



Rialtas na hÉireann  
Government of Ireland

**NTA**  
Údarás Náisiúnta Iompair  
National Transport Authority



**ACTIVE TRAVEL**

# Cycle Design Manual Priority Junctions

October 2023





# 4

Designing  
for Cycling



## 4.3 Priority Junctions



# Priority Junctions

## Guiding principles

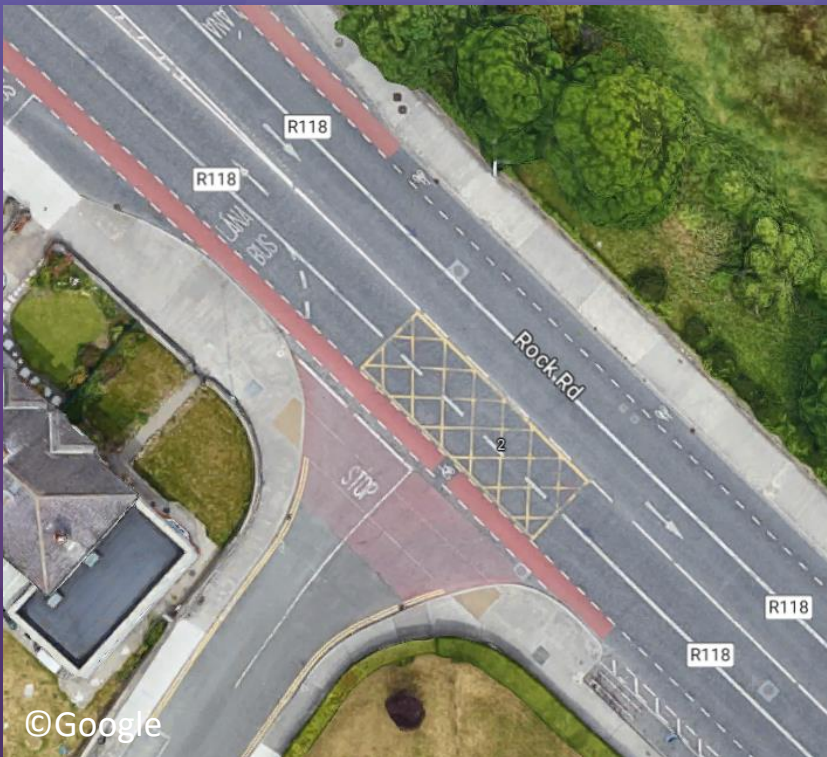
- Safety
  - Different modes will need to interact at priority junctions and, utilising a safe system approach, the key will be to manage these interactions as safely as possible so that:
    - the potential for conflict is minimised, and
    - if collisions do occur, outcomes are as benign as possible.
- Directness
  - Cycling requires physical effort, particularly starting from a stationary position, therefore the number of stops along cycle routes should be minimised to reduce the physical effort and delays and provide the most direct cycling experience.



# Priority Junctions

- Priority junctions are the most common form of junction control, with the traffic on the minor road giving way to the traffic on the major road.

## Typically T-Junctions



or

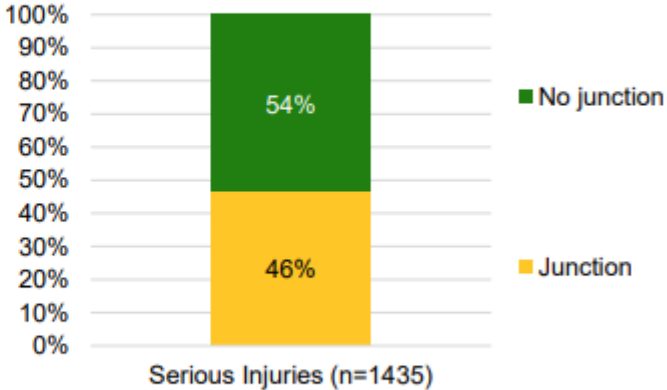
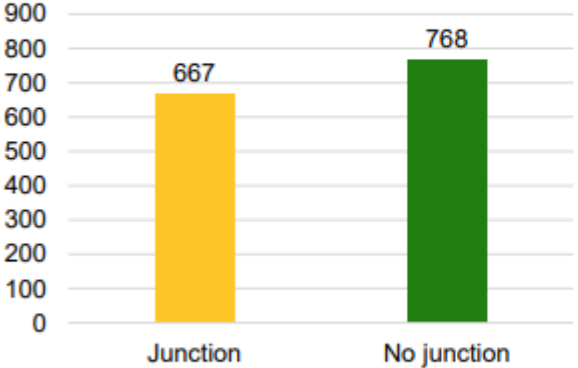
## Access Points



