

**BRUTON
CONSULTING
ENGINEERS**

Title: **STAGE 1&2 ROAD SAFETY AUDIT**

For;

Belgard Gardens, Residential Development, Tallaght.

Client: **O'Connor Sutton Cronin**

Date: **October 2018**

Report reference: **0488R01**

VERSION: **FINAL**

Prepared By:

Bruton Consulting Engineers Ltd

Glaspistol

Tel: 041 9881456

Clogherhead

Mob: 086 8067075

Drogheda

E: admin@brutonceng.ie

Co. Louth.

W: www.brutonceng.ie

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1.0 Introduction

This report was prepared in response to a request from Mr. Shane Mc Givney, O'Connor Sutton Cronin (OCSC), Consulting Engineers, for a Stage 1&2 Road Safety Audit of the proposed residential development at Belgard Square North, Tallaght, Dublin 24.

The Road Safety Audit Team comprised of;

Team Leader: **Norman Bruton**, BE CEng FIEI, Cert Comp RSA, MSoRSA

TII Auditor Approval no. NB 168446

Team Member: **Owen O'Reilly**, B.SC. Eng Dip Struct. Eng NCEA Civil Dip Civil. Eng CEng MIEI

TII Auditor Approval no. OO1291756

The Road Safety Audit comprised an examination of the drawings and by a site visit by the Audit Team, together, on the 22nd October 2018.

The following also attended the site visit;

Shane McGivney O'Connor Sutton Cronin

Loreto Gonzalez O'Connor Sutton Cronin

The weather at the time of the daytime site visit was dry and the road surface was dry.

This Stage 1&2 Road Safety Audit has been carried out in accordance with the requirements of TII Publication Number GE-STY-01024, dated December 2017.

The scheme has been examined and this report compiled in respect of the consideration of those matters that have an adverse effect on road safety. It has not been examined or verified for compliance with any other standards or criteria.

The problems identified in this report are considered to require action in order to improve the safety of the scheme for road users.

If any of the recommendations within this safety audit report are not accepted, a written response is required, stating reasons for non-acceptance. Comments made within the report under the heading of Observation are intended to be for information only. Written responses to Observations are not required.

No previous audits have been carried out on this scheme.

STAGE 1 &2 RSA – BELGARD GARDENS OCSC

2.0 Background

The proposed development is primarily residential in nature, consisting or a mix of student accommodation and apartments with some ancillary community, commercial and childcare elements.

The development is to be accessed via Belgard Square North at its junction with Belgard Square East. It is proposed to upgrade the existing roundabout to a fully signalised junction.

There are 2 phases of development proposed.

The speed limit is 50km/hr on Belgard Square North and on Belgard Road at the roundabout. North of the roundabout the speed limit on Belgard Road is 60km/hr.

The Institute of Technology Tallaght (ITT) is located on the opposite side of Belgard Road to the proposed development.

There are footpaths on both sides of Belgard Road North and cycle tracks along some sections.

Belgard Square North is a bus route.

The site location is shown in the map below.

