Borgarlínan

Fríkirkjuvegur analysis

Technical note

Address Verkefnastofa Borgarlínu
Vegagerðin
Suðurhraun 3
210, Garðabær
Iceland
Phone +354 522 1000
E-mail borgarlinan@borgarlinan.is
www borgarlinan.is

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1 Summary and results

During the Inception phase of the design of Borgarlínan Lota 1, the Conceptual design of Borgarlínan Lota 1 was reviewed and considerations rose regarding the route and dedicated lanes for Borgarlínan around Tjörnin. As a part of the Section 140 Inception report the Integrated Design Advisor team analysed the alignment with a multi criteria analysis. Their result was to recommend a direct route east and south of Tjörnin (see Scenario 2 in the following picture) rather than the route from the Conceptual design that goes on both sides of Tjörnin in one direction on either side (see Scenario 1 in the following picture).

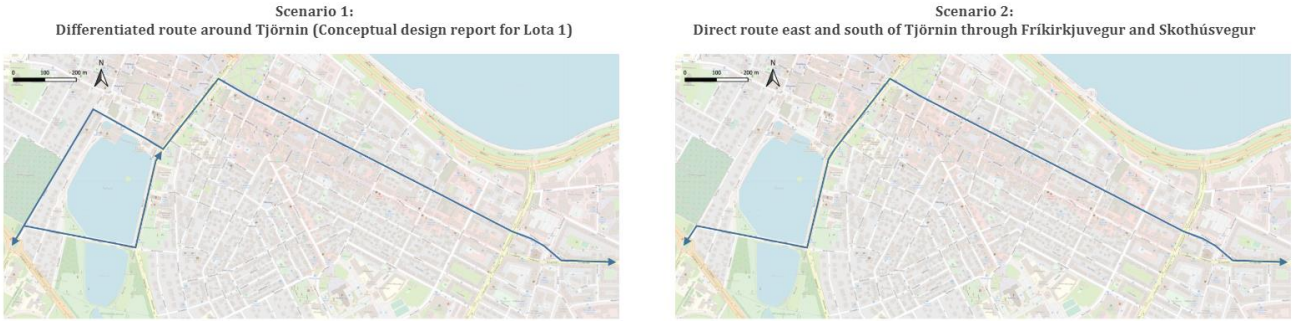

Figure 1: Alignment scenarios for section 140, ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

The report further studied three alternatives regarding BRT priority along Fríkirkjuvegur and Skothúsvegur. It set up three scenarios regarding that analysis; Scenario 1 was BRT in mixed traffic, scenario 2 was BRT in mixed traffic northbound on Fríkirkjuvegur and eastbound on Skothúsvegur and in dedicated lane in the other direction, and scenario 3 was dedicated lanes in both directions on both Fríkirkjuvegur and Skothúsvegur. The conclusion was that they recommended further consideration of scenario 3 with the closure of Fríkirkjuvegur to public traffic.

This technical note further examines this possibilty and how the priority of Borgarlínan could be solved.

The results are that all the alternatives that keep one lane open for car traffic on Fríkirkjuvegur show unsatisfactory results for the remaining open lane when it comes to car traffic volumes and having public transport in mixed traffic. The scenario that is retained for further discussion in the last chapter of the report, an accessibility assessment, is therefore only the first option, i.e. to close Fríkirkjuvegur in both directions. Some of the alternatives show also increased traffic on Skothúsvegur but for this alternative the traffic on Skothúsvegur should be sufficiently low not to have negative effect on Public transport. This may need to be revised in the future if traffic will increase and experience will show effect on Public transport.

The effects on accessibility of closing Fríkirkjuvegur to car traffic can be managed by allowing certain exceptions, i.e. car access from north to the parking behind the school at Fríkirkjuvegur 1 and by allowing necessary traffic to Fríkirkjan church (e.g. hearses).

The result of this analysis is to recommend that Fríkirkjuvegur will be closed for car traffic in both directions (with the exceptions mentioned above) and that both lanes will be dedicated BRT lanes.

2 Background

During the Inception phase of the design of Borgarlínan Lota 1, the Conceptual design of Borgarlínan Lota 1 was reviewed, and considerations rose regarding the route and dedicated lanes for Borgarlínan around Tjörnin. As a part of the Section 140 Inception report the Integrated Design Advisor team analysed the alignment with a multi criteria analysis. Their result was to recommend a direct route east and south of Tjörnin (see Scenario 2 in the following picture) rather than the route from the Conceptual design that goes on both sides of Tjörnin in one direction on either side (see Scenario 1 in the following picture).

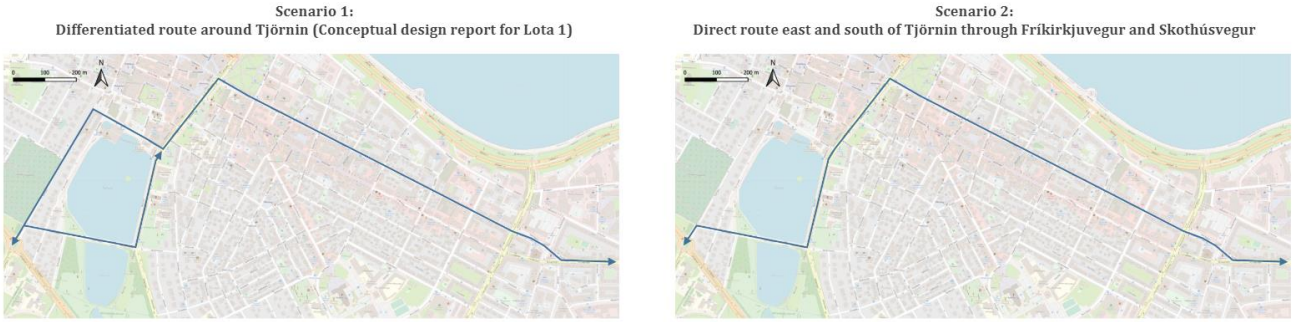

Figure 2: Alignment scenarios for section 140, ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

The report says: "***In BRT type transport systems, it is recommended to avoid dissociated routes in order to improve line readability.*** *The major disadvantage of split routes is for the traveller who cannot take the bus back to where it got off for the return trip. The only solution to keep a dissociated route without downgrading readability is to have the stations outside this dissociation. That is to say stations should therefore be located just before or just after the separation. For this section 140, we offer another BRT alignment solution. The first scenario studied is that taken from the conceptual design report for Lota 1 with the dissociation of the routes around Tjörnin. The second is a BRT route taking only the streetseast and south of Tjörnin on Fríkirkjuvegur and Skothúsvegur.*"

The result in the report is: "*The elimination of differentiated routes on section 140 offers more advantages than the scenario of the conceptual design report for Lota 1. Indeed, both from a mobility and urban space point of view, scenario 2 makes it possible to facilitate the intersection 140.P* [Lækjargata-Vonarstræti] *by reducing its size, improving the readability and understanding of the BRT line, removing the impact of the BRT on the narrow streets close to the city centre (Vonarstræti and Suðurgata). However, it could have an impact on the traffic on Fríkirkjuvegur and the residential streets nearby and on the surroundings of Tjörnin and Hallargarðurinn Park.* ***From our perspective, the second scenario without route differentiation is the best. Therefore, we recommend that this scenario 2 be retained for further study.***" The result of the multi criteria analysis is shown below.

