



Gonsiori

Bus and bike lanes project

- Review

This report is prepared by COWI for the Transport Development and Investments Department at the Ministry of Economic Affairs and Communication, Estonia.

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INTRODUCTION

Gonsiori is a main street in Tallinn connecting the city centre and major residential areas in the Lasnamäe district east of the centre. The annual daily traffic on the road today is around 18.500 vehicles.

This report contains a review of the proposed bus priority and bike lanes project for Gonsiori. The review has been based on a set of layout plans provided by the Transport Investments and Development Department, a site inspection performed on the 2-3 March 2016 and a meeting with representatives of the Sweco design team, the Municipality of Tallinn and the Transport Investments and Development Department.

The scope of the review is to provide expertise on traffic safety and comfort aspects related to the project. Principles of the Danish Road Safety Audit concept has been applied. The review focus on the project from the perspective of improving conditions for cyclists to enhance the role of cycling in the corridor.

Where problems in the proposed design are detected recommendations for alternative solutions are provided

The first part of the report contains general comments and recommendations for the project. The second part comments on the specific design solutions in the current plans.

GENERAL RECOMMENDATIONS

Cycling potential

Creation of a cycling culture takes time. A good infrastructure where it is safe for all age groups to take up cycling can be an important prerequisite to start this process. By connecting major residential areas to the city centre along a flat route Gonsiori is likely to have a substantial potential for cycling.

Even if cyclists are not many to start with it is important to design facilities for cyclists at high standard. Not only as it contributes to the comfort and safety of those using the infrastructure but also as it can contribute towards building a positive image of cycling among other road users convincing them to take up cycling.

Cyclists comfort and safety

A good infrastructure for cyclists provides right of way along the route and a smooth surface without harsh ramps. At crossings with secondary roads and accesses to private properties the bike track should be kept continuous at the same level through the crossing to highlight the priority for cyclists against crossing traffic. This should be a guiding principle on Gonsiori.

Cycling is door to door transport. It is important to have a vision on how to cater for cyclists on the entire route. Where priority infrastructure for cyclists ends there is an increased risk of conflicts and accidents. Therefore special attention must be paid to these zones to mix cyclists safely into motorised traffic. An important element would be to keep down the speed of motorised traffic where the modes are sharing the roadspace.

Fixed objects such as lamp posts, trees, masts etc. is a potential hazard to cyclists. Therefore a clearing distance of minimum 30 cm between the cycle track and these objects must be observed along the route. To maintain the green image of Gonsiori that contributes to narrow the roadspace visually and thereby keep down the speed of motorised traffic, it is important to solve this conflict without eliminating the trees.



Trees and lamp posts along Gonsiori.

Pedestrians and cyclists

The proposed solution for Gonsiori is a shared track. It is recommended that the bike track is physically or visually separated from the pedestrian area - e.g. by difference in paving supplemented by rows of stone sett or similar to guide visually impaired people along the road to avoid conflicts and the risk of accidents among the two modes.

At intersections it is important that cyclists and pedestrians are handled separately due to difference in speed between the two modes. Cyclists shall not cross in zebra crossings but rather have a dedicated space parallel to road traffic so that they are easily identified by motorised traffic.

Where a conflict occurs between turning road traffic and cyclists going straight ahead on Gonsiori it is recommended to apply either blue or red road marking combined with bike symbols to highlight the conflict zone.

Width of cycle track

In the current project proposal the bike track has no fixed width and the distinction between footwalk and cycle track is not entirely clear along Gonsiori.

It is recommended that the width of space dedicated for cyclists on the shared track remains almost the same through the entire length of the project. In order to make a safe and comfortable solution for cyclists and pedestrians the width of the biketrack is recommended to be 1,7 m - where space is scarce a width down 1,5 m can be acceptable.

Variations in available space should affect the footwalk primarily. A clearly visible distinction between footwalk and cycle track – e.g. difference in surfacing materials – can contribute to avoid conflicts.

Direction of car flow

Available space makes it necessary to prioritise between modes on Gonsiori. Different options for the direction of car flow on Gonsiori – into town or out of town are considered in the plans.

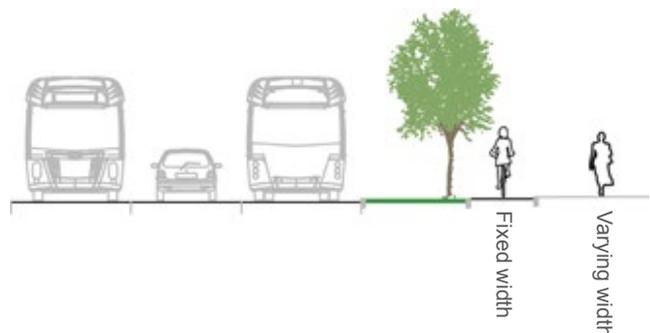
An aspect to consider is the fact that residents choice of mode for the day takes place in the morning. If cycling has an advantage in the morning towards town, the chance of people taking up cycling is higher. Therefore prioritising car traffic out of town is most favourable in a cycling perspective.