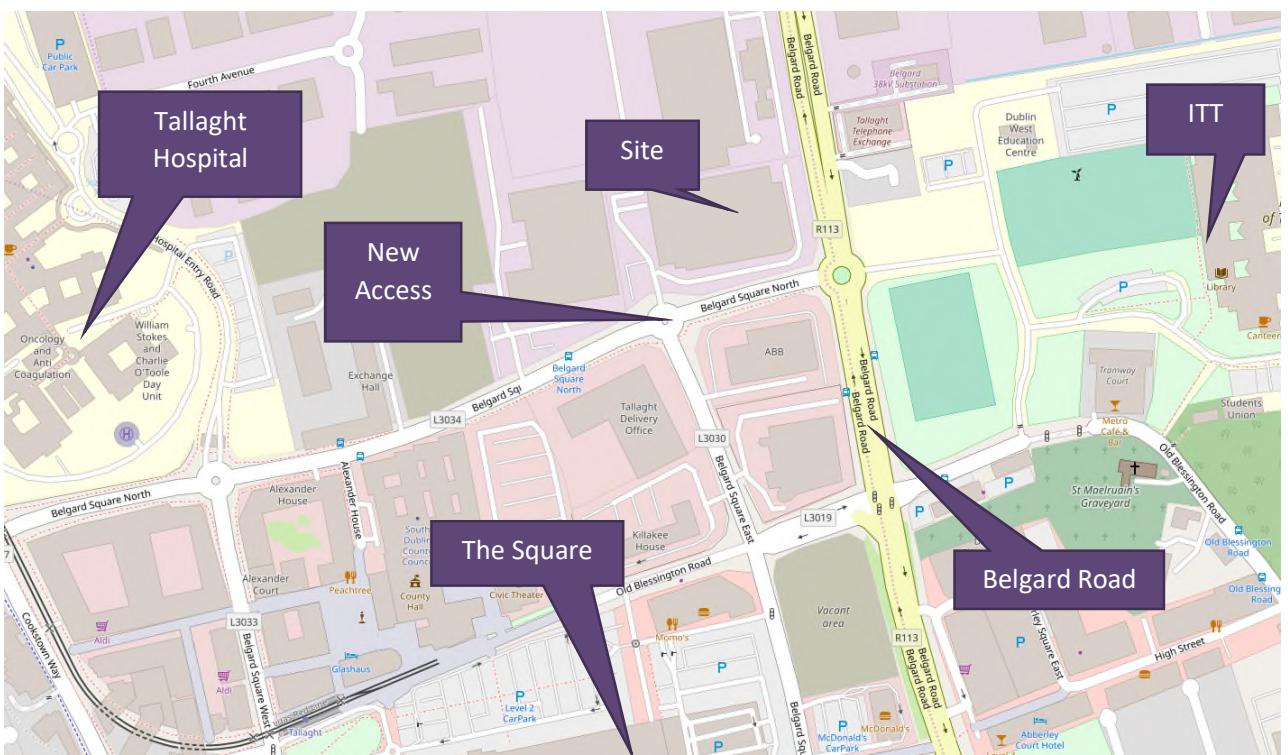


Image courtesy of Openstreetmap.org.

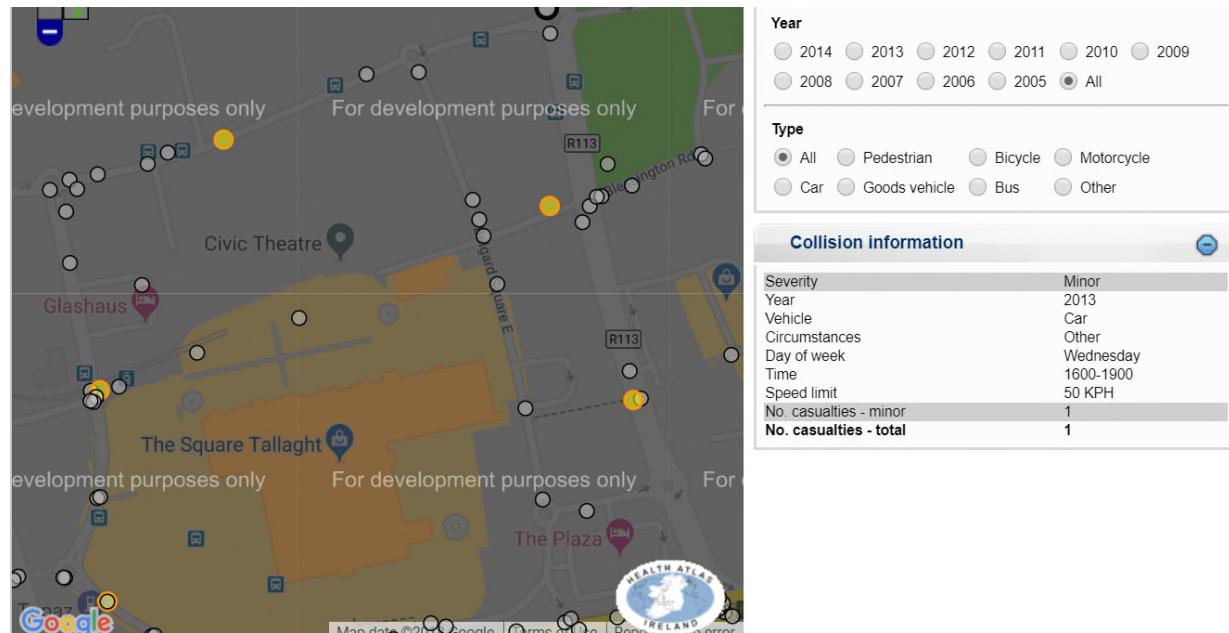
STAGE 1 & 2 RSA – BELGARD GARDENS OCSC

The Road Safety Authority's website shows that there were 4 minor injury collisions at, or close to, the Site along Belgard Square North and Belgard Road between the years 2005 and 2014.