			Scenario 1: Differentiated routes around Tjörnin		Scenario 2: Direct route east and south of Tjörnin	
Mobility aspects	Intersection functioning	Intersection 140.P	*	Space required for the BRT to turn right from the north on Lækjargata towards Vonarstræti	***	Smaller crossroads with only direct movements of the BRT
		Intersection 140.R	***	Addition of the BRT on the road coming from the west by Skothúsvegur	**	Addition of the BRT on the road coming from the west by Skothúsvegur and from the north on Fríkirkjuvegur
	Simplicity of priority management for the BRT		**	Priority for the BRT on the north of the intersection 140.P	**	Priority for the BRT on the north of the intersection 140.P
	Pedestrian and bicycles		**	Shared bicycle/pedestrian paths on Suðurgata	***	Bicycles follow the BRT route and space for bicycle
	Safety		***	Wider bicycle and pedestrian paths on Fríkirkjuvegur	**	Narrower bicycle and pedestrian paths on Fríkirkjuvegur
	Commercial speed		*	Some congestion on Vonarstræti in general	**	Avoid congestion on Vonarstræti
	Quality of service		**	Difference in service between BRT traffic directions	***	Same quality of service between the two directions of BRT traffic
	Traffic shift to other roads		***	Minimal change compared to existing situation (TBC)	**	Some impact on traffic (TBC)
	Turning point		**	Turnaround around Tjörnin: BRT in mixed traffic on Vonarstræti and Suðurgata: Little traffic → slight risk of delay due to car traffic	**	Turning point at Harpa: BRT in mixed traffic on Lækjargata towards Harpa: Possibility to use the existing Strætó lanes on some part → slight risk of delay due to car traffic
Urban space aspects	Urban space - Fríkirkjuvegur		***	Minimal impact on Tjörnin and/or Hallargarðurinn Park	**	Some impact on Tjörnin and/or Hallargarðurinn Park
	Urban space - Suðurgata		*	Greater impact on this narrow street and also large impact on the protected tree on the corner of Vonarstræti. A risk it will be removed during construction.	***	No added impact on this narrow street and also no impact on the protected tree on the corner of Vonarstræti
	Project scope		*	Construction work required on Vonarstræti, Suðurgata and Fríkirkjuvegur	***	Construction work required only on Fríkirkjuvegur
	Identity of the BRT		*	BRT is split up, weakening the identity	***	BRT will be one clear line in the urban space
	Functionality of bus routes / turning areas		***	Loop around Tjörnin used for turning	**	Out-of-service loop to be used
	Vonarstræti / Fríkirkjuvegur intersection		**	More complicated	***	Potentially less complicated
	Synthesis					

Figure 3: Multi-criteria analysis for the alignment of the BRT on section 140 ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

Most of the lines in Strætó's public transport system that go through the downtown area today go through Lækjargata and around Tjörnin in one direction on either side of the lake, see picture below.

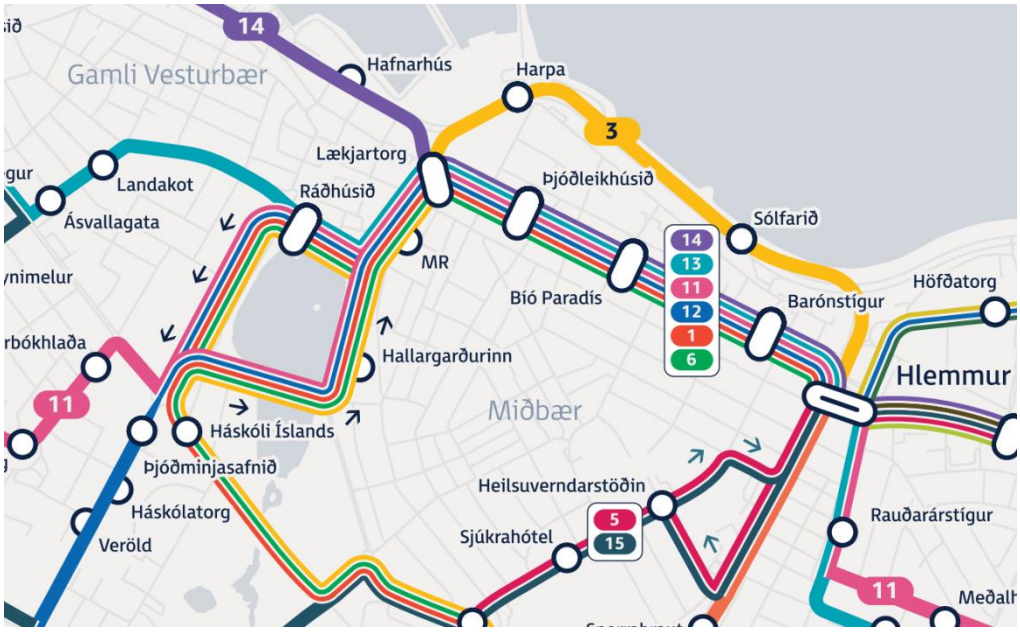

Figure 4: Today's Strætó system in the downtown area (https://straeto.is/media/2021/10/leidakort-hofudborgarsvaedid.pdf).

The following Figure is taken from the Borgarlínan Lota 1 Conceptual design report, and it shows how dedicated lanes were at that stage in the design of Lota 1 planned around Tjörnin.

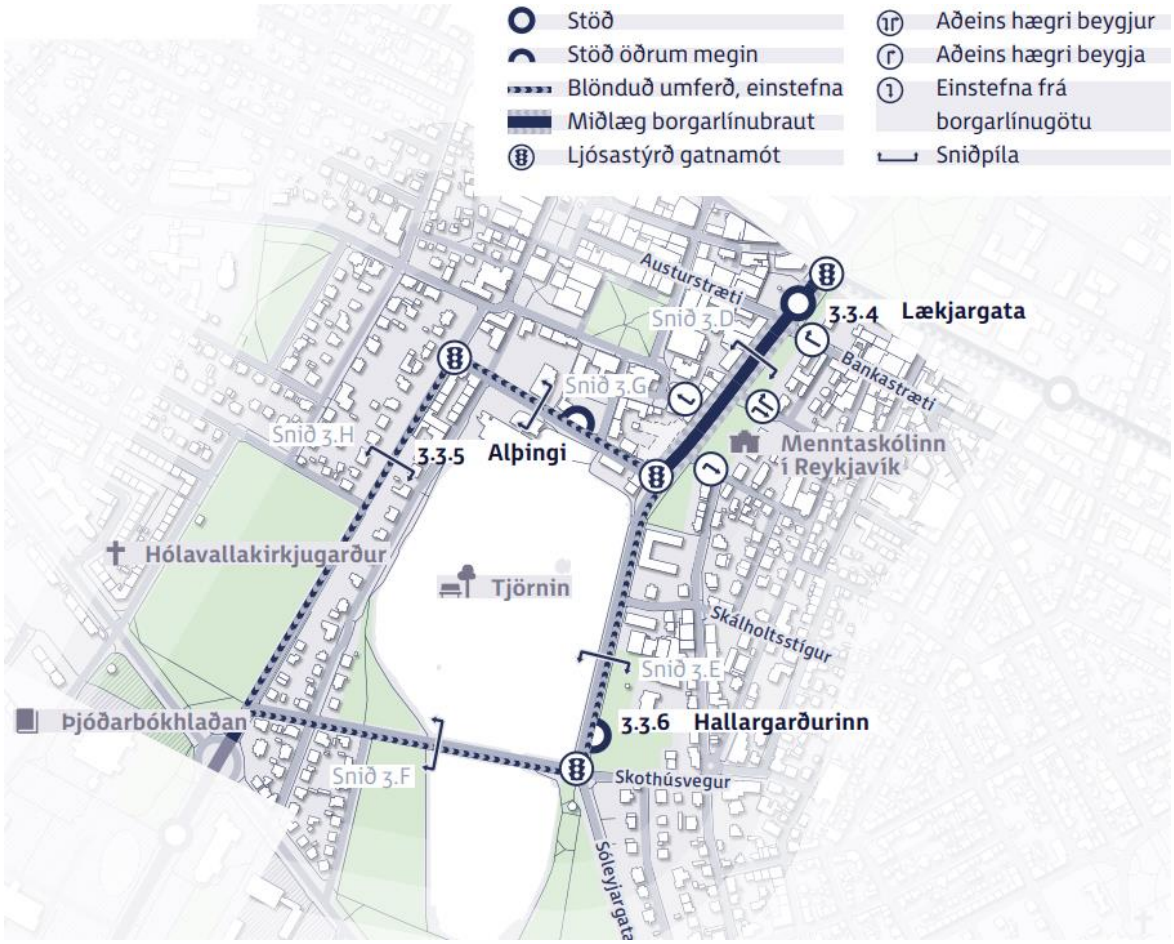

Figure 5: Borgarlínan dedicated lines around Tjörnin in the Borgarlínan Lota 1 Conceptual design report from 2021.