# Priority Junctions - Safety

## Cyclist serious injuries by junction

2016-2021



46% (667) of serious injuries occurred at a junction.  
90% of the serious injuries at a junction were on urban roads.

VISION ZERO

RSA

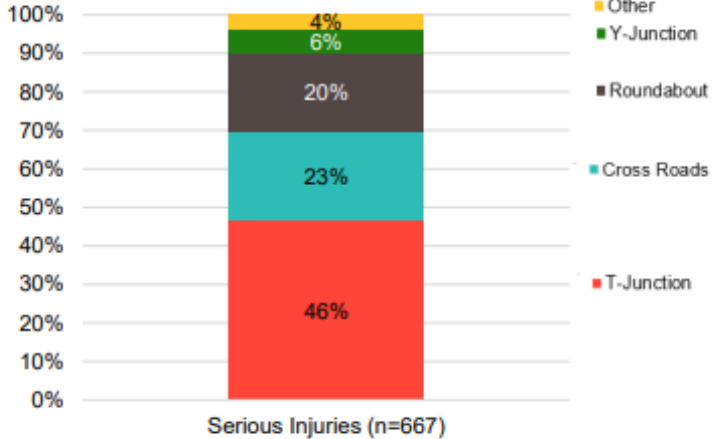
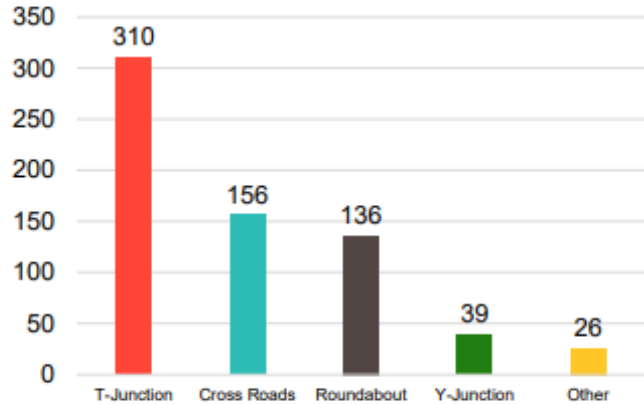




# Priority Junctions - Safety

## Cyclist serious injuries at a junction

2016-2021



VISION ZERO

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T-junctions and cross roads are most frequent junction type where serious injury occurred



# Priority Junctions - Safety

## Cyclist serious injuries in MVCs

2016-2021

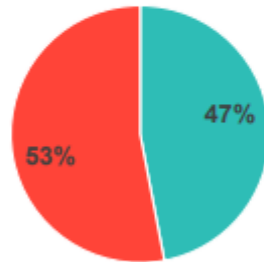
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Seriously injured cyclists

### At a junction (53%)

- 53% of cyclists seriously injured in MVCs were injured at a junction
- At these junctions, 22% of the other vehicles were turning right, 17% were turning left, while the majority of cyclists were driving forward (88%)



### Not at a junction (47%)

- Of the other vehicles involved in cyclist serious injuries that did not occur at a junction, 97 (18%) were parked/stationery.
- In these collisions, the cyclist either rear-ended the parked vehicle or collided with an open door or attempted to avoid an open door.