A summary of the collision types is given in the table below

Year	Primary Collision Type	Day	Time	Location
2005	Pedestrian/car	Monday	10:00 – 16:00	Belgard Square North
2013	Rear-end Straight	Thursday	10:00-16:00	Belgard Square East (At roundabout)
2013	Car-Other	Monday	07:00 – 10:00	Belgard Road, Northbound entry to Roundabout
2013	Car-Other	Wednesday	16:00-19:00	Belgard Road, Northbound exit from Roundabout

There are no cluster sites and no obvious trends from the recorded collisions.



3.0 Main Report

3.1 Problem

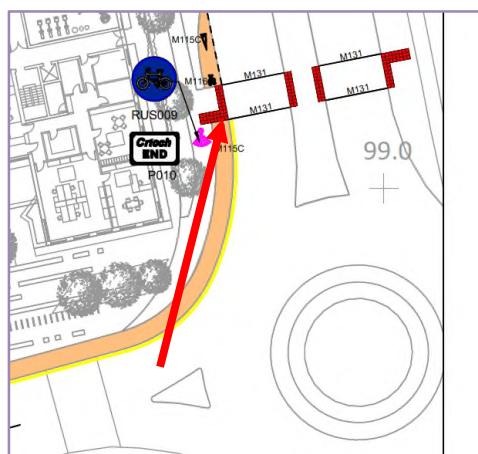
LOCATION

Proposed Toucan crossing on Belgard Road, North of the roundabout.

Drawing A557-OCSC-XX-XX-DR-C-1200 S3 rev P05

PROBLEM

There is a risk that drivers of vehicular traffic turning left out of Belgard Square North at the roundabout on Belgard Road may not have adequate visibility to the proposed toucan crossing to the north of the roundabout and may have insufficient time to stop if a pedestrian or cyclist is crossing. This could lead to conflicts between vehicular traffic and vulnerable road users. In addition, vehicle speeds may be high on approach to the toucan crossing due to the straight and wide alignment of Belgard road and the geometry of the roundabout. Higher vehicle speeds lead to greater injury severity should collisions occur.



RECOMMENDATION

It is recommended that adequate visibility is provided to the crossing for left turning drivers from Belgard Square North. This includes the removal of any vegetation that could grow during summer months or due to lack of maintenance.

The signal heads for both the nearside and offside signals for northbound traffic should be easily seen by left turning traffic. (Note the position of signal heads have not been shown on the drawings provided)

It is recommended that the toucan crossing be raised similar to the uncontrolled crossing to the south of the roundabout to highlight its presence and provide traffic calming.

It is also recommended that a raised table is provided on Belgard Road North in advance of the roundabout to ensure slow entry and hence exit speeds from the roundabout.

STAGE 1 & 2 RSA – BELGARD GARDENS OCSC

3.2 Problem

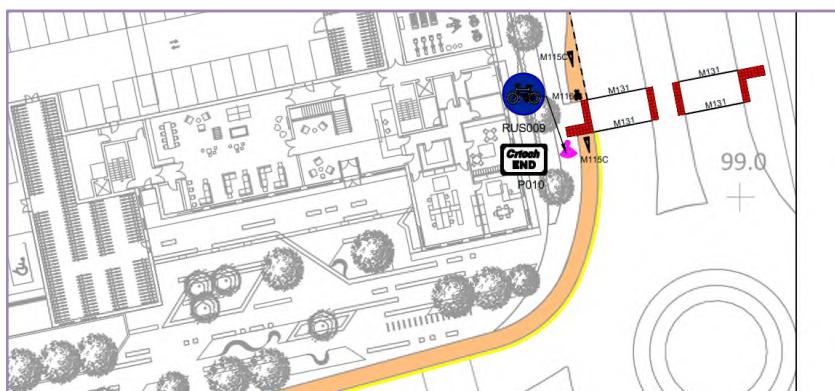
LOCATION

Proposed Toucan crossing on Belgard Road, North of the roundabout.