3 Section 140 Inception report alignment analysis

In the Section 140 Inception report the Borgarlínan design team analysed three options regarding the dedicated lanes on the east side of Tjörnin, see picture below. Scenario 1 was BRT in mixed traffic, scenario 2 was BRT in mixed traffic northbound on Fríkirkjuvegur and eastbound on Skothúsvegur and in dedicated lane in the other direction, and scenario 3 was dedicated lanes in both directions on both Fríkirkjuvegur and Skothúsvegur.

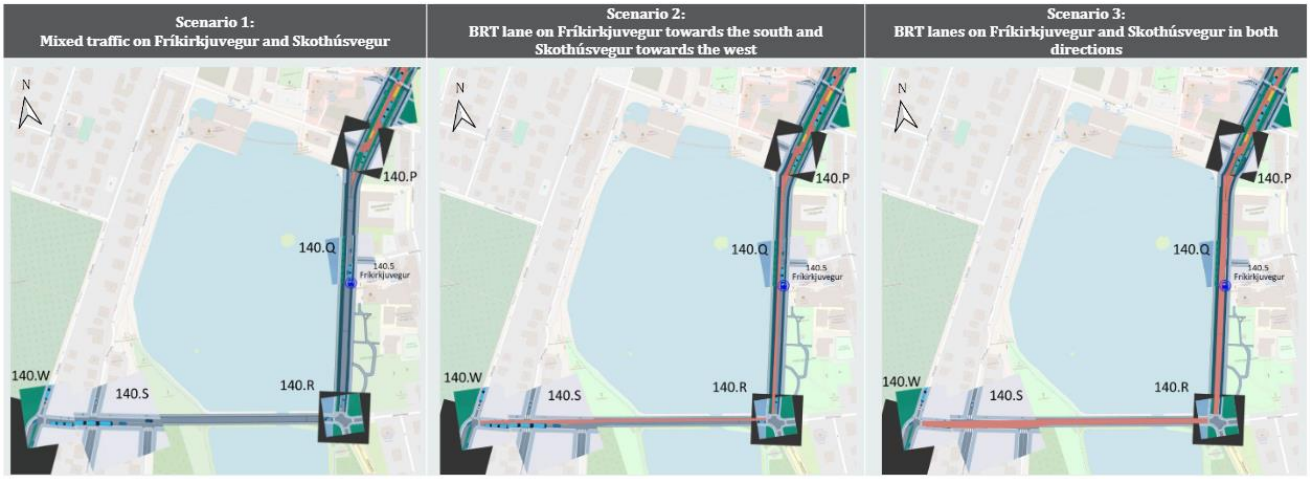

Figure 6: Different BRT alignment scenarios around Tjörnin ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

The result of their traffic analysis for peak hours, regarding traffic shifts for the 2 configurations compared to the 1st configuration proposed above, was that:

- Car traffic shifts on roads next to Fríkirkjuvegur could appear (Amtmannsstígur,Skothúsvegur, Sóleyjargata, etc.);
- The 1.200 cars (3rd variant) on Fríkirkjuvegur are not shifting to minor roads directly linked to Fríkirkjuvegur;
- There is an increase of traffic on some major roads as Hringbraut outside the direct impacted perimeter.

The report also says: "*We believe that the current calibration of the model makes it appear that route decisions are made near the closed street and some road capacities could be overestimated (Laufásvegur). However, we are confident that with the closure of Fríkirkjuvegur the route decisions will be made by the users before entering the city center. This means that with the 2nd and 3rd configurations we could have a calming effect on the city center because of the closure of Fríkirkjuvegur and Skothúsvegur and not have such traffic shifts on small roads around Tjörnin. Some experiences show that with the closure of major roads, route and mode choices change, leading to a decrease in traffic in a more global area than the closed road.*"

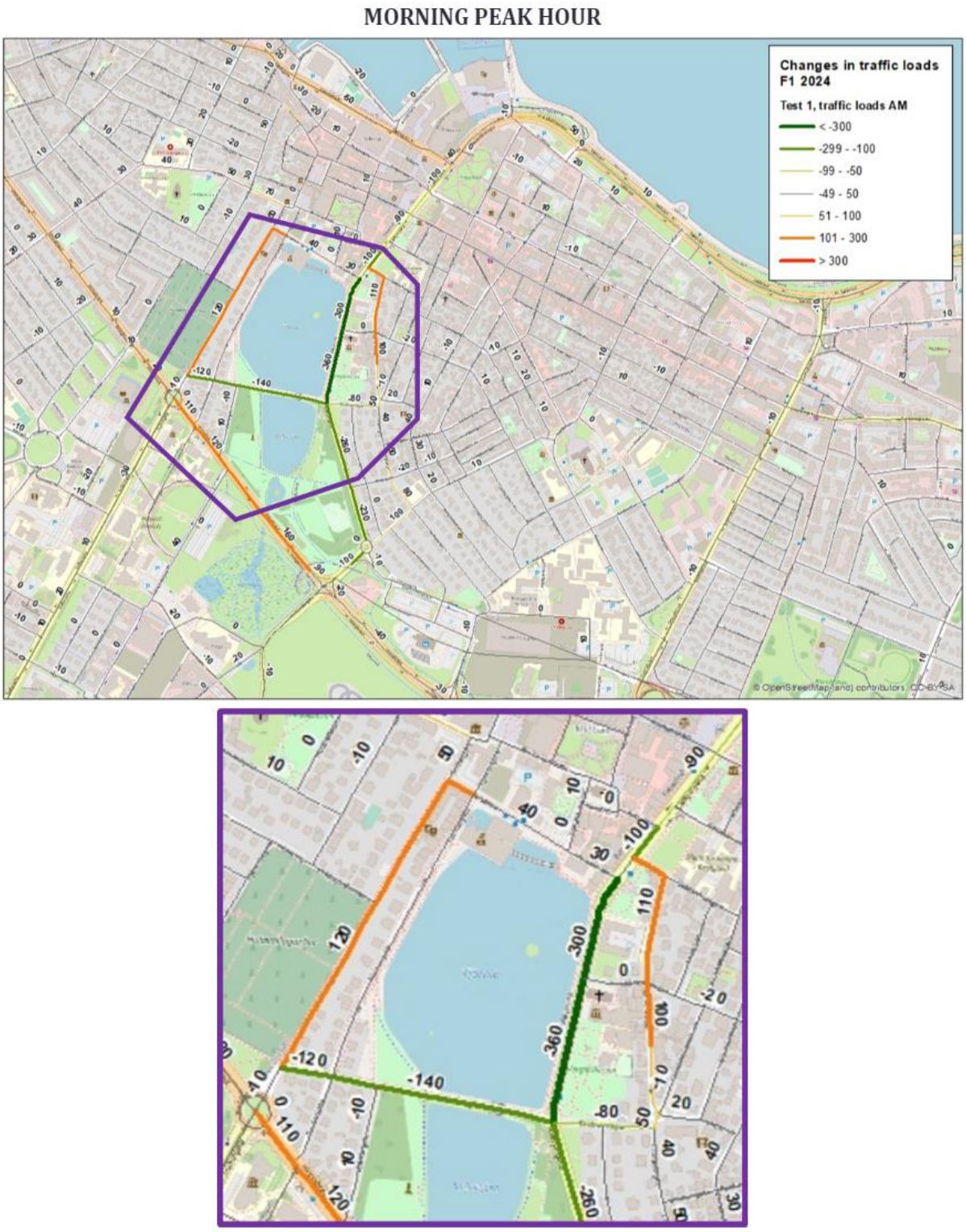

Figure 7: Results of the test for Scenario 2 from Figure 6 above, morning peak hour. Changes in traffic loads in 2024 ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

