VISIBILITY

A visibility splay at junctions and crossings provides sight lines towards and down intersecting paths. This is to ensure a user can use their own judgement as to when it is safe to enter and cross the road.

The greenway is designed to slow users on approach to junctions and crossings. There is a consistent approach to junctions and crossings with reduced radii, right angle or jug handle approaches, chicanes, colour contrast material and signs and warning signs. The premise is clear user priority and safety.

The design standard for a 'Y' distance, DN-GEO-03047 Rural Cycleway Design (Offline) refers to DN-GEO-03043, now withdrawn and replaced by, DN-GEO-03060 Geometric Design of Junctions and DN-GEO-03031 Rural Road Link Design.

The Stopping Sight Distance in Table 10.3 Design Speed Related Parameters, DN-GEO-03031 Rural Road Link Design, provides the 'Y' distance for a visibility splay, dependent on the speed of the approach road.

Bridge Street and Quay Street have posted speed limits of 50km/h. The remaining local roads are assumed as having a posted speed limit of 80km/h, the default.

Design Speed (km/h) (corresponding Speed Limit)	85 (80)	70 (60)	60 (50)	50	42 (30)
SSD (Stopping Sight Distance) m					
Desirable Minimum SSD	160	120	90	70	50
One Step below Desirable Minimum	120	90	70	50	40
Two Steps below Desirable Minimum	90	70	50	40	30

It is clear from the table above that the 'Y' distance is related to speed of the approach road. Therefore, due consideration was given to the existing site conditions, the geometry of the existing local roads and the on-site recorded speeds (85^{th}% speed) and traffic flows (ADT). These are referred to in the Table 4.14 of the Design report.

The on-site records shown speeds much lower that the posted speed limit and the ADT (Average Daily Traffic) figures were low.

Traffic counts along the route were recorded over September – November 2017 & August, September 2018, January, February – April 2019 & June 2019 and August 2019.

Therefore, the visibility parameters within the limit of the recorded speeds (85th% speed) are considered the appropriate parameter to identify the visibility splays at each local road. With the control measures outlined above.

The 'X' distance is from the following table.

X distance (m)	Description of use
4.0	Desirable minimum - approach to a road
2.0	Absolute minimum - approach to a road

The 'X' distance is at the absolute minimum distance of 2.0m at all locations.

* Visibility called up as left and right of the greenway chainage.