Example of drainage used to divide a shared track.



Example of coloured bike lane through intersection.





Example of access to Gonsiori parking that could be regulated to minimise the number of crossings over the bicycle track.

Minimising the number of crossings

Crossings to private properties, parkings et. al. constitute a potential risk of accidents.

In some cases it is possible to close crossings without affecting the accessibility significantly simply by referring traffic to other routes or limiting the number of accesses to the same plot. It may even grant opportunities of organising parkings differently and increase the number of spaces, or enhance the urban qualities of neighbouring plots.

Therefore it is important to strive to reduce the number of crossings whenever possible.

Bus pockets

From a passenger point of view the vehicular motion in and out of bus pockets at stops causes discomfort. In Bus Rapid Transit solutions buses therefore often stop in the track. This implies that other traffic has to wait behind the bus.

At Gonsiori it is relevant to consider whether bus pockets are needed at all stops or if a better solution in some cases would be to allow the buses to stop in the track. This could leave more space for waiting platforms, the bike track and the footwalk.

Bus stops

At bus stops there is a potential conflict between cyclists and people boarding or alighting the bus. In order to minimise this conflict it is recommended to keep a 1,5 m wide platform between the kerb and the bike lane. This will allow cyclists to keep the right of way without compromising safety.

Other

At some intersections of the Gonsiori Road the implementation of bike tracks will require an increased awareness regarding the risk of right turn accidents. The implementation of Directive 2007/38/EC on retrofitting mirrors to heavy goods vehicles therefore will have increased importance. To the extent that older vehicles in the bus fleet operated on Gonsiori do not comply with this, action is recommended.

SPECIFIC RECOMMENDATIONS

Intersection at Maneezi Road

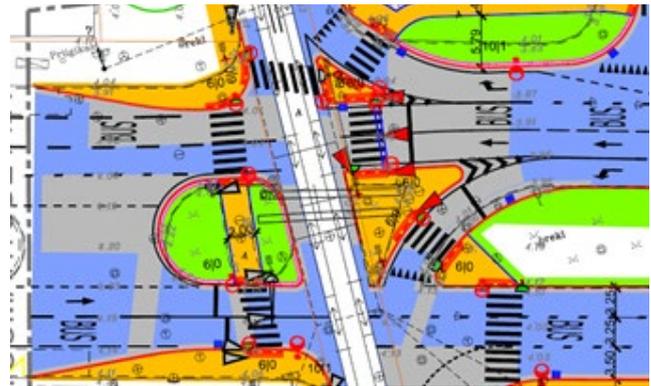
At Maneezi the proposed design implies that cyclists cross Maneezi together with pedestrians at the zebra crossing. This is not recommended. There is no stopline for right turning vehicles which will increase the risk of accidents due to the difference in speed between cyclists and pedestrians.

Recommendations

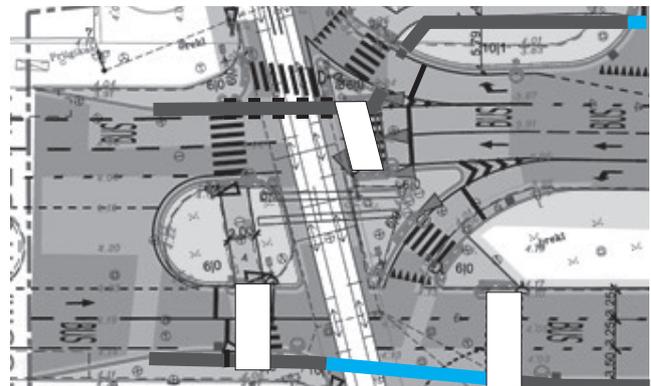
It is recommended to separate cyclists and pedestrians at the Maneezi crossing. This is likely to require the size of the triangular island to be slightly bigger.

The right turning vehicles towards Maneezi should be regulated by the signal. A stop line across the right turn lane as well as a signal will be needed.

The project limit implies there is no proposal for the continuation of the bike track west of Maneezi. Ideally the bike lanes should be continued to the Viru center and the bus terminal as potential major destinations for cycling. Until this can be realised it is important to design the end of the track in a way that avoids cyclists being trapped on the right hand side of buses going to the stop. This increases the importance of cyclists being close to buses at the Maneezi intersection.



