



Evaluation of proposed infrastructure in the re project of Triq Borm

21st July 2017

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Overview

In recent weeks we have witnessed several road infrastructural projects with the inclusion of bicycle infrastructure. The Bicycle Advocacy Group (BAG) is pleased to notice that in the Triq Bormla rebuilding project, a segregated bidirectional bicycle lane is being proposed along the stretch of the project, which is an upgrade from previous projects. However, there are some minor issues, including access to lanes and roundabouts, which we believe should be taken into consideration.

This report is intended to bring to the fore some dangers that cyclists will find themselves in when using such infrastructure. While to non-bicycle users these may seem frivolous concerns, cyclists face these obstacles every day, so while it is very encouraging that serious bicycle infrastructure is being looked into, this report will bring to light the risks that cyclists will face if the project is built as per available proposed designs.

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¹ <https://www.etenders.gov.mt/epps/cft/listContractDocuments.do?resourceId=3758401> Proposed Layout + Drawings 04 Proposed Layout

1. Access to bicycle lane from Żabbar side

There are concerns of how cyclists coming from Żabbar to Triq Bormla (direction Żejtun) will access the bidirectional bicycle lane. Will cyclists ride on through Triq Bormla until the next available crossing, or will they use the adjacent service road (Qasam Industrijali) and join at the pedestrian crossing between the bus stops?

Bicycle infrastructure should be designed to be as direct and safe as possible, and cyclists will, in this case, have to cross a busy distributor road twice without proper provisions for them.



Image 1: Proposed designs for Triq Bormla

2. Bicycle lane priority over connecting side-roads

While it is encouraging that a bidirectional bicycle lane is being proposed along the whole stretch of the project, one cannot fail to notice that priority is given to cars coming from the several side roads along the project.

² <https://www.etenders.gov.mt/epps/cft/listContractDocuments.do?resourceId=3758401> *Drawings 04 Proposed Layout*

2. Bicycle lane priority over connecting side-roads (c)

This will require cyclists **travelling along the main road** give way to traffic arriving from secondary roads, which will involve a lot of unnecessary stops and starts.

The onus of giving way should hence be on those coming from secondary roads. In several projects in foreign countries, where this type of conflict arises, cyclists travelling along a bidirectional bicycle lane in a main road are always given priority, as shown in *Image 2*



Image 2: A bidirectional bicycle lane in Assen, Netherlands

Moreover, the Design Manual for Bicycle Traffic (CROW Fietsberaad, 2016) states that “from a legal point of view, cycle paths alongside a distributor road form part of this road”, and that the “level differences cause nuisance to cyclists”.

3. Ramps to access bicycle lane

As highlighted in Point 2 above, wherever a conflict arises between cyclists travelling along a distributor road and cars joining the road from a service road, priority should always be given to those already forming part of the distributor road (in this case, the cyclist).

We have highlighted several ramps on the cycle lane (Image 3) which will make it similar to the “bicycle lane” at Triq Sur Temi Żammit, Mgàrr (Image 4)

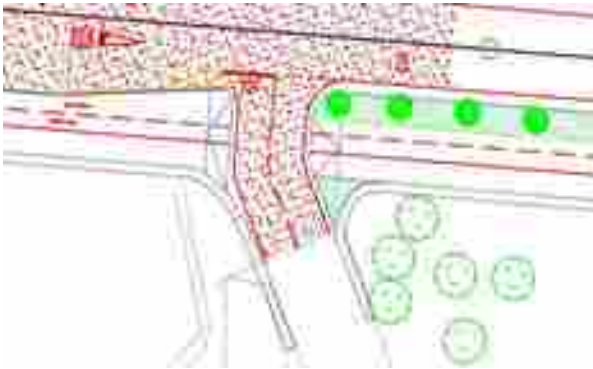


Image 3: Proposed ramps on cyclé lane Image 4 : Bicycle Lane in Triq Sur Temi Żammit, Mgàrr

These type of ramps on cycle lanes have received heavy criticism from cyclists, as apart from being uncomfortable to cycle on, are also dangerous due to the high angle of the slope. The fact that these ramps are repeated throughout the whole stretch makes it more unattractive for cyclists to use, who will have no other choice but to use the road instead.

What we propose is that while the footpath and bidirectional bicycle lane remain at the same level, ramps are only built where the side road and the distributor road converge (Image 5) This will also complement the design of a fully prioritised bicycle lane throughout the whole stretch as proposed in Point 2 above. Priority will be given to cyclists over oncoming cars from the side road to the distributor road and from the distributor road to the side road.