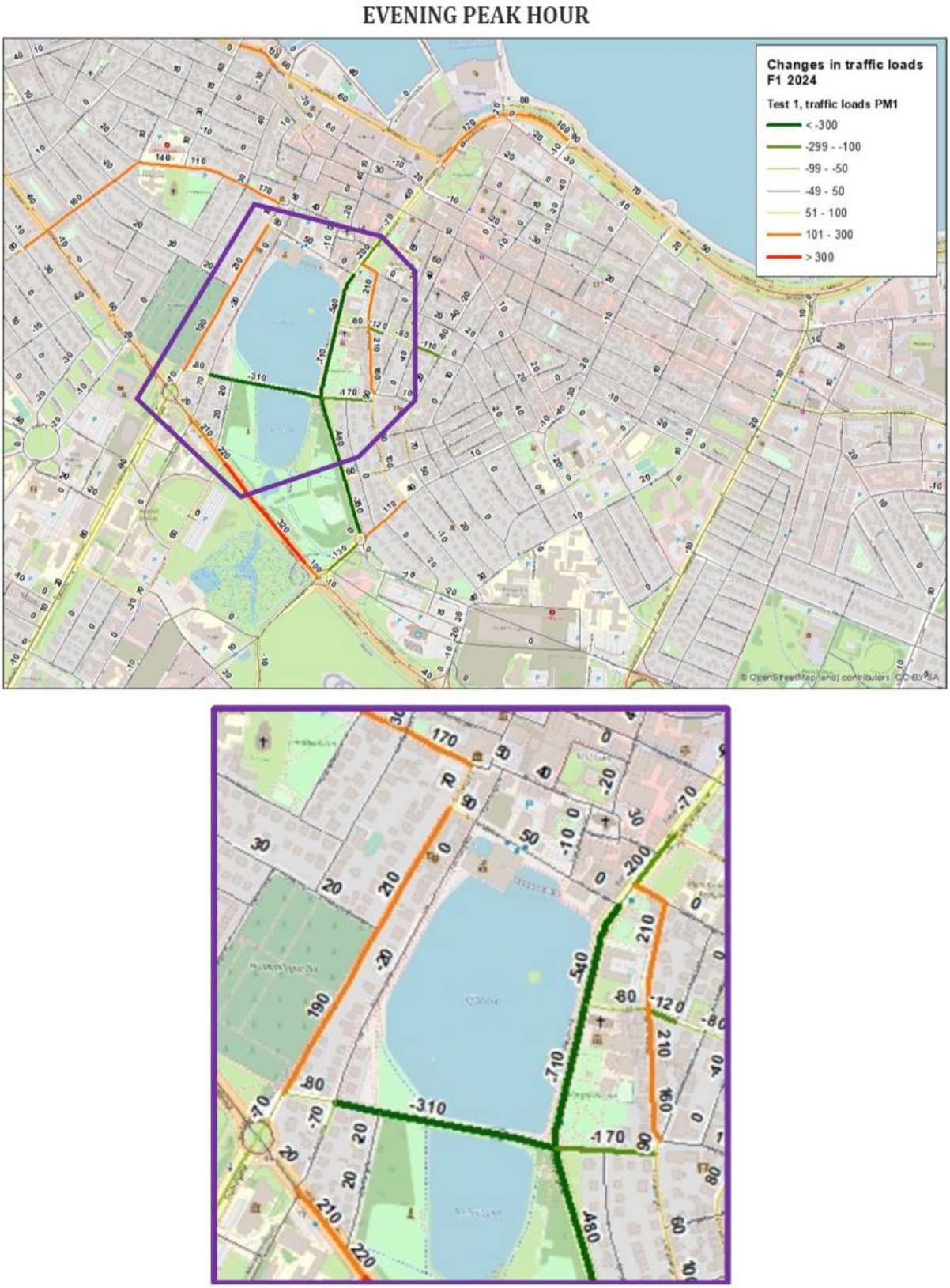

Figure 8: Results of the test for Scenario 2 from Figure 6 above, evening peak hour. Changes in traffic loads in 2024 ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

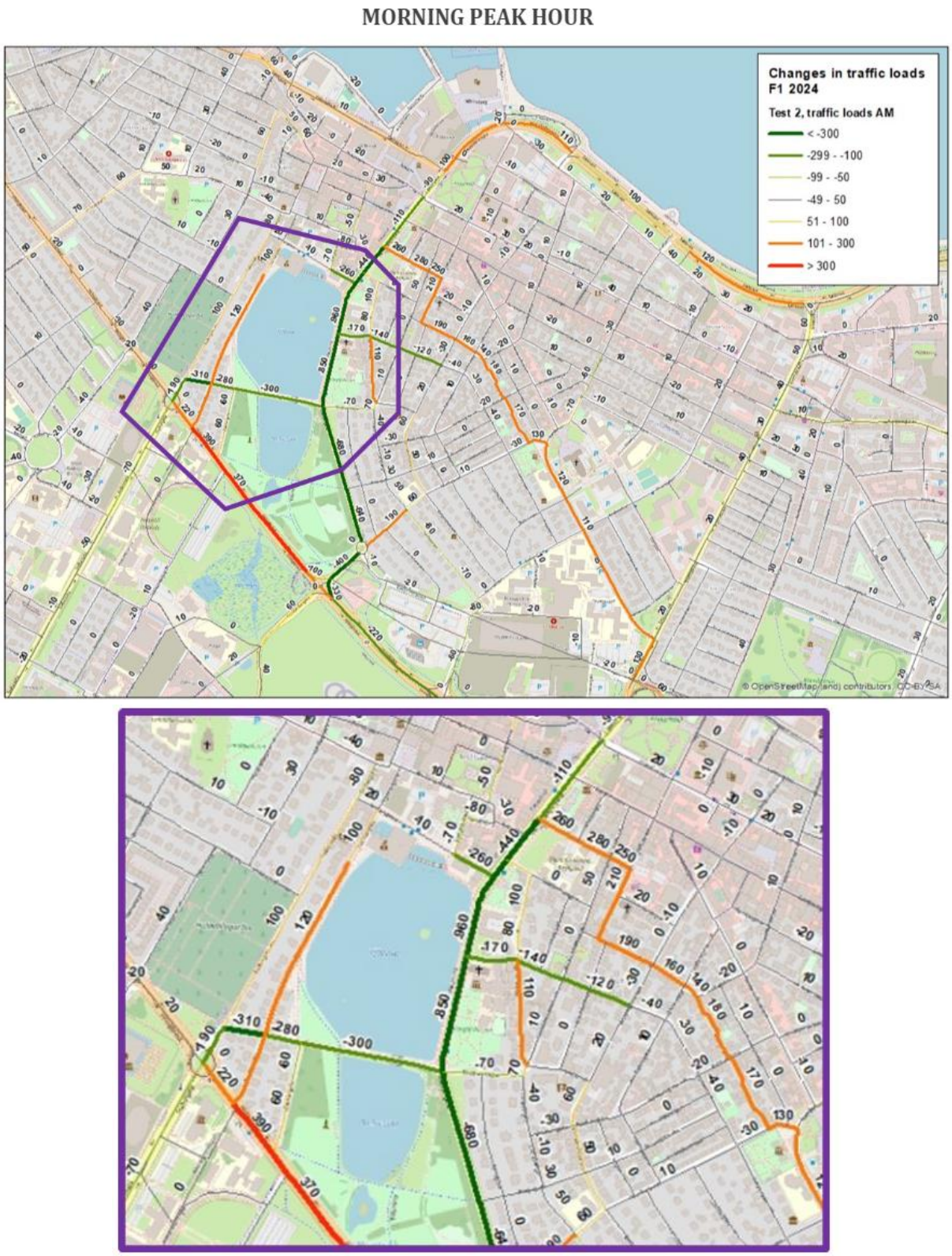

Figure 9: Results of the test for Scenario 3 from picture 6 above, morning peak hour. Changes in traffic loads in 2024 ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