End of project area at Maneezi



Separated cycle track



Example of solution



Consider continuation to Viru center and bus terminal

Intersection and parking at V. Reimani Road

At V. Reimani Road the crossings for cyclists and pedestrians are drawn back from Gonsiori. The solution require that car traffic is aware of the crossing. The proposed solution include road marking only. There is a potential risk of southbound vehicles overseeing conflicting cyclists.

The parkings along the north side of Gonsiori will affect the oversight towards east for right turning vehicles from V. Reimani Road. It is important to verify that oversight satisfies requirements at the desired speed on Gonsiori (Danish standards: 95 m at 50 km/h or 75 m at 40 km/h).

Opening of passenger side doors in vehicles will imply a conflict with westbound cycle traffic. This is a problem.

Recommendations

It is recommended to raise the crossing and apply a chess board road marking on V. Reimani Road. Both zebra crossing and blue/red road marking for cyclists should be applied across V. Reinami Road.

To gain sufficient oversight it may be necessary to cancel some of the parkings close to V. Reimani Road. In between parking and the cycle track a 0,8 m clearing zone should be marked as a ghost island (road marking only) or a row of paving stones similar to the footwalk.

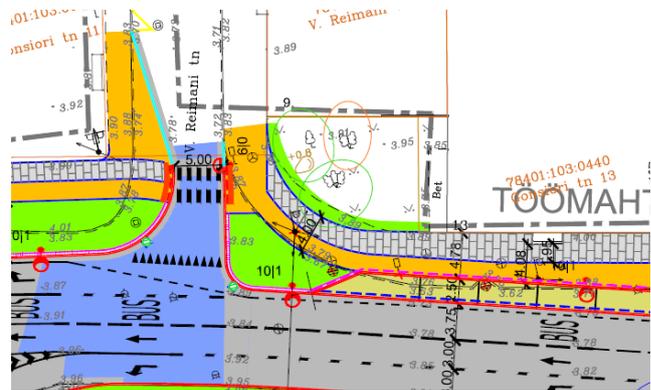
Intersection at Raua Road

At Raua Road different options for the intersection are proposed. One of the options implies there will be no signal to regulate traffic. This will be a problem as there will be a risk of accidents between left turning traffic towards Roua and oncoming cycle traffic. Therefore this solution is not recommended.

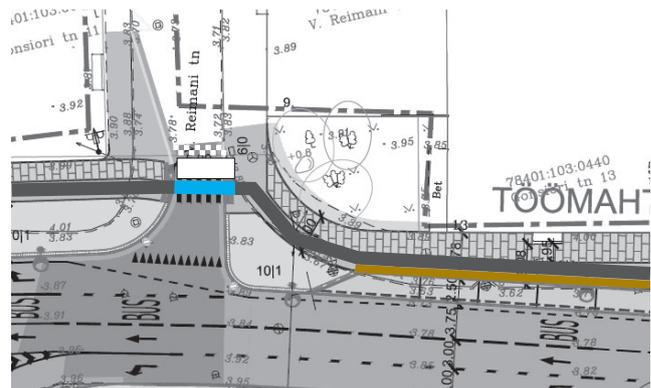
Recommendations

It is recommended to signalise the intersection. Bicycle crossing should be marked with a blue/red lane. It is also recommended to move the pedestrian crossing closer to the intersection. At the access to the private property it is recommended to continue the footwalk across the passage to make the right of way clear. It is also recommended to increase the paving stone area down to the cycle track.

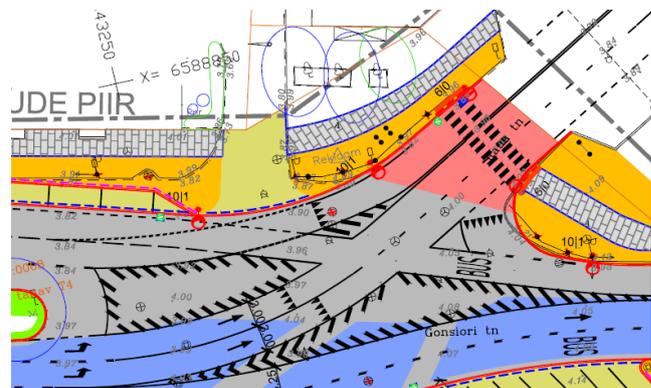
More generally it should be considered whether two left turning lanes are really needed in a situation where westbound traffic on Gonsiori is limited to buses only. This would allow more green time for the left turning traffic and maybe enough to make one lane suffice. A benefit could be a possible reduction of roadspace on Gonsiori leaving room for "green elements".