# Priority Junctions - Safety

## VISIBILITY

15-25 KM/H



30-50 KM/H



50-65 KM/H



70+ KM/H

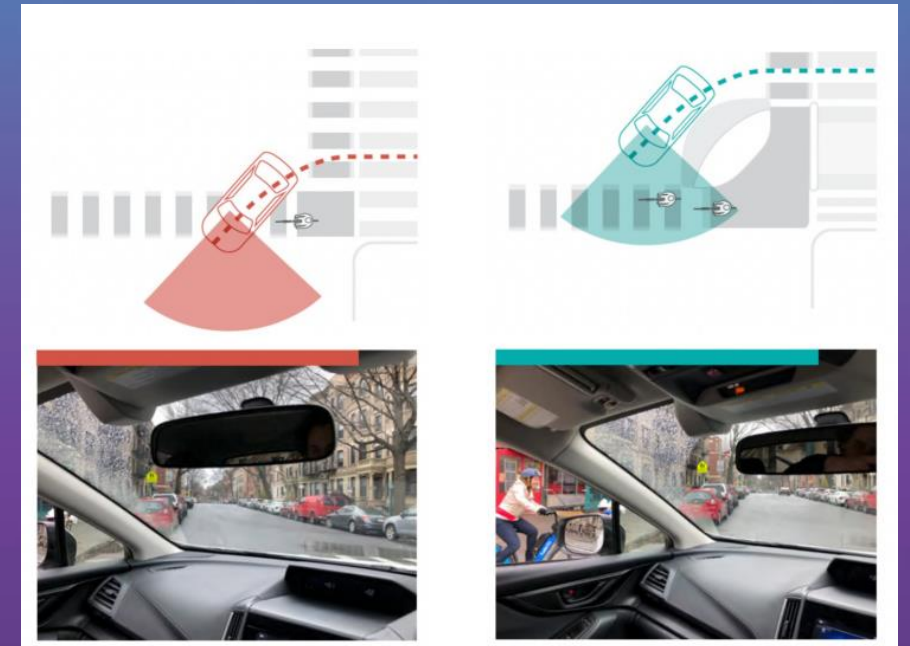




# Priority Junctions - Visibility



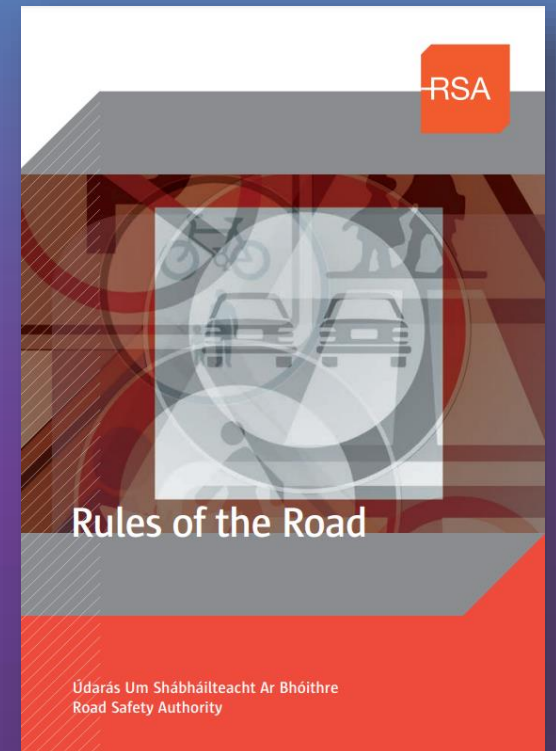
Source: British Safety Council



Source: NACTO

# Rules of the Road

- Vehicles do not have an automatic right of way on the road. The overriding rule is, in all circumstances, to proceed with caution.
- You must always yield to:
  - pedestrians already crossing at a junction;
  - pedestrians on a zebra crossing;
  - pedestrians on a pelican crossing when the amber light is flashing; and
  - pedestrians and traffic when you are moving off from a stationary position (for example from your position at a stop sign or a parking space).
- To avoid doubt and in the interest of road safety, a vehicle should always yield to pedestrians.





# Priority Junctions - Speed



## Advice Note 6 Priority Junction Tightening Measures

Design Manual for  
Urban Roads and Streets



# Junction Radius





# Junction Radius





# Junction Radius





# Junction Ramp













# Junction Ramp





# Junction Ramp





# Crossing Priority at Side Roads

Table 4.19: Suggested Cycle Priority at Side Roads.