EVENING PEAK HOUR

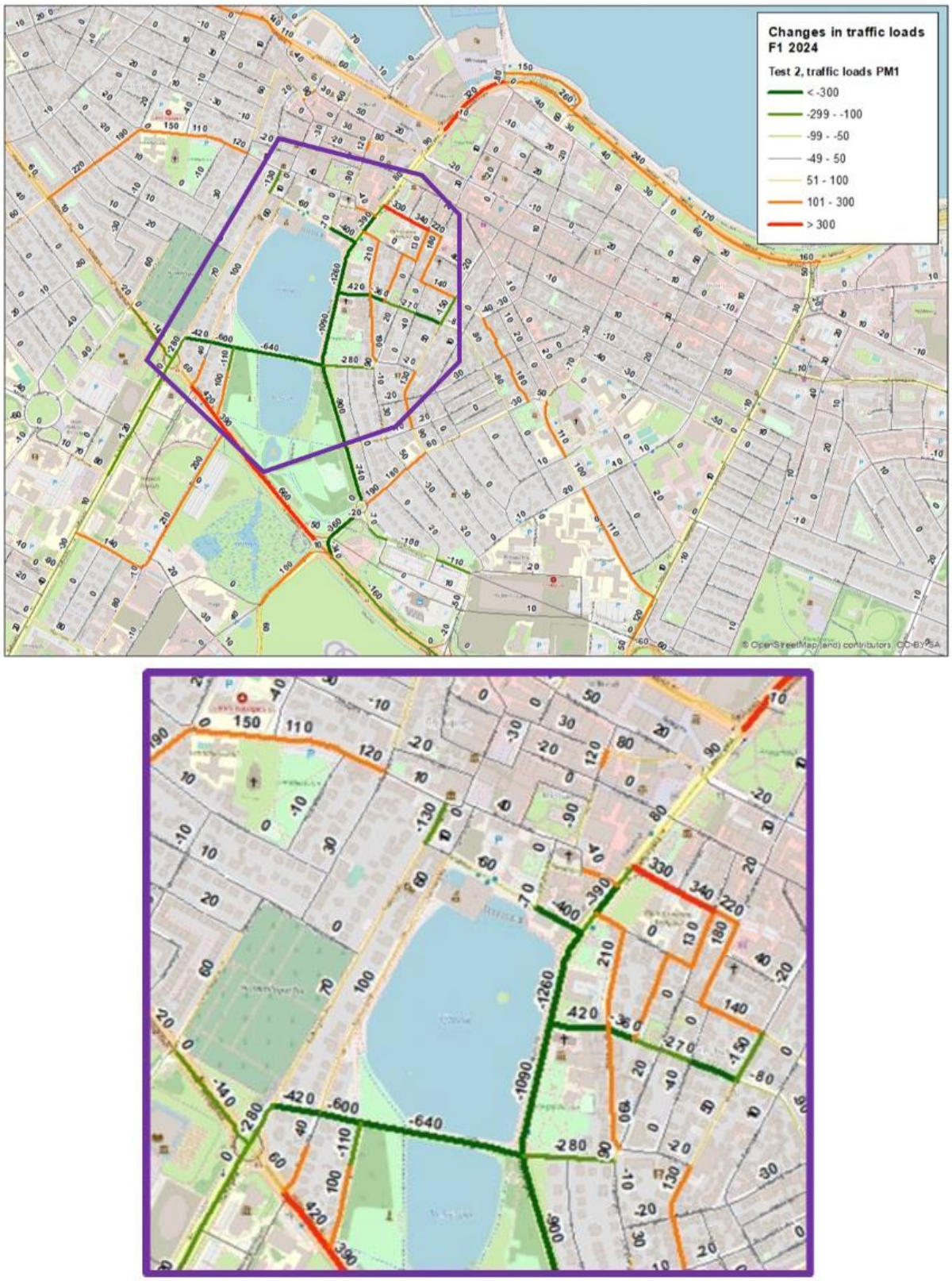

Figure 10: Results of the test for Scenario 3 from picture 6 above, evening peak hour. Changes in traffic loads in 2024 ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

The results of a multi-criteria analysis was that scenario 3 had the most advantages of the 3 alternatives that were studied, i.e. BRT on dedicated lanes in both directions on Fríkirkjuvegur and Skothúsvegur. The report says: "*With dedicated lanes on Fríkirkjuvegur, BRT and bicycles are favoured with better quality facilities. Traffic congestion problems are avoided. 140.P* [Lækjargata-Vonarstræti] *and 140.R* [Fríkirkjuvegur-Skothúsvegur] *intersections are simplified with less traffic on Fríkirkjuvegur. The weak points of this scenario are the traffic shift caused by closing this street to traffic and the greater impact on the surroundings of Tjörnin and/or Hallargarðurinn Park. This represents a major change to the traffic flow into central Reykjavik.* ***We recommend further consideration of scenario 3 with the closure of Fríkirkjuvegur to public traffic.***"

			Scenario 1: BRT in mixed traffic on the east side of Tjörnin		Scenario 2: BRT in mixed traffic to the north and with dedicated lane to the south on the east side of Tjörnin		Scenario 3: BRT on dedicated lanes on the east side of Tjörnin	
Mobility aspects	Intersection functioning	Intersection 140.P	**	Wider intersection on the southern part with the traffic lanes and the BRT approach corridor to the south (3 lanes)	**	Wider intersection on the southern part with the traffic lanes and the BRT approach corridor to the south (3 lanes)	***	Smaller intersection on the southern part with only direct BRT movements and no car traffic on Fríkirkjuvegur (2 lanes)
		Intersection 140.R	*	Addition of 60 buses per hour in each direction between Fríkirkjuvegur and Skothúsvegur	**	Simpler intersection with only BRT from the north on Fríkirkjuvegur	***	No car traffic from Fríkirkjuvegur and Skothúsvegur Less complicated to operate
	Simplicity of priority management for the BRT		*	No priority for the BRT on Fríkirkjuvegur and Skothúsvegur	**	Priority for the BRT coming from the north on Fríkirkjuvegur	***	Priority for the BRT on both direction on Fríkirkjuvegur and Skothúsvegur
	Pedestrian and bicycles		*	Car traffic on Fríkirkjuvegur reducing comfort for active modes	**	Car traffic only to the north on Fríkirkjuvegur and to the west on Skothúsvegur slightly reducing comfort for active modes	***	No car traffic on Fríkirkjuvegur and Skothúsvegur with only the BRT → better comfort for active modes
	Quality of service		*	Possible waiting in car traffic	**	Dedicated lane to the south on Fríkirkjuvegur and to the west on Skothúsvegur	***	Dedicated lanes for the BRT on Fríkirkjuvegur and on Skothúsvegur
	Traffic shift to other roads		***	Slight impact on traffic due to the addition of BRT to car traffic (to be confirmed)	**	Expected impact on traffic due to closure to traffic in one direction on Fríkirkjuvegur and Skothúsvegur (to be confirmed)	*	Traffic diverted to alternate routes including residential streets (to be confirmed)
Urban space aspects	Urban space - Fríkirkjuvegur		**	The space required for the traffic is the same for all scenarios. More cars could make the street less attractive for pedestrians and bicycles	**	The space required for the traffic is the same for all scenarios. More cars could make the street less attractive for pedestrians and bicycles	***	The space required for the traffic is the same for all scenarios. Less cars will make the street more attractive for pedestrians and bicycles.
	Project scope		***	Project scope stays the same	**	Cars will need to be redirected. Project scope could be widened to these streets	**	Cars will need to be redirected. Project scope could be widened to these streets
	Vonarstræti / Fríkirkjuvegur intersection		*	A larger intersection means less room for greenery	*	A larger intersection means less room for greenery	***	Possibly a smaller intersection meaning more room for greenery
Design Ambition	Active mobility		*	Does not challenge the status quo regarding private vehicle use and the hierarchy of traffic forms	**	Somewhat discourages the use of private vehicles into downtown Reykjavik	***	Discourages the use of private vehicles into downtown Reykjavik, in line with the hierarchy of traffic forms
	A sustainable and greener city		*	Does not enhance the green and sustainable agenda	**	Somewhat enhances the green and sustainable agenda	***	Supports a green and sustainable solution
	Synthesis							

Figure 11: A multi-criteria analysis for the aligning of the BRT on section 140 around Tjörnin ("BRT in Reykjavík and Kópavogur, Hlemmur-Miðborg (section 140) Inception report").