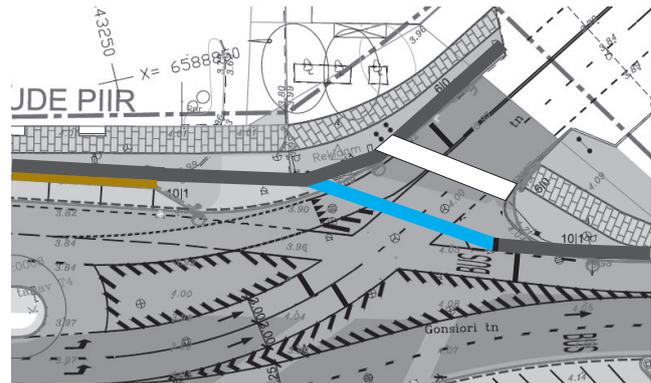
Intersection and parking pockets at V. Reimani



Proposal for intersection and parkings at V. Reimani



Intersection and parking pockets at V. Reimani



Intersection and parking pockets at V. Reimani

Intersection at Pronski Road

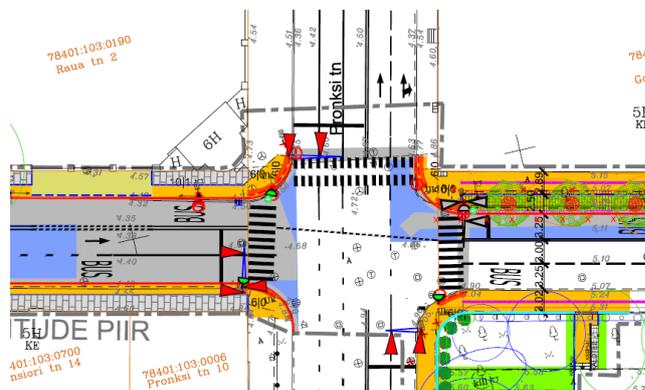
At Pronski Road no pedestrian crossing is indicated in the southern leg. The reason should be problems for turning buses realising conflicting pedestrians. As buses will have to be aware of conflicting cyclists heading east this does not seem a sensible solution. Moreover it makes it more difficult to access the park.

An access to a private property breaks the footwalk and cycle track west of Pronski. This confuses right of way and should be avoided.

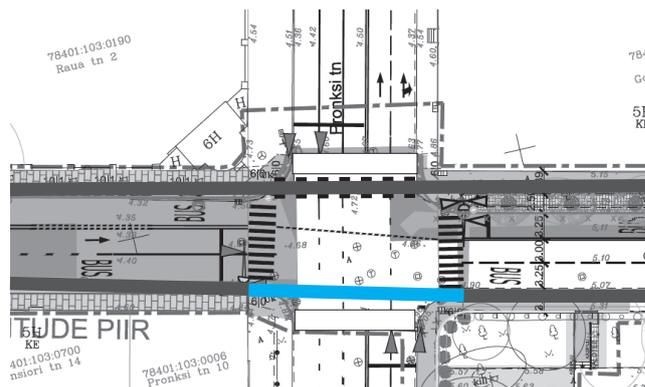
Recommendations

It is recommended to apply a blue/red cycle lane and a zebra crossing across the southern leg of Pronski. At the northern leg white road marking with bike symbols will suffice to indicate the route for cyclists.