⁴ <https://www.etenders.gov.mt/epps/cft/listContractDocuments.do?resourceId=3758401> *Proposed Layout*

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<https://www.google.com/maps/@35.9134586,14.3919288,3a,75y,317.98h,86.62t/data=!3m6!1e1!3m4!1sIKDoCBFklRq7WLztFngy4Q!2e0!7i13312!8i6656>

3. Ramps to access bicycle lane (cont.)



Image 5: Bicycle lane kept at same level, ramp identified by give-way markings - Nijmegen, Netherlands

These ramps will act as calming measures for faster traffic accessing the side-road, and the ground markings will signal to drivers that cyclists have priority over traffic at that intersection.

In the Annex (Pgs. 8 & 9) we have attached excerpts from the Design Manual for Bicycle Traffic (CROW Fietsberaad, 2016) of how markings and ramps should be safely incorporated in such projects in order to maximise safety for people on bicycles.

4. Roundabout access

Despite both roundabouts (Images 6 and 7) being part of the proposed project, no consideration is given as to how cyclists will tackle these roundabouts.



Image 6: Proposed roundabout (Fgura side)



Image 7: Proposed roundabout (Żejtun side)

This is perhaps **the biggest concern cyclists face** every time they have to access a roundabout or a junction. Given that there are no markings or infrastructure proposed to alleviate this problem, we are proposing that these roundabouts are incorporated with Dutch style roundabout design (Image 8)

4. Roundabout access (cont.)

We have also attached guidelines from the Design Manual for Bicycle Traffic (CROW Fietsberaad, 2016) in the Annexes (pgs 10 & 11). The only difference between the two guidelines is to whom priority is given at the proposed intersections. These designs will keep cyclists separated from motor traffic throughout, thus making it safer to travel by bicycle.

These roundabouts are also very effective with single-directional bicycle lanes on both sides of the road, and thus this may be an idea worth exploring as it would be safer and more feasible.



Image 8: A bog standard Dutch roundabout, with cyclist priority

Conclusion

The concerns and proposals mentioned above, while seemingly of a minor degree, will have a major impact on cyclists using Triq Bormla. We believe that these proposals should be taken on board to ensure the maximum level of safety for all types of road users.



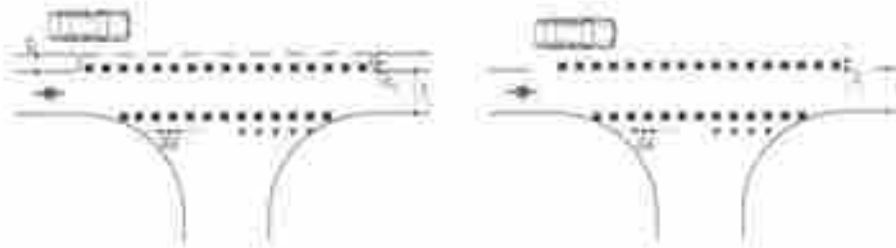
Annex

1. Cycle crossing over side road in the case of cycle lane or road with narrow segregation verge
2. Bidirectional cycle crossing over side road, in road with segregation verge
3. Single-lane roundabout with segregated cycle path and cyclists given right of way
4. Single-lane roundabout with segregated cycle path and cyclists not given right of way

V27

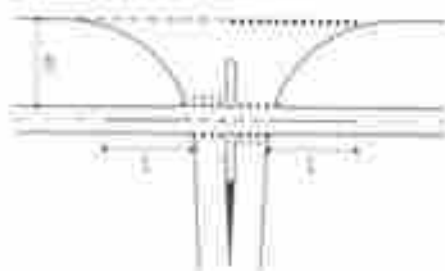
Cycle crossing over side road in the case of cycle lane or road with narrow segregation verge

Function	<ul style="list-style-type: none"> improving cyclist visibility clarifying right of way
Application	<ul style="list-style-type: none"> priority junctions with/without side road
Implementation	<ul style="list-style-type: none"> surfacing and layout of cycle path continue into side road markings in thermoplastic material, road paint, perforated asphalt or maintenance surfacing material use standard sign M (see also under Combination possibilities) if $a > 0.70$ m, then use clear width of both approach directions for the cycle path, see 4.25 there must be a sufficiently large vehicle path left between the road markings, if needed, apply lane markings outside of vehicle path for bicycle traffic
Dimensions	<ul style="list-style-type: none"> $a = 0.50$ m $b = 0.20 - 1.00$ m for L_1, see dimensions segregated cycle path (V28) for L_2, see dimensions cycle lane (V29)
Considerations	<ul style="list-style-type: none"> inset path from cycle path 4 to 5 m from the carriageway direction for cyclists is optional crossing clearly and quickly recognizable change of lane blocking cycle path or cycle lane no parking space for left-turning cyclists on cycle path or cycle lane increased probability of rear-end collisions on main carriageway
Coordination possibility	<ul style="list-style-type: none"> sign B7 instead of sign B6, B6a also using line (see instead of triangular markings)