Drawing A557-OCSC-XX-XX-DR-C-1200 S3 rev P05

PROBLEM

It is anticipated that there will be a high demand for cyclists using the proposed toucan crossing who will wish to travel from the new student accommodation to the ITT. There is a risk that the lack of connectivity with cycle facilities on either side of the toucan crossing will lead to collisions between cyclists and pedestrians. Cyclists will travel in both directions to take the shortest journey between the residential accommodation and the college.



RECOMMENDATION

It is recommended that two-way cycle facilities be provided from the ITT gates to the proposed crossing and that two-way facilities be provided from the crossing to the proposed development.

STAGE 1 &2 RSA – BELGARD GARDENS OCSC

The Audit Team acknowledge that the land to the East of Belgard Road is not within the applicant's ownership.

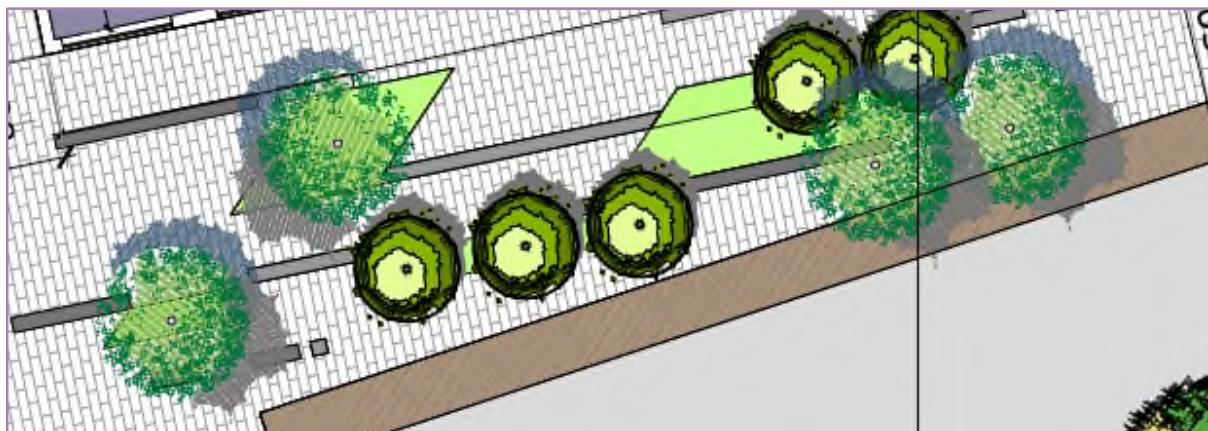
3.3 Problem

LOCATION

Drawing, Proposed Site Plan (O'Mahony Pike)

PROBLEM

It is unclear if there is a clear route for blind or partially sighted pedestrians to navigate along the paved pedestrian space along Belgard Road North. A lack of space could lead to injury for such vulnerable road users if they collide with roadside furniture.



RECOMMENDATION

It is recommended that the paths for pedestrians along the northern side of Belgard North is easily navigated without obstruction and that it is of sufficient width.

3.4 Problem

LOCATION

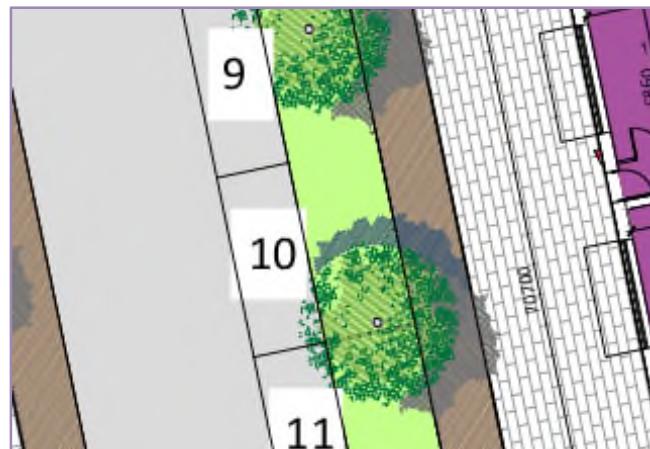
Internal Road, BL01, car parking.

