyclists overtaking parked cars.

## 9. Appendix Hierarchy of Solutions – Irish National Cycle Policy Framework 2009

A new approach to the design of urban roads in which the car does not dominate is required. There must be a greater focus on the "Hierarchy of Solutions" (as was developed in The Netherlands originally and explained in the 1996 UK Cycling Friendly Infrastructure document). This is summarized as follows here:

(1) Traffic reduction
Can traffic levels be reduced, particularly heavy goods vehicles (HGVs)? Measures could include restricting the movements of HGVs from local roads, building by-passes to divert through-traffic, and environmental road closures to discourage through-traffic.

(2) Traffic calming
Can speed be reduced and driver behaviour modified? Here the emphasis must also be on enforcement (whether through increased use of speed cameras or other technologies). The concept of "traffic calming" should also be broadened to include physical measures to revise the perceived design speeds of roads, and other measures, such as the removal of one-way street systems. Multi-lane one-way street systems require cyclists to take detours rather than direct routes. They can also be daunting for cyclists since, if one intends to take a right hand turn at a junction, then one is required to weave across several lanes of (often fast-moving) traffic.

(3) Junction treatment and traffic management
This includes:
• urban traffic control systems designed to recognise cyclists and give them priority;
• contra-flow cycle lanes on one-way streets / making two-way streets for cyclists;
• exemptions to cyclists from certain banned turns and access restrictions;
• combined bus/cycle priority measures - and building upon the successful examples already developed in Irish cities (and learning from examples of QBC/cycle designs in which the route is not perceived to be cycle-friendly).
• on-street parking restrictions;
• advanced stop lines for cyclists at traffic signals - as has already been done in some cities around the country;
• by-passes for cyclists at traffic signals;
• signalising roundabouts, changing priorities at junctions so as to make cycle friendly;
• advanced transport telematics: designing new systems to benefit cyclists.

(4) Redistribution of the carriageway
Can the carriageway be redistributed? Such as by marking wide kerb lanes or shared bus/cycle lanes?

(5) Cycle lanes and cycle tracks
In addition, having considered and, where possible, implemented all of the above, what cycle tracks or cycle lanes (if any) are necessary in order to make a route cycling-friendly?

(6) Cycleways (public roads for the exclusive use of cyclists and pedestrians) What opportunities exist to create traffic-free routes linking, for example, residential areas to important destinations? These might include links between (previously unconnected) residential areas using parks, canal and river-side routes, e.g South Dublin County Council plan for cycling in parks. It can be seen from the above that in making provision for cyclists in the urban environment, it is often less about providing dedicated cycling facilities and more about wider

traffic interventions that benefits all of the more vulnerable road users, not just cyclists

## 10. Appendix: European Charter of Pedestrian Rights[15]

1. The pedestrian has the right to live in a healthy environment and freely to enjoy the amenities offered by public areas under conditions that adequately safeguard his physical and psychological well being.

2. The pedestrian has the right to live in urban or village centres tailored to the needs of human beings and not to the need of the motor car and to have amenities within walking or cycling distance.

3. Children the elderly and the disabled have the right to expect towns to be places of easy social contact and not places that aggravate their inherent weakness.

4. The pedestrian has the right to urban areas which are intended exclusively for his use and are as extensive as possible and are not mere 'pedestrian precincts' but in harmony with the overall organisation of the town.

## 11. Appendix: Road Danger Reduction Charter

A wording used in a charter adopted by 40 local authorities in the UK has been obtained for consideration.

# Road Danger Reduction Charter

This charter pledges …….. to: (insert name of local authority)

1. Seek a genuine reduction in danger for all road users by identifying and controlling the principle sources of threat.

2. Find new measures to define the level of danger on our roads. These would more accurately monitor the use of and threat to benign modes (pedestrians/cyclists).

3. Discourage the unnecessary use of private motor transport where alternative benign modes or public transport are equally or more viable.

4. Pursue a transport strategy for environmentally sustainable travel based on developing efficient, integrated public transport systems. This would recognise that current level of motor traffic cannot be sustained.

5. Actively promote cycling and walking, which pose little threat to other road users, by taking positive and co-ordinated action to increase the safety and mobility of these benign modes.

6. Promote the adoption of this charter as the basis of both national and international transport policy.

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