4 New public transport network - Borgarlínan and bus routes

In the current version of the new public transport network, there are six routes planned on Fríkirkjuvegur, five future Borgarlínan routes (A, B, C, D and E) and one regular route (H). In coherence with the conceptual design of Borgarlínan Lota 1, it has previously been assumed that the routes would drive on both sides of Tjörnin, on Skothúsvegur and Fríkirkjuvegur when going into downtown, and on Vonarstræti and Suðurgata when going away from downtown. It was also assumed that route A would turn around by driving around Tjörnin.

If it turns out during the Borgarlínan design process that it will be possible to fit the Borgarlínan corridor in both directions on Fríkirkjuvegur then the plan for the new public transport network would be changed so that all routes would drive on Fríkirkjuvegur in both directions. That would simplify the bus network since the stations would be in the same location for both directions. Instead of turning around by driving around Tjörnin, route A would continue to Lækjartorg and turn around north of Lækjartorg. This would be beneficial for route A since it would serve the downtown area better.

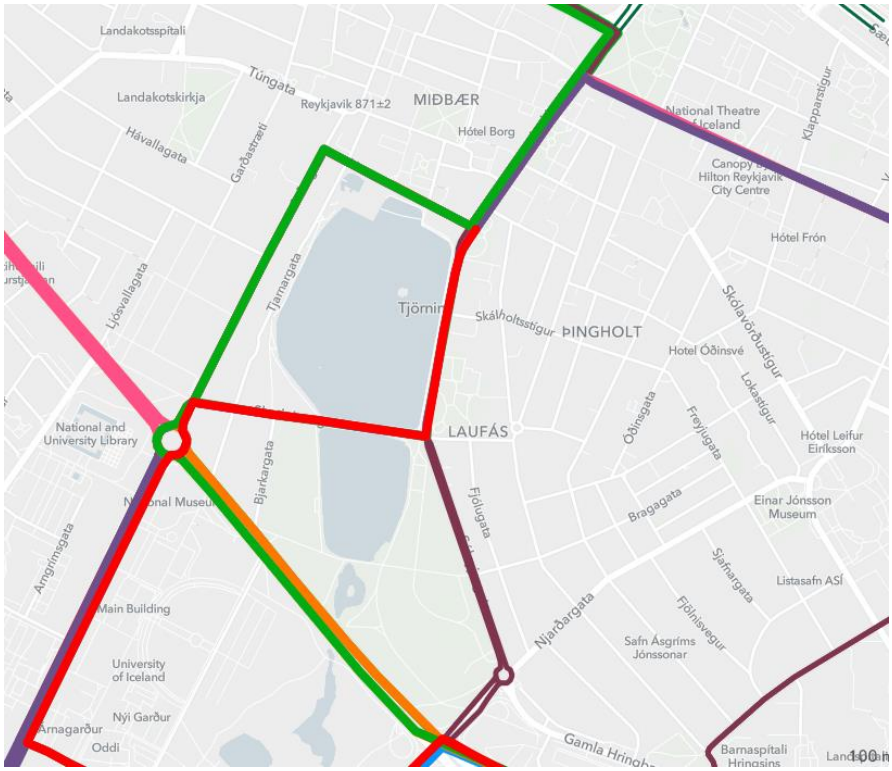

Figure 12: The new Borgarlínan and bus route system being planned (screenshot of Remix, New public transport network 2034, https://eu.remix.com/map/9b131c8f?latlng=64.14428,-21.947,14.343)

5 Traffic analysis

After the conclusion in the Section 140 Inception report the Borgarlínan Lota 1 project management office analysed further a number of different alternatives regarding dedicated lanes and car traffic closures in cooperation with representatives from the transport and planning divisions at Reykjavík city. The results of that analysis are detailed in this chapter.

5.1 Traffic situation according to most recent counts

On Borgarvefsjá the following car traffic counts are displayed for the following streets (ADT)[1]:

- Fríkirkjuvegur (2010 count): 13.800
- Skothúsvegur (2012): 4.600
- Hringbraut (2012): 32.400
- Suðurgata (2010): 2.600
- Lækjargata (2012): 11.200
- Tjarnargata (2011): 1.200

5.2 Traffic model analysis

The following 16 different alternatives regarding dedicated lanes and car traffic closures were analysed in the Traffic model for the capital area (Samgöngulíkan höfuðborgarsvæðisins, SLH), in the F1 scenario, i.e. for the year 2024.

[1] https://borgarvefsja.reykjavik.is/borgarvefsja/

1. Fríkirkjuvegur closed
2. Fríkirkjuvegur southbound closed & Vonarstræti left turns opened (these turns are closed in the conceptual design).
3. Fríkirkjuvegur southbound closed
4. Fríkirkjuvegur northbound closed
5. Fríkirkjuvegur southbound & Hringbraut left turn closed.
6. Fríkirkjuvegur southbound closed & Vonarstræti left turns open.
7. Lækjargata closed
8. Lækjargata closed & Vonarstræti left turns open.
9. Lækjargata closed & Fríkirkjuvegur northbound closed
10. Lækjargata & Fríkirkjuvegur closed
11. Fríkirkjuvegur & Lækjargata northbound closed
12. Fríkirkjuvegur & Lækjargata southbound closed
13. Fríkirkjuvegur & Skothúsvegur westbound closed
14. Fríkirkjuvegur & Skothúsvegur closed
15. Fríkirkjuvegur & Skothúsvegur closed & Vonarstræti left turn opened
16. Fríkirkjuvegur closed & Vonarstræti left turn opened

The traffic maps for all of the alternatives are shown in appendix A.

A rule of thumb is that if car traffic is 3000 ADT or below, then BRT can be in mixed traffic, but if car traffic is higher it is recommended to have BRT in dedicated lanes not to risk being delayed. Traffic of 3000 ADT in both directions or 1500 ADT per direction equals 2.5 cars each minute. As green time in traffic signal cannot be less than 6 seconds – which allows handling 2.4 to 3.3 cars per lane per cycle - this level of traffic is unlikely to cause any significant disturbance to bus traffic.

As can be seen in the table below the only alternatives that show satisfactory results when it comes to car traffic volumes on streets having public transport in mixed traffic are alternatives 13, 14 and 15. Other alternatives have to high volumes either on Fríkirkjuvegur or Skothúsvegur.

The scenario that is retained for further discussion in the following chapter, an accessibility assessment, is alternatives 15, i.e. to close Fríkirkjuvegur and Skothúsvegur in both directions. Slightly less traffic is forecasted on Suðurgata in this alternative compared to the others which is favourable.

The alternatives to close Lækjargata were analysed by request from Reykjavík city, and they are in part connected to considerations regarding quality of urban life in the downtown area and increased emphasis on a pedestrian friendly downtown area. When, in the table below, an option including closing Lækjargata is not deemed to be studied further, this does not mean that it is considered negative to study this option further, merely that it does not give Borgarlínan added priority over other solutions. Therefore, a further study of the closure of Lækjargata may have a positive impact regarding some other factors than regarding traffic priority for Borgarlínan.

	Alternative	Result	Benefits	Drawbacks
0	Conseptual design	Not study further	Full priority for PT on Fríkirkjuvegur	One direction BRT lanes around tjörnin
1	Fríkirkjuvegur closed	Not study further	Full priority for PT on	The remaining traffic on the Skothúsvegur will be high, ca. 7.400 cars per day.