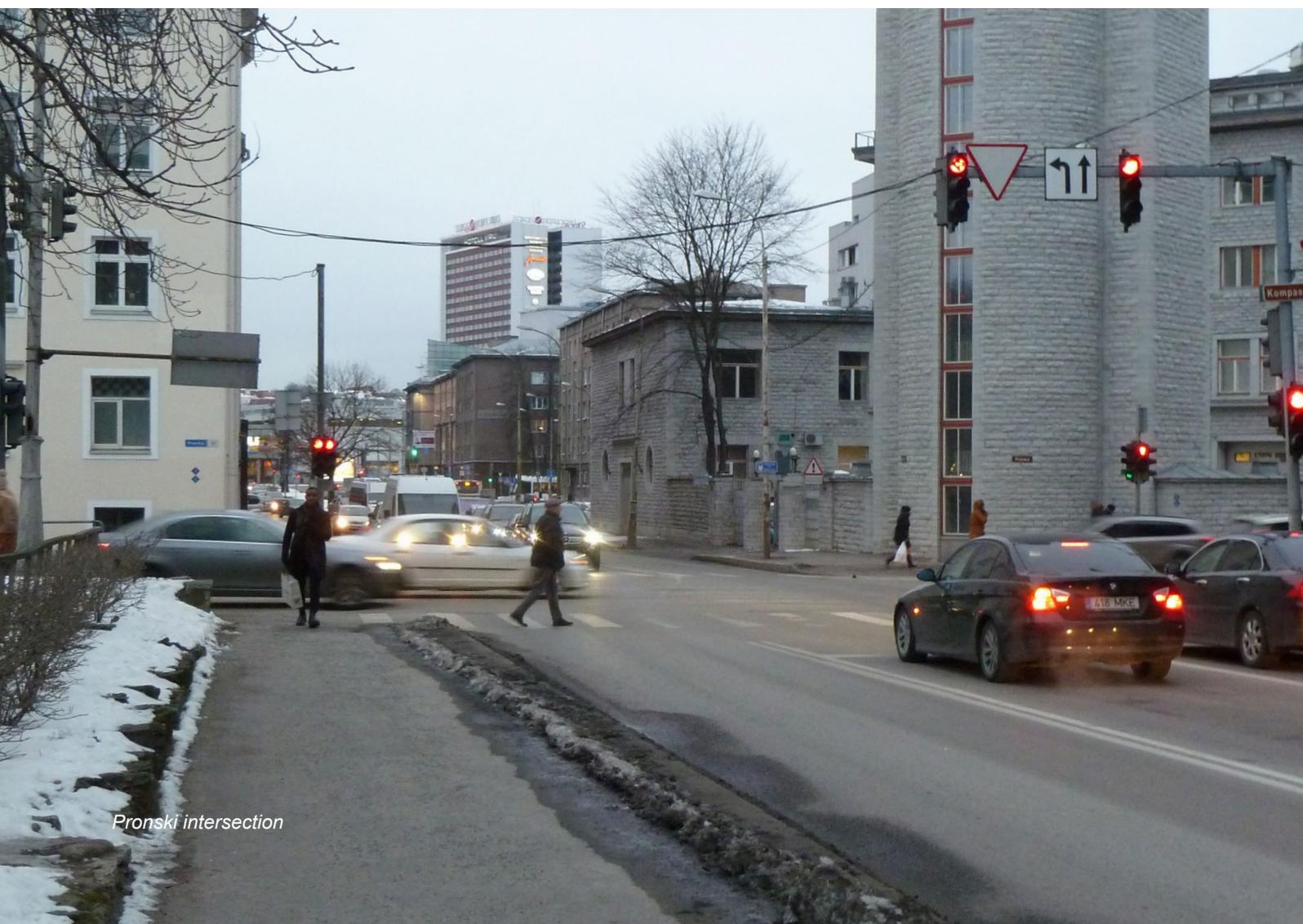
The bike lane and footwalk should be continued across the access to the private property on the north side of Gonsiori west of Pronski Road.



Missing zebra crossing at intersection at Pronski Road.



Proposed zebra crossing, bike lane and changed access.



Pronski intersection

Position of cycle track and regulation of crossing

At Fr. R. Kreuzwaldi the bike track runs behind the verge with trees causing only limited contact between motorised traffic and cyclists in project variant V1B and V2. This can increase the risk of accidents at intersections.

The dynamic right turn for motorised traffic outside the signal is a problem to maintain priority for cyclists along Gonsiori. Bikes and pedestrians approach the crossing at different speed and therefore the risk of a motorist overseeing a potential conflict is substantial.

Recommendations

The alternative designs V1a and V3 for the intersection do not contain the same conflict unless there are right turning buses. Therefore they should be preferred. However, if V1B or V2 is chosen the following applies.

Close to intersections with turning motorised traffic road traffic and cyclists should be brought close to each other without the separating verge. This solution shall contribute to increase mutual awareness.

To keep the green element a possible solution is to place the verge on the inside of the bike track.

It is recommended to replace the dynamic right turn by an ordinary right turning lane, and change the pedestrian crossing so that it passes straight across Fr. R. Kreuzwaldi. Likewise the bike lane should cross as a blue/red marking on the road.

The stop line for right turning vehicles (or preferable all vehicles) should be drawn back 5 m compared to the stop line for cyclists.

Right angled parking behind cycle track

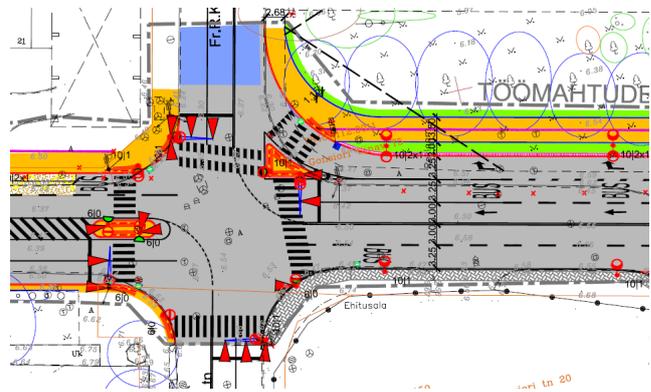
Between Fr. R. Kreuzwaldi and F. Kuhlbarasi Road right angled parking is shown behind the shared track. When cars are reversing from the parking there is a conflict with passing cyclists.