TABLE ERROR! NO TEXT OF SPECIFIED STYLE IN DOCUMENT.**..1 – VISIBILITY AT PUBLIC ROAD CROSSINGS**

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
1	R	0	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	1	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. This is a junction with a public road. The traffic count on this road is 516 ADT (2017). The traffic counts are low on this local road at <4,000 AADT. The 85th% speed of the approach road is 72km/h. This is less than 85km/h but greater than 70km/h. The achievable visibility splay is 2.0m x 148m left, 160m right. The 'Y' distance to the left is less than 160m, 1 step below desirable minimum.
2	R	2,330	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic count is low on this road at 91 ADT (August 2018). The 85th% speed of the approach road is 29km/h (August 2018). This is less than 85km/h and less than 42km/h. The achievable visibility splay is 2.0m x 55m, 86m to the left and 160m, 160m to the right. The road to the left finishes at the shoreline, 86m from the greenway crossing. The 'Y' distance to the left is less than 90m, 2 steps below the desirable minimum at 85km/h and greater than 50m the desirable minimum at 42km/h. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
						Ch 2,330 _Visibility to the left
3	R	4,195	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a private residential road (Fertha Drive), there is a splay to both sides of the road. The traffic count is low on this road at 104 ADT (September 2018). The 85th% speed of the approach road is 16km/h (September 2018). This is less than 60km/h and less than 42km/h. The achievable visibility splay is 2.0m x 90m, 90m to the left and 48m, 48m to the right. The 'Y' distance to the right is restricted due the existing geometry of the approach road. The 'Y' distance to the right is less than 50m, 2 steps below desirable minimum at 60km/h and greater than 40m, 1 step below the desirable minimum at 42km/h. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
4	- Controlled Crossing	4,890 (Bridge Street)	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a Bridge Street, Caherciveen. The traffic count on this road at 1911 ADT. The 85th% speed of the approach road is 50km/h (47km/h June 2019, 45km/h August 2019). A controlled crossing, a 4.0m wide zebra is to be provided at this location. The achievable visibility splay is 2.0m x 15m, 6m to the left and 90m, 90m to the right. The visibility envelope is reduced due to the stone parapet to the bridge (1.30m high). However, the reduced envelope is considered negligible considering the geometry of the approach road. It is at a higher level to the junction and so assists visibility to the right. Since greenway users will have priority at the controlled crossing and the approach road traffic will have to yield, the visibility splay is appropriate for the anticipated vehicle approach speeds.
5	R	8,375	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic count is low on this road at 163 ADT. The 85th% speed of the approach road is 39km/h. This is less than 85km/h and less than 42km/h. The achievable visibility splay is 2.0m x 160m, 160m to the left and 44m, 44m to the right. The 'Y' distance to the right is restricted due the existing geometry of the approach road. The road is also narrow. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 40m, 1 step below the desirable minimum at 42km/h. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
						Ch 8,375 _Visibility to the right
6	R	10,735	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic count is low on this road at 129 ADT. The 85th% speed of the approach road is 25km/h. This is less than 85km/h and less than 42km/h. The achievable visibility splay is 2.0m x 160m, 160m left, 106m, 106m right. The 'Y' distance to the right is greater than 90m, 2 steps below desirable minimum at 85km/h and greater than 50m the desirable minimum at 42km/h.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
7	– Bend out crossing	15,150	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic counts are low on this road at 81 ADT (2017) and 65 ADT (2019). The 85th% speed of the approach road is 48km/h (14km/h August 2018). This is less than 85km/h and less than 50km/h. The traffic counts are low on this local road at <4,000 AADT. The crossing is approximately 20m from an existing junction. A bend out arrangement is applicable here as per DN-GEO-0300 Geometric Design of Junctions, Figure 5.7 Bend Out Crossing. The siting of this facility is greater than the parameters of 10 to 15m. The achievable visibility splay is 2.0m x 19.5m, 19.5m to the left and 100m, 100m to the right. The 'Y' distance to the left is restricted due the existing geometry of the approach road and the proximity of the existing junction between the local road and the N70. A bend out crossing is applicable as the local road is <4,000 AADT.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
8	- Greenway shares the local road	17,490	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic count is low on this road at 79 ADT (2017). The 85th% speed of the approach road is 32km/h. This is less than 85km/h and less than 42km/h. The greenway joins the local road. The achievable visibility splay is 2.0m x 20m to the left and 60m to the right. The 'Y' distance is restricted due the existing geometry of the local road. The existing road is narrow at 2.7m wide. The 'Y' distance to the left is less than 90m, 2 steps below desirable minimum at 85km/h and less than 30m, 2 steps below the desirable minimum at 42km/h. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 40m, 1 step below desirable minimum at 42km/h. This is a shared road, a low speed / low traffic environment. The existing geometry of the local road is a traffic calming measure.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
						Ch17,490_Visibility to the right Ch17,490_Visibility to the left

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
9	- Greenway shares the local road	17,550	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic count is low on this road at 79 ADT (2017). The 85th% speed of the approach road is 32km/h. This is less than 85km/h and less than 42km/h. The achievable visibility splay is 2.0m x 80m to the left and 42m to the right. The 'Y' distance is restricted due the existing geometry of the local road. The existing road is narrow at 2.7m wide. The 'Y' distance to the left is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 50m the desirable minimum at 42km/h. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 40m, 1 step below desirable minimum at 42km/h. This is a shared road, a low speed / low traffic environment. The existing geometry of the local road is a traffic calming measure.
						Ch 17,550_Visibility to the left

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
10	- Greenway shares the local road	25,665	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic counts are low on this road at 100 ADT (2017), 37 ADT (June 2019). The 85th% speed of the approach road is 41km/h (2017), 48km/h (2019). This is less than 85km/h and less than 50km/h. The achievable visibility splay is 2.0m x 160m to the left and 72m to the right. The 'Y' distance to the right is restricted due the existing geometry of the local road. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 70m, the desirable minimum at 50km/h. This is a shared road, a low speed / low traffic environment. The existing geometry of the local road is a traffic calming measure.
11	- Greenway shares the local road	26,900	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic counts are low on this road at 127 ADT (2017), 48 ADT (June 2019). The 85th% speed of the approach road is 59km/h (2017) and 39km/h (2019). This is less than 85km/h and between 60km/h and 42km/h. The achievable visibility splay is 2.0m x 38m to the left and 50m to the right. The 'Y' distance is restricted due to the existing geometry of the local road. The 'Y' distance to the left is less than 90m, two steps below the desirable minimum at 85km/h and greater than 30m, two steps below the desirable minimum at 42km/h. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and 50m, the desirable minimum at 42km/h. This is a shared road, a low speed / low traffic environment. The existing geometry of the local road is a traffic calming measure.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
						Ch26,900_Visibility to the right