			Fríkirkjuvegur	Re-routing of traffic to adjacent streets will occur. Effects on accessibility can be managed by allowing the exceptions, see analysis in ch. 6.
2	Fríkirkjuvegur southbound closed & Vonarstræti left turns opened (these turns are closed in the conceptual design).	Not study further		The remaining traffic on the northbound lane on Fríkirkjuvegur will be very high, ca. 9.100 cars per day.
3	Fríkirkjuvegur southbound closed	Not study further	Relatively little global effect on car traffic on the adjacent street network.	The remaining traffic on the northbound lane on Fríkirkjuvegur will be high, ca. 4.700 cars per day.
4	Fríkirkjuvegur northbound closed	Not study further	Relatively little global effect on car traffic on the adjacent street network.	The remaining traffic on the southbound lane on Fríkirkjuvegur will be very high, ca. 7.200 cars per day. Skothúsvegur westbound lane will have increased traffic and should be studyed as BRT only.
5	Fríkirkjuvegur southbound & Hringbraut left turn closed.	Not study further		The remaining traffic on the northbound lane on Fríkirkjuvegur will be high, ca. 4.700 cars per day.
6	Fríkirkjuvegur southbound closed & Vonarstræti left turns open.	Not study further		The remaining traffic on the northbound lane on Fríkirkjuvegur will be very high, ca. 9.000 cars per day.
7	Lækjargata closed	Not study further	Positive effect on Fríkirkjuvegur northbound lane which will have very little traffic.	The remaining traffic on the southbound lane on Fríkirkjuvegur will be high, ca. 5.500 cars per day. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.
8	Lækjargata closed & Vonarstræti left turns open.	Not study further	Relatively little global effect on car traffic on the adjacent street network.	Traffic on Fríkirkjuvegur will be about 5.800 – 6.900 on each lane which means it is not recommended to have BRT in mixed traffic there, so this alternative does not give BRT the needed priority. There are already planned dedicated lanes on Lækjargata and therefore the closure of Lækjargata is not needed for the priority of PT. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.

9	Lækjargata closed & Fríkirkjuvegur northbound closed	Not study further		Traffic on Fríkirkjuvegur southbound lane will be about 5.400 which means it is not recommended to have BRT in mixed traffic there, so this alternative does not give BRT the needed priority. There are already planned dedicated lanes on Lækjargata and therefore the closure of Lækjargata is not needed for the priority of PT. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.
10	Lækjargata & Fríkirkjuvegur closed	Study further	Full priority for PT on Fríkirkjuvegur	Full priority for public transport is gained with alternative 1, there are already planned dedicated lanes on Lækjargata and therefore the closure of Lækjargata is not needed for the priority of PT. This alternative has the most significant global effect on car traffic on the adjacent street network as traffic will increase. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.
11	Fríkirkjuvegur & Lækjargata northbound closed	Study further	Full priority for PT on Fríkirkjuvegur	Full priority for public transport is gained with alternative 1, there are already planned dedicated lanes on Lækjargata and therefore the closure of Lækjargata is not needed for the priority of PT. This alternative has the most significant global effect on car traffic on the adjacent street network as traffic will increase. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.
12	Fríkirkjuvegur & Lækjargata southbound closed	Study further	Full priority for PT on Fríkirkjuvegur	Full priority for public transport is gained with alternative 1, there are already planned dedicated lanes on Lækjargata and therefore the closure of Lækjargata is not needed for the priority of PT. This alternative has the most significant global effect on car traffic on the adjacent street network as traffic will increase. Skothúsvegur westbound lane will have increased traffic and should be studied as BRT only.
13	Fríkirkjuvegur & Skothúsvegur westbound closed	Not study further	Full priority for PT on Fríkirkjuvegur	No drawbacks for public transport. Re-routing of traffic to adjacent streets will occur.
14	Fríkirkjuvegur & Skothúsvegur closed	Not study further	Full priority for PT on Fríkirkjuvegur and Skothúsvegur	No drawbacks for public transport. Re-routing of traffic to adjacent streets will occur.
15	Fríkirkjuvegur & Skothúsvegur closed	**Study further (recomende**	Full priority for PT on Fríkirkjuvegu	No drawbacks for public transport. Less re-routing of traffic to adjacent streets compared to scenario 14.

	& Vonarstræti left turn opened	**d by Borgarlínan office)**	r and Skothúsvegur	
16	Fríkirkjuvegur closed & Vonarstræti left turn opened	Not study further	Full priority for PT on Fríkirkjuvegu r	Full priority for PT on Fríkirkjuvegur. Measures needed to ensure priority of PT on SKothúsvegur. Re-routing of traffic to adjacent streets will occur. Effects on accessibility can be managed by allowing the exceptions, see analysis in ch. 6.

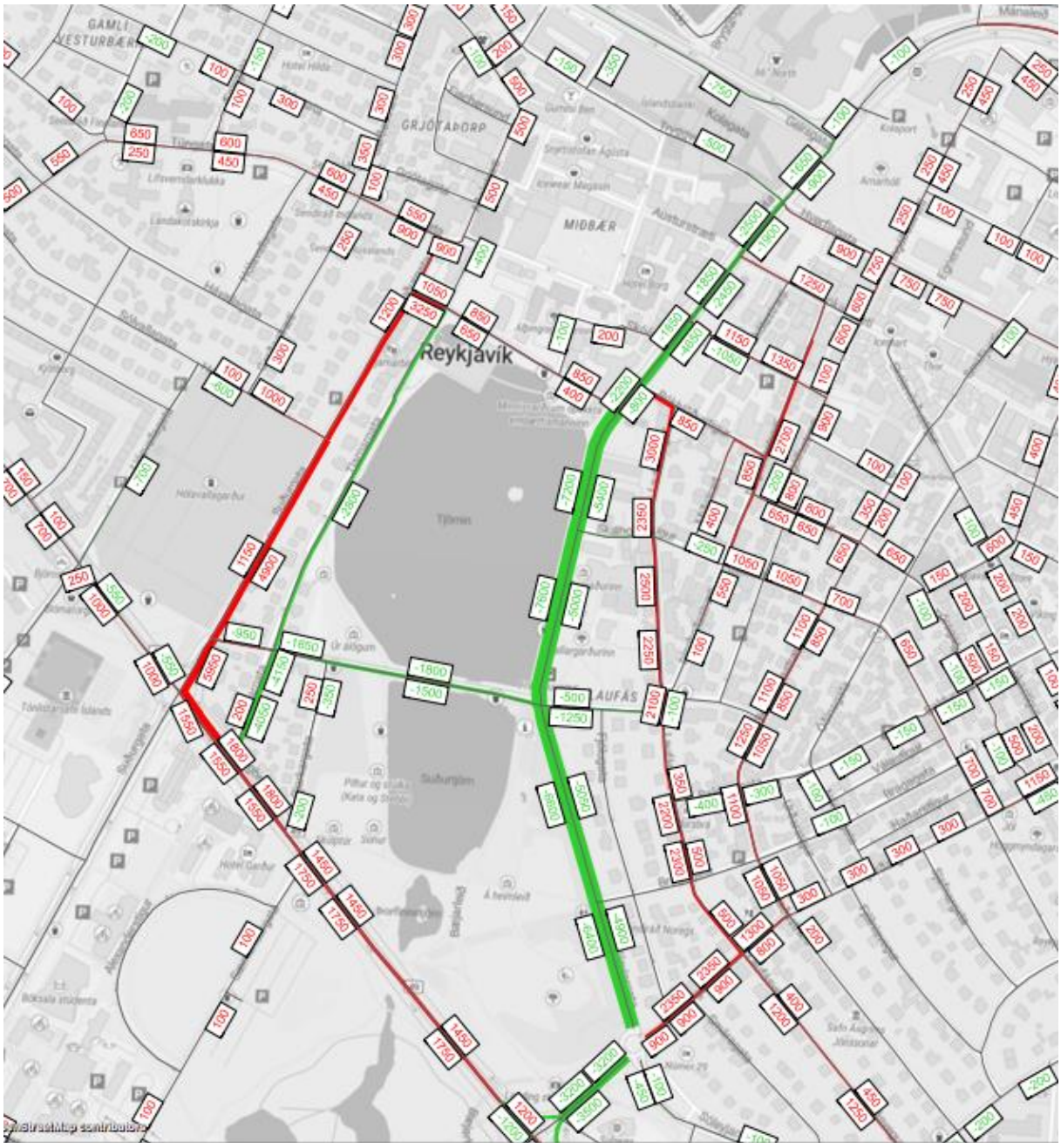

Figure 15: Result from the traffic model for year 2024 – a difference map showing the difference between the 0-incident scenario and the alternative 15 where Fríkirkjuvegur and Skothúsvegur is closed.

6 Accessibility assessment

Closing Fríkirkjuvegur will affect access to the school at Fríkirkjuvegur 1 with around 22 parking spaces and two residential parkings at Laufásvegur 6A. In principle, access to these could be maintained from Fríkirkjuvegur north only.