On the south side of the road the parkings are not accessed directly from Gonsiori.

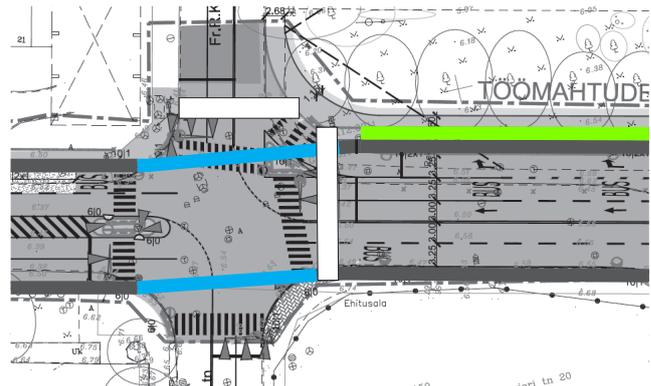
Recommendations

Whenever possible the right angled parking behind the cycle track should be avoided. If angled parking is used there should be a clear zone behind the vehicles of at least 1,5 m.

It is recommended to highlight the conflict zone with blue/red marking on the cycle track. It is recommended to limit the number of accesses to the parking on the south side to one only.



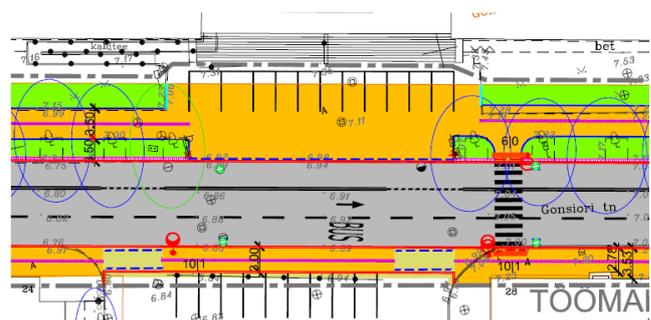
Example of verge between bike track and car traffic at intersection that should be avoided.



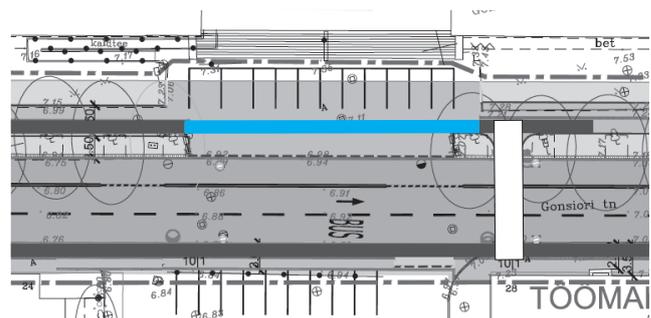
Principal solution in V2



Proposed position of bike track next to motorised traffic.



Right angled parking



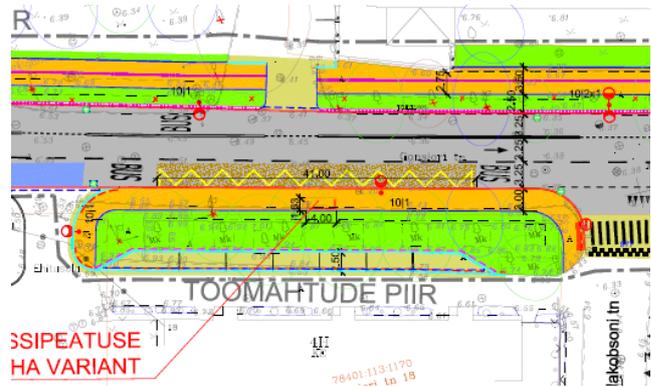
Solution with road marking and limitation of accesses.