28 Bidirectional cycle crossing over side road, in road with segregation verge

Function	<ul style="list-style-type: none">improving cyclist visibilityclarifying right of way
Location	<ul style="list-style-type: none">priority junctionwithin and outside of built-up areas
Implementation	<ul style="list-style-type: none">as in 127 plus a number of notescentre line on cycle path (see V5)stacking area for bidirectional pathstack length in both approach directions for the cycle path (see V5)
Dimensions	<ul style="list-style-type: none">$W = 5.00\text{ m}$$L = \text{min } 30\text{ m}$
Considerations	<ul style="list-style-type: none">visibility view of cyclistsedge chains of cars blocking cycle pathgenerous stacking space for left-turning cyclistsmotorists are sometimes not inspecting the bicycle traffic from the 'wrong' direction, increasing the probability of accidents for bicycle traffic coming from this direction
Construction guidelines	<ul style="list-style-type: none">sign B7 instead of sign B6 consider accompanying stop line instead of footstep of kerb and markingsraised cycle crossingarrow markings on cycle crossing to specify bidirectional traffic



V31

Single-lane roundabout with segregated cycle path and cyclists given right of way

Function	<ul style="list-style-type: none"> smooth urban interchange of traffic flows
Application	<ul style="list-style-type: none"> conversion of distributor road to the distributor road or residential road in built-up areas limit of approaching traffic flows = less than 25,000 PCU/24 hour period (road width less than 1,500 PCU/h) even distribution of traffic over the roadway
Implementation	<ul style="list-style-type: none"> cycle crossing provided with black markings and thick white lines, also for traffic leaving the roundabout separate cycle path in different colour at the crossing, over roundabout, parallel to the carriageway (in the roundabout) cycle path around roundabout (if possible) consider grade camber for cycle path (improved visibility) get cyclists to merge following the roundabout off cycle path as soon as possible (see indicator 8) same priority regime for cyclists and pedestrians vertical elements on island central traffic island improving permeability by means of public lighting consider leaving the central traffic island on pedestrian crossings
Dimensions	<ul style="list-style-type: none"> R_1 = 12.00 to 20.00 m R_2 = 8.50 to 11.00 m r_1 = 12.00 m, with central traffic island r_2 = 8.00 m, without central traffic island r_3 = 13.00 m, with central traffic island r_4 = 12.00 m, without central traffic island R = 5.00 to 6.00 m (depending on R_1 and R_2) S_1 = 1.50 to 2.00 m S_2 = 2.00 to 2.50 m S_3 = as big as possible L = 5.00 m
Characteristics	<ul style="list-style-type: none"> relatively safe, fewer points of conflict than with traditional junction relatively high capacity improved visibility of junction smaller reduction in speed good for year traffic flow difficult for cars to find an in the case of small R_1 and R_2
Construction possibilities	<ul style="list-style-type: none"> passing for city dedicated cycle path two lanes of approach roads
Remarks	<ul style="list-style-type: none"> priority junction with central traffic island



Single-lane roundabout with segregated cycle path and cyclists not given right of way

Function	<ul style="list-style-type: none"> → smooth, safe exchange of traffic flow
Application	<ul style="list-style-type: none"> → only outside of built-up areas → junctions with minor road (or fully distributed) → sets of approaching traffic flow: <math>v</math> on a 25,000 PCU (24-hour period) or less than 1,000 PCU (h)
Implementation	<ul style="list-style-type: none"> → cycle path around roundabout (not inside) → no block crossings where there is a cycle crossing → no cycle path surfacing carrying over → contra-traffic islands sufficiently wide in connection with cyclists' stacking down → same priority regime for cyclists and pedestrians → vertical elements on raised central traffic island → safe crossing responsibility by means of public lighting
Dimensions	<ul style="list-style-type: none"> → for lane starting points see V31 → for the course of the cycle path around the roundabout see associated figure → length of raised traffic islands: 7-14 m → stacking space on cycle paths: 2.10 to 3.00 m → width of contra-traffic islands: 2.20 to 3.00 m (2.10 m)
Consequences	<ul style="list-style-type: none"> → extremely good road user attention → effective speed reduction → enhanced safety, few accidents involving injury → poor bicycle traffic flow
Conditions/positions	<ul style="list-style-type: none"> → raised platform (curbed) on carriageway if location of roundabout entails a change in pavement type
Alternatives	<ul style="list-style-type: none"> → junction with traffic lights control system