Drawing, Proposed Site Plan (O'Mahony Pike)

STAGE 1 &2 RSA – BELGARD GARDENS OCSC

PROBLEM

It is proposed to have some parallel parking along the eastern side of internal road BL01. There is a grassed verge adjacent to the car parking spaces which could lead to slips and falls for pedestrians getting to/from their vehicles, especially in wet or icy conditions.



RECOMMENDATION

Provide a footpath to the rear of the parking spaces.

3.5 Problem

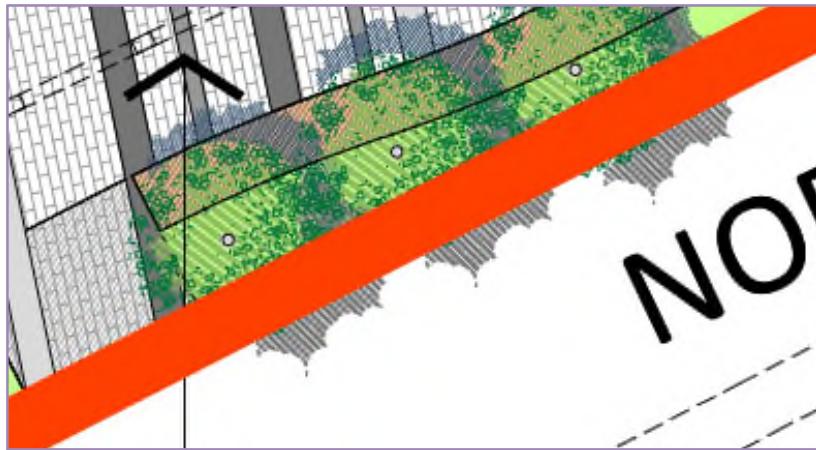
LOCATION

Trees along Belgard Square North.

Drawing, Proposed Site Plan (O'Mahony Pike)

PROBLEM

It is proposed to have trees in the grass verge between the carriageway of Belgard Square North and the Cycle track. There is a risk that the canopy of the trees may overhang the cycle track and lead to potential injury for cyclists or may overhang the carriageway and be struck by passing vehicles including high sided vehicles (including buses)



RECOMMENDATION

It is recommended the trees of suitable girth and canopy are chose at these locations and if they cannot be accommodated that more suitable planting be provided.

3.6 Problem

LOCATION

Internal Road, BL01, trees.

Drawing, Proposed Site Plan (O'Mahony Pike)

PROBLEM

It is unclear if there will be sufficient width of footpath either side of the proposed trees to the West of internal road BL01 to allow mobility impaired pedestrians to pass (particularly wheelchair users and users with two walking sticks) Insufficient space could lead to pedestrians using the carriageway where they would be at greater risk of being struck by a passing vehicle.



RECOMMENDATION

It is recommended that appropriate width be provided for the mobility impaired, taking into consideration the tree pit dimensions and the mature girth of the trees.

3.7 Problem

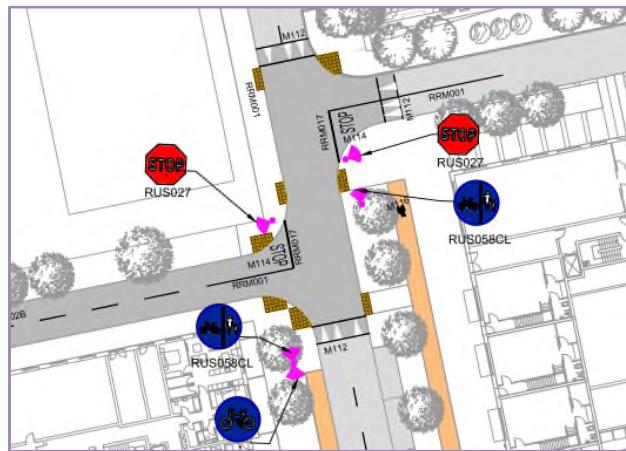
LOCATION

Internal Junction, BL01, BL02 & BL03

Drawing, Proposed Site Plan (O'Mahony Pike)

PROBLEM

It is unclear how on-road cyclists on BL03 can access the cycle track along BL01 or how cyclists travelling along BL02 can access the cycle track along BL01 without conflicts with vehicles or pedestrians.