Bus stop at C.R. Jacobsoni Road

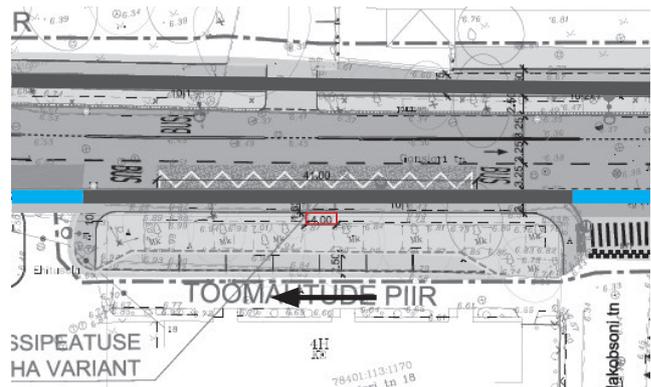
At C.R. Jacobsoni Road a bus shed is shown at the bus stop. The position of the bus shed will require that pedestrians use the bike track when passing. This is not ideal.

Recommendations

It is recommended to position the bus shed in the green zone. Moreover the local street serving the parkings should be restricted to one way only - entry at C.R. Jacobsoni Road and exit only to the right. The footwalk should be continued across the exit to indicate clearly the right of way for pedestrians and cyclists.



Bus stop at C.R. Jacobsoni Road



Proposed changes at bus stop



Bus stop at C.R. Jacobsoni

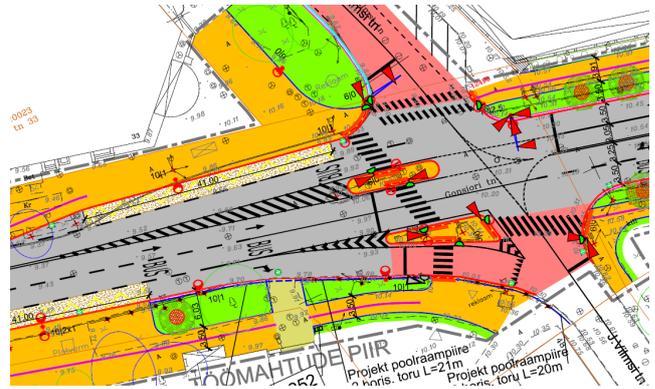
Dynamic right turn at J. Vilimsi Road

At J. Vilimsi Road cyclists and pedestrians are drawn back from the roadside with the intention of a two step crossing in the signal. This results in substantial delays for pedestrians and cyclists. Infringements of the regulation – walking against red – were observed by pedestrians at the existing intersection. This is not desirable.

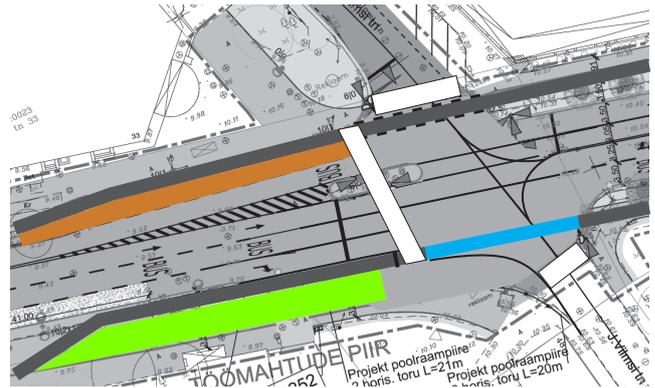
Recommendations

It is recommended to change the dynamic right turn to an ordinary right turn lane, allowing pedestrians and cyclists to cross J. Vilimsi Road directly. An increase in the green signal for pedestrians crossing Gonsiori may be needed as they would have to cross 3 lanes to reach the central island. The stop line for cyclists should be 5m after of the stop line for right turning motorists. West of the intersection cyclists must be brought close to the right turning traffic to increase mutual awareness.

By changing the bus pocket on the northern side of Gonsiori to a platform and let the buses stop in the bus lane instead it is possible to improve the conditions for bus passengers as well as decreasing the crossing distance over Gonsiori for pedestrians. However, it requires that no other buses need to pass the bus at the stop.



Intersection at J. Vilimsi Road



Principal solution at J. Vilimsi Road



Intersection at J. Vilimsi Road

Intersection at Vesivärava Road

At Vesivärava Road right turn towards north is not controlled by the signal. This causes unnecessary risk to crossing cyclists and pedestrians and should be changed.

The chessboard marking on Vesivärava does not really serve a purpose as the intersection is signalised.

The entry to Selver super market immediately east of the intersection at Vesivärava is a problem. East-bound vehicles that turn towards selver has no contact with cyclists going the same direction. This could cause fatal right turn accidents with cyclists. Left turn from Vesivärava towards Gonsiori and the entry to Selver in practice takes places in two rows. This increases the risk of cars overseeing a crossing pedestrian.