At Skálholtsstígur the section west of Laufásvegur would need to be changed to a two-way street with access from Laufásvegur only. 14 parking spaces located at Fríkirkjuvegur 3 will be affected by this change. It is likely that 8 kerbside parking at Skálholtsstígur will have to be removed. Necessary traffic for the Fríkirkju church (e.g. hearses) should be allowed on Fríkirkjuvegur.

The effects on accessibility of closing Fríkirkjuvegur to car traffic can therefore be managed by allowing the exceptions mentioned above, i.e. by allowing access from north to the parking behind the school and by allowing necessary traffic to the church (e.g. hearses).

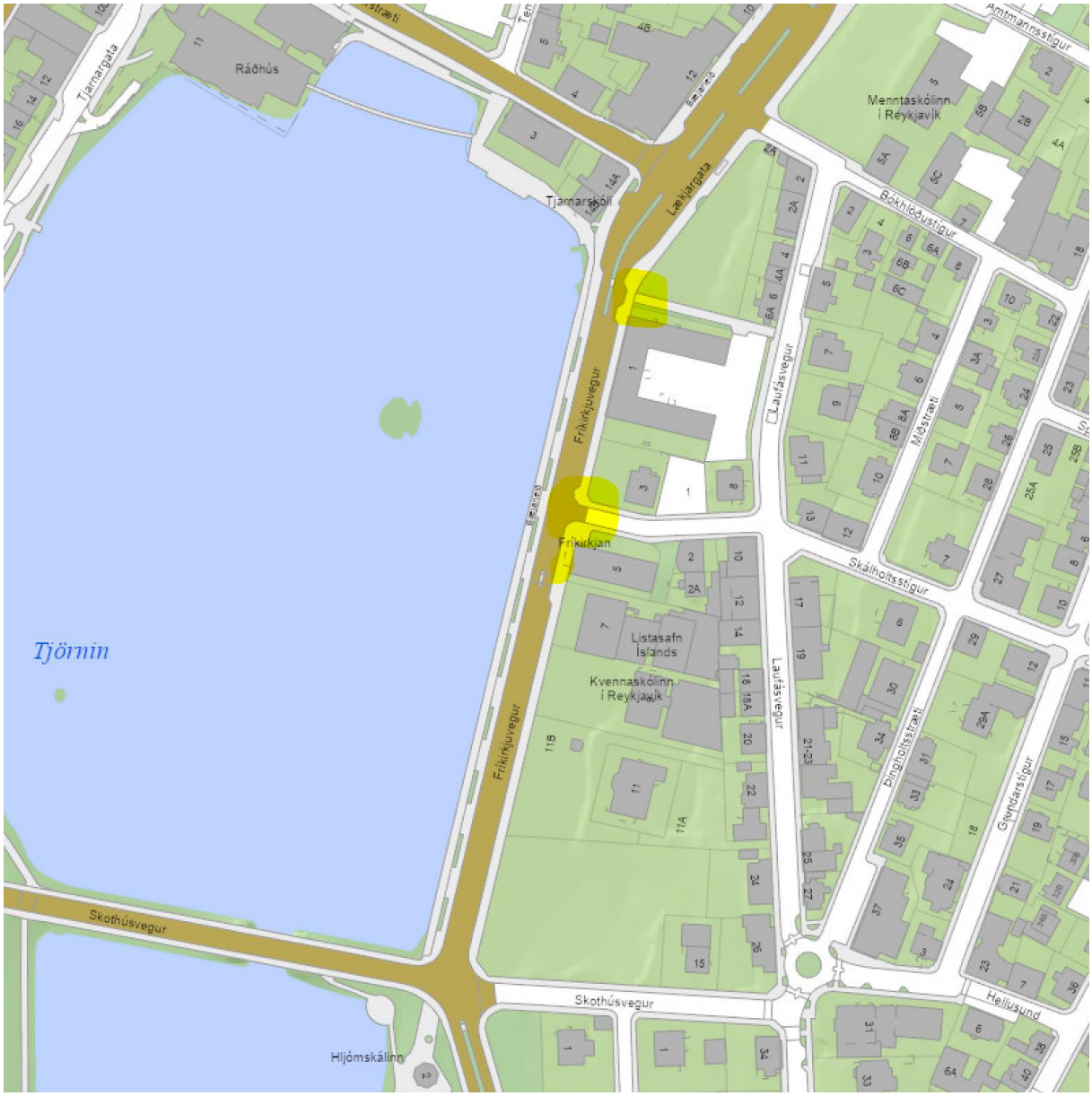

Figure 16: Map of Fríkirkjuvegur. Areas where access may be affected by a closure of Fríkirkjuvegur are marked with yellow.

Figure 17: Aerial photo of the car parking behind the school building by Fríkirkjuvegur and the driveway to it.

Figure 18: Aerial photo of Skálholtsstígur connection to Fríkirkjuvegur and Fríkirkjan church whose entrance is towards Fríkirkjuvegur.

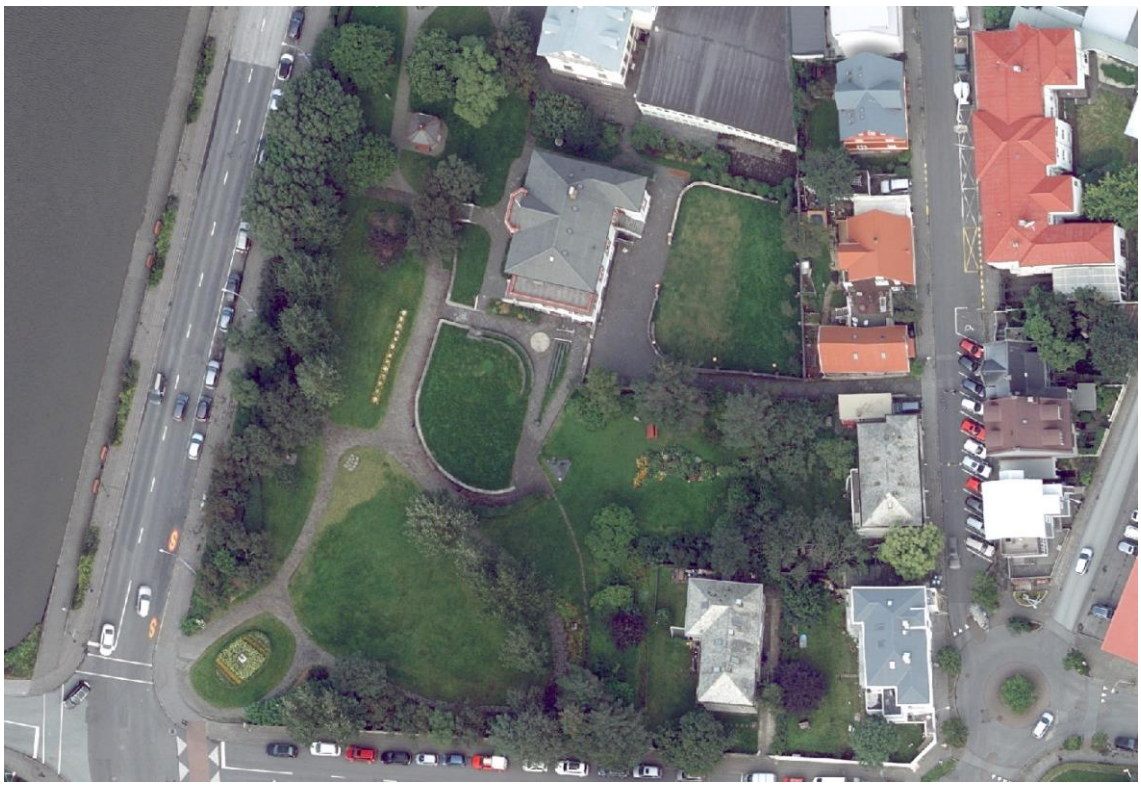

Figure 19: Aerial photo of southern end of Fríkirkjuvegur and the houses close by, showing that acces to them is from Laufásvegur and Skothúsvegur.

Appendix A Traffic model maps