Main Road Movement Function	Arterial					
	Link					
	Local					
		Centre ( $\leq 50$ km/h typically)	Neighbourhood/ suburban ( $\leq 50$ km/h typically)	Business Parks/ Industrial Estate ( $\leq 50$ km/h)	Rural fringe ( $\leq 60$ km/h typically)	Rural ( $> 60$ km/h)
Place Context						

	Cycle priority recommended
	Cycle priority should be considered
	Vehicle priority recommended



# Crossing Priority at Side Roads

## Advice Note 6 Priority Junction Tightening Measures

Design Manual for  
Urban Roads and Streets



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**Table 3.1 Priority Junction Selection Guide**  
(based on the application of the DMURS Design speed selection matrix)

FUNCTION	CONTEXT				
	CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL	RURAL FRINGE
ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H	Transition Zone
LINK	30 KM/H	30-50 KM/H	30-50 KM/H	50-60 KM/H	Transition Zone
LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H	50-60 KM/H

**Legend:**

- Higher Pedestrian Priority - Consider Continuous Footpath
- Moderate Pedestrian Priority - Consider Raised Crossing
- Lower Pedestrian Priority - Consider Dished Crossing

Note 1: Design Speed is based on the main street/road to which the side street intersects.

# Crossing Setback

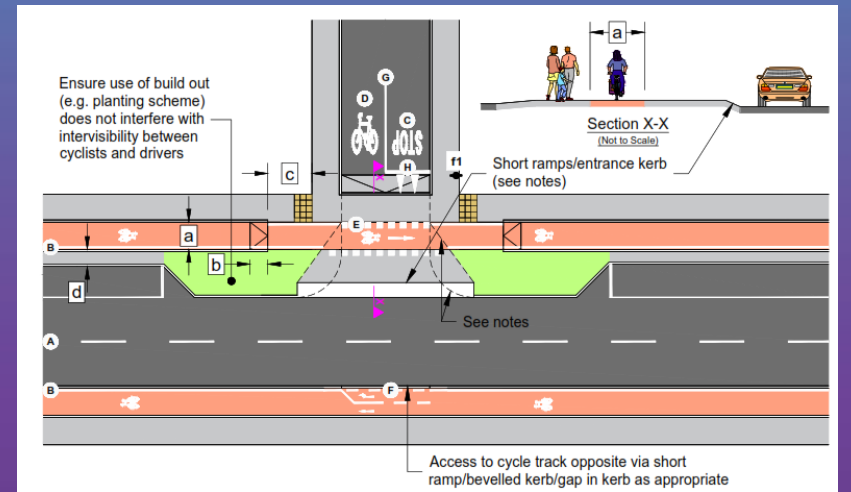
Table 4.18: Types of Crossing Setback.

	Description
	Crossing is set back 5 meters from the road edge
	Crossing is set back 1-5 meters from the road edge
d TL405)	Crossing is located within 1m of the road edge

Full Set back



Partial Set back



No Set back





# Crossing Setback

- A full set back crossing located 5m from the road edge has a number of key advantages including:
  - improving the conflict angle so motorists have better visibility of crossing cyclists and cyclists are kept out of blind spots,
  - provides additional deceleration space and reaction time for motorists,
  - provides waiting space for cars to yield without blocking the cycle track or main road, and
  - provides space to incorporate additional yield markings if required between the crossing and main road.



Does the cycle track need to be next to the carriageway at all?