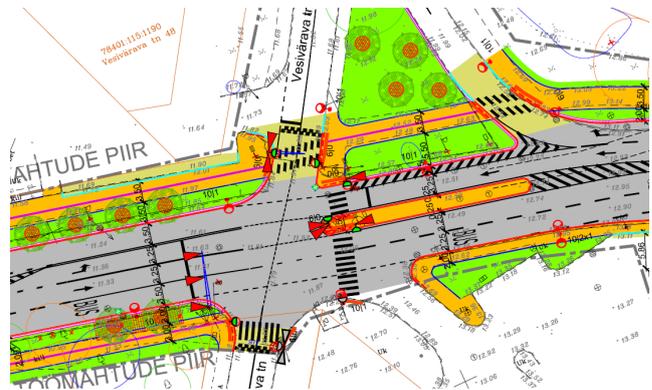
Recommendations

It is recommended signalise the right turn from Gonsiori to Vesivärava north.

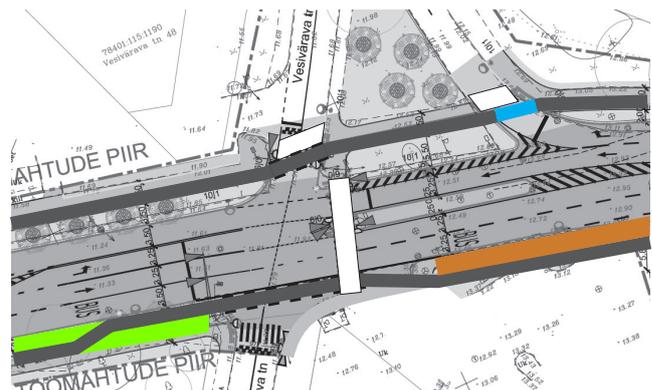
To avoid the conflicts related to the entry to Selver it is recommended to close this access and refer traffic to the entry at the signal further east on Gonsiori.

To make it possible to make a right turn lane at this intersection the bus stop could be moved west to a position near the existing access to Selver

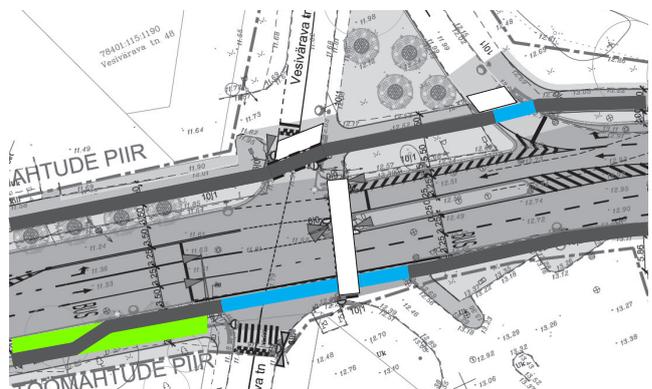
If it is not possible its is important to bring cyclists close the motorised traffic to increase mutual awareness. In this case a blue/red bike lane should cross both Vesivärava and the access to Selver.



Intersection at Vesivärava Road



Principal solution at Vesivärava Road - with platform for a new moved bus stop outside the bike track



Principal solution at Vesivärava Road if access to Selver cannot be closed

Intersection at Selver

The bike track ends at Selver market without connecting properly the one way shared track on the southside with the combined pedestrian and cycle track that continues east towards the residential area. This is a problem.

Moreover, if the existing access to Selver from Gonsiori is closed, there is a need to cater for right turning traffic at the intersection.

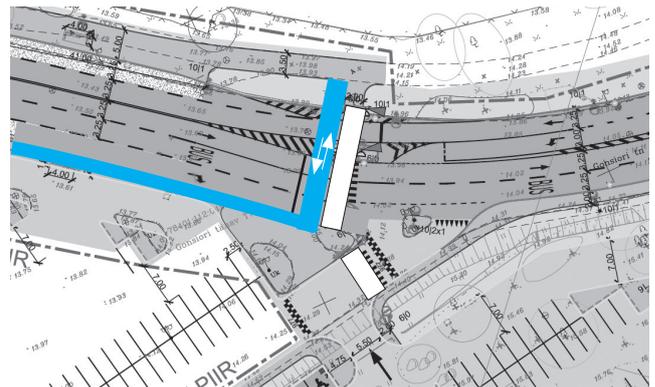
Recommendations

It is recommended to establish a right turn lane on the inside of the bus lane at the signalised entrance to Selver from Gonsiori.

Across Gonsiori a two way cycle lane should be established next to and west of the pedestrian crossing. This will allow cyclists from the residential area to reach Selver on bike and it will ensure that cyclists from the city centre can continue safely towards the residential area.



End of bike track at Selver intersection



Principal solution for right turn and connection between the new lane to the existing bi-directional route to the residential area