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
12	R	27,450	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic count is low on this road at 310 ADT (2017). The 85th% speed of the approach road is 56km/h. This is less than 85km/h and less than 60km/h. The achievable visibility splay is 2.0m x 50m, 50m to the left and 50m, 50m to the right. The 'Y' distance is restricted due the existing geometry of the approach road. The 'Y' distance to the left is less than 90m, two steps below the desirable minimum at 85km/h and 50m, two steps below the desirable minimum at 60km/h. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and 50m, two steps below desirable minimum at 60km/h. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
13	R	29,305	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	2	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway crosses a public road, there is a splay to both sides of the road. The traffic count is low on this road at 67 ADT (2017). The 85th% speed of the approach road is 31km/h. This is less than 85km/h and less than 42km/h. The achievable visibility splay is 2.0m x 45m, 68m to the left and 39m, 55m to the right. The 'Y' distance is restricted due the existing geometry of the approach road. The 'Y' distance to the left is less than 90m, two steps below the desirable minimum at 85km/h and greater than 40m, one step below the desirable minimum at 42km/h. The 'Y' distance to the right is less than 90m, 2 steps below desirable minimum at 85km/h and greater than 50m, the desirable minimum at 42km/h. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
						Ch29,305_visibility to the right
14	- Greenway shares the local road	30,495	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic counts are low on this road at 177 ADT (2017), 142 ADT (2019). The 85th% speed of the approach road is 52km/h. This is less than 85km/h and less than 60km/h. The achievable visibility splay is 2.0m x 160m left, 115m right. The 'Y' distance to the right is greater than 90m, 2 steps below desirable minimum at 85km/h. This is a shared road, a low speed / low traffic environment. The visibility splay is appropriate for the anticipated vehicle approach speeds.

Visibility Table of Relaxations / Departures at Public Road Crossings						
No.	R or D (Relaxation or Departure)	Location Ch:	Standard Ref.	Steps Below Desired	Component	Comments
15	- Greenway shares the local road	30,920	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. The greenway shares the public road. The traffic counts are low on this road at 177 ADT (2017), 142 ADT (2019). The 85th% speed of the approach road is 52km/h. This is less than 85km/h and less than 60km/h. The achievable visibility splay is 2.0m x 60m left, 120m right. The 'Y' distance is restricted due the existing geometry of the approach road. The 'Y' distance to the left is less than 90m, two steps below the desirable minimum at 85km/h and greater than 50m two steps below the desirable minimum at 60km/h. The 'Y' distance to the right is 120m, one step below desirable minimum at 85km/h. This is a shared road, a low speed / low traffic environment. The visibility splay is appropriate for the anticipated vehicle approach speeds.
16	- Greenway users to dismount	31,930	*DN-GEO-03047, DN-GEO-03060 & DN-GEO-03031*	-	Visibility	The greenway design speed is 10km/h, reduced radii, chicanes and warning signage are provided at the junction to reduce greenway user approach speeds. This is a junction with a public road. The traffic counts are 177 ADT (2017), 142 ADT (2019). The 85th% speed of the approach road is 52km/h (2017), 48km/h (2019). This is less than 85km/h and less than 60km/h. The achievable visibility splay is 2.0m x 90m left, 32m right. The 'Y' distance is restricted due the existing geometry of the approach road. The 'Y' distance to the left is 90m, two steps below the desirable minimum at 85km/h and at the desirable minimum for 60km/h. The 'Y' distance to the right is less than 90m, two steps below desirable minimum at 85km/h and less than 50m two steps below the desirable minimum at 60km/h. The greenway joins / ends at the public road. Signage directs greenway users to dismount 100m in advance. The traffic counts are low on this local road at <4,000 AADT. The visibility splay is appropriate for the anticipated vehicle approach speeds.