# Crossing Setback

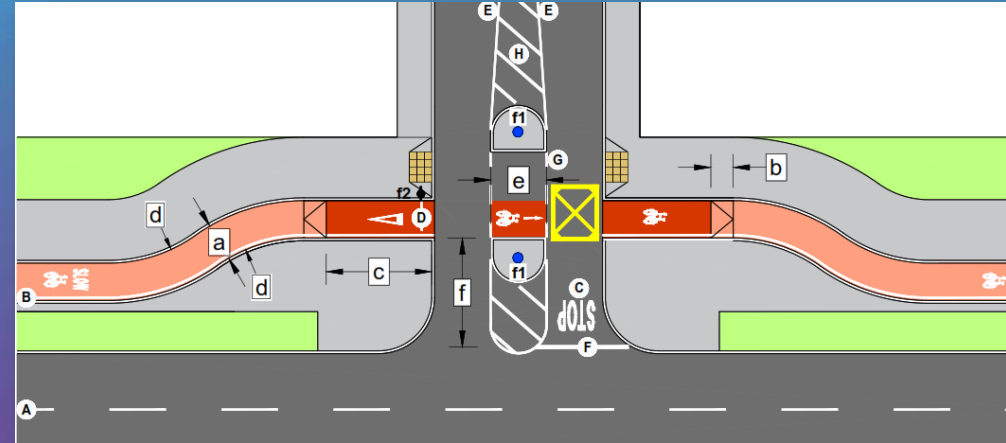
- Key design elements include:
  - Using continuous footpath and cycle track designs;
  - Omitting corner radii and continuing road kerbs straight through the junction;
  - Providing clear visual contrast between the carriageway and footpath/cycle track surfaces;
  - Ensuring slow vehicle speeds through the junction;  
and
  - Ensuring good visibility for all users.





# Vehicle Priority

- Where there are high speeds and high volumes of turning vehicles, particularly HGV's, consideration can be given to requiring cyclists to yield to traffic, its important to consider the following:
  - Good visibility from the yield line to turning traffic;
  - Providing a central refuge island so as the cyclists/ pedestrian is only crossing one lane at a time and can focus on one direction;
- These are unlikely to be appropriate where high volumes of cyclists are expected or where cyclists are expected to stop at numerous such junctions over a short length.









# Side Road Access





# Side Road Access





# Entrances

Footpaths and Cycle lanes to remain level passing entrance with sharp rises for vehicles.