RECOMMENDATION

It is recommended that cyclists making manoeuvres in all directions have adequately wide cycle or shared facilities to avoid conflicts with other road users.

4.0 Observations

4.1 Observation

The shared use areas at the signalised crossing points should start in advance of the tactile paving to allow sufficient room for cyclists and pedestrians to congregate.

4.2 Observation

It is assumed that the public lighting will be upgraded at the proposed signalised junction on Belgard Road North and that suitable lighting will be provided on Belgard Road at the proposed crossing point.

4.3 Observation

No surface water drainage details were provided to the Audit Team.

5.0 Audit Statement

We certify that we have examined the site on the 22nd October 2018. The examination has been carried out with the sole purpose of identifying any aspects of the design which could be added, removed or modified in order to improve the safety of the scheme.

The problems identified have been noted in this report together with associated safety improvement suggestions which we would recommend should be studied for implementation. The audit has been carried out by the persons named below who have not been involved in any design work on this scheme as a member of the Design Team.

Norman Bruton

Signed: 

(Audit Team Leader)

Dated: 30/10/2018

Owen O'Reilly

Signed: 

(Audit Team Member)

Dated: 30/10/2018

Appendix A

Information Supplied to the Audit Team

- Drawing 1722-OMP -00-00-M2-A-XX-10000_Site Plan (O'Mahony Pike)
- Drawing A557-OCSC-XX-XX-DR-C-0100 S3 rev P05
- Drawing A557-OCSC-XX-XX-DR-C-0111 S3 rev P05
- Drawing A557-OCSC-XX-XX-DR-C-0112 S3 rev P04
- Drawing A557-OCSC-XX-XX-DR-C-0113 S3 rev P04
- Drawing A557-OCSC-XX-XX-DR-C-1200 S3 rev P05
- Drawing A557-OCSC-XX-XX-DR-C-1201 S3 rev P05
- Drawing A557-OCSC-XX-XX-DR-C-1202 S3 rev P02

Information provided by way of Background Information

- Traffic Impact Assessment, Belgard Gardens, OCSC Rev C03 dated 16.10.2018

Appendix B

Problem Location Map



Appendix C

Feedback Form

SAFETY AUDIT FORM – FEEDBACK ON AUDIT REPORT

Scheme: Belgard Gardens, Tallaght

Stage: 1&2 Road Safety Audit

Date Audit (Site Visit) Completed: 22nd October 2018

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.1	Yes	No	<p>Measures 1, 2 and 3 are accepted. The raised crossing will be provided on the Belgard Road subject to detailed agreement with SDCC Roads Department.</p> <p>Measure 4 is not accepted. The scheme provides for very high quality landscaping along the northern side of Belgard Square North. It is the opinion of the Designer that this coupled with the active frontage of the Student Accommodation Entrance will sufficiently reduce speeds</p>	Yes
3.2	Yes	Yes	The crossing will be connected to the existing cycle facilities on Belgard Road.	Yes
3.3	Yes	Yes		
3.4	No	No	Moving the landscape and bio-retention zone further away from the road could make the road feel wider. This could result in higher speeds within the development and lead to more serious collisions occurring. On this basis the designer would prefer to maintain the current landscaping zone in the cross-section.	Yes
3.5	Yes	Yes		

Paragraph No. in Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measures accepted by Auditors (Yes/No)
3.6	No	No	As a clarification, the footpath width in this location is 4.5m wide. Given a mature tree width of 0.3m-0.5m, this leaves 1.75m-2.1m either side of the trees.	Yes
3.7	Yes	Yes	The internal area of the development, after the dedicated cycle facilities becomes a "Home Zone" type area, this is denoted by the raised area and the use of the large cycle symbol M116 on the carriageway. This will result in lower speed for vehicles as they enter this shared surface and will result in increased safety for cyclists.	Yes

Signed.....

Design Team Leader

Date.....

28/10/18

Signed.....

Audit Team Leader

Date.....28/10/2018.....