Pottery Rd



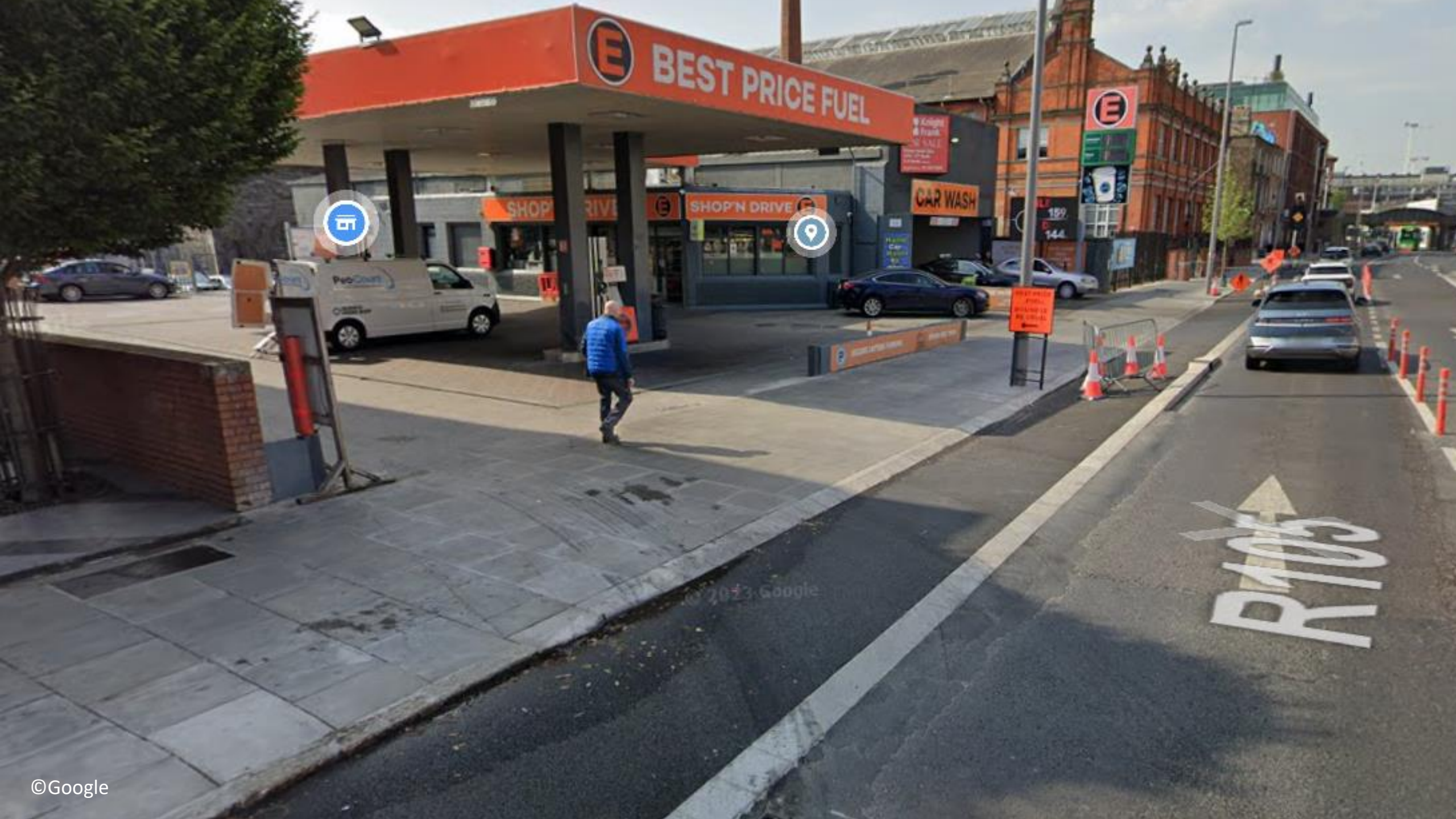






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**BEST PRICE FUEL**

SHOP N DRIVE

CAR WASH



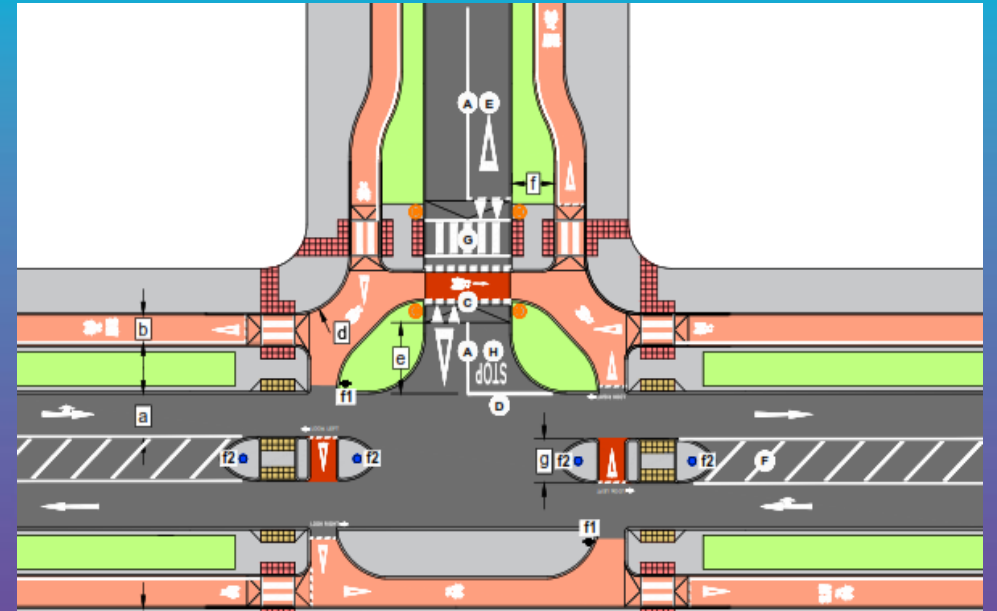
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# Protected Junctions

- Protected priority junction layout has a number of key advantages including:
  - Provides a dedicated space for cycling which caters for all cycle movements;
  - Maintains segregation between all modes;
  - Reduces crossing distances which minimises the potential for conflict with motorists; and
  - Creates stacking space for cyclists waiting to cross.







De Fietsenmaker  
Bicycle store

Greenwheels deelauto

Zeeman Utrecht  
't Goylaan  
Clothing store

66b

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Richèl Lubbers  
Architecten

Hoof Graaflandstraat

112

# Priority Square

Centrum Jeugd en  
Gezin De Gravin

Naamloos pad













't Goylaan - priority plaza  
(Utrecht)