

Some examples and challenges from Iceland

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Borgarnes, Iceland

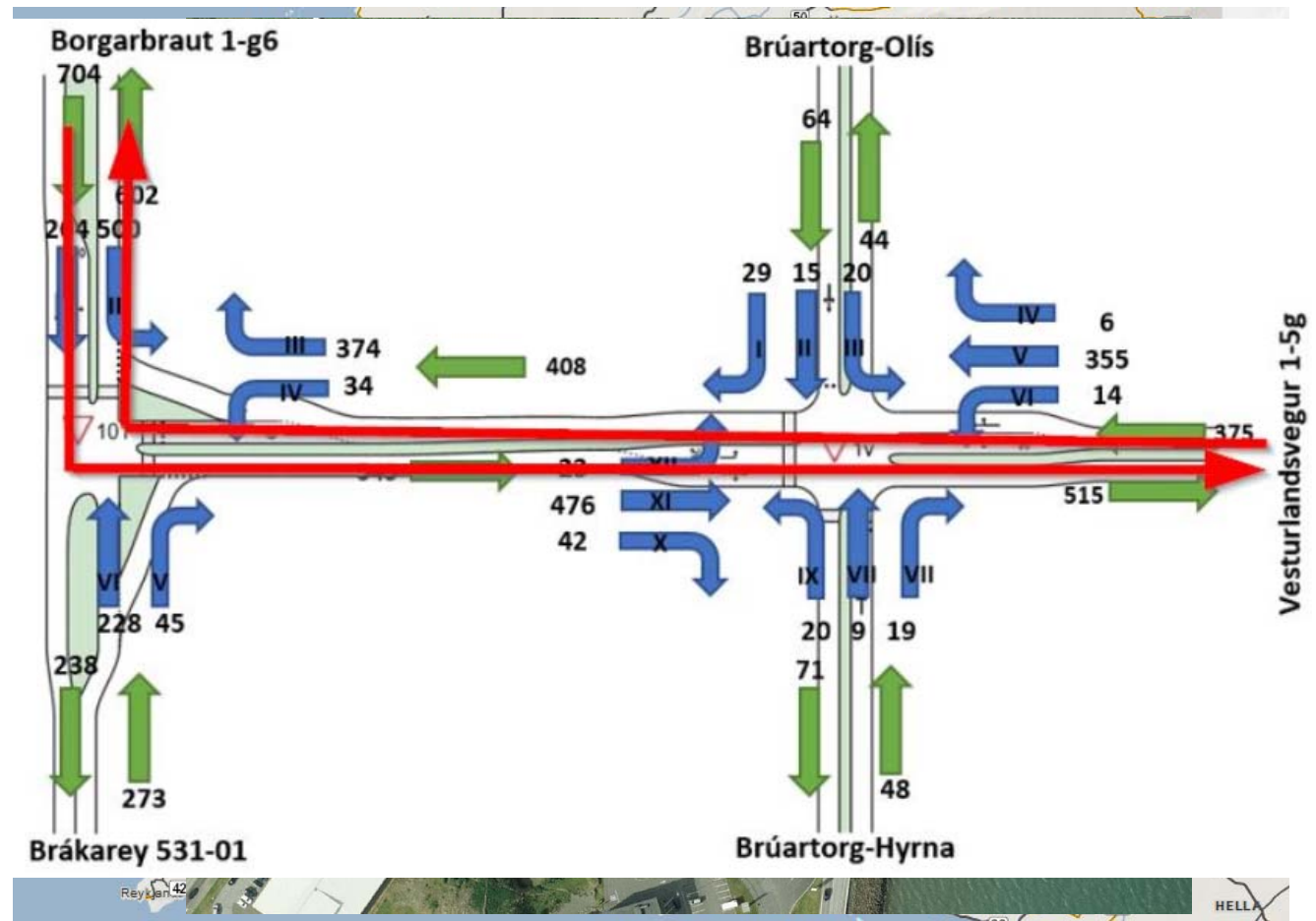
Borgarnes is a small town on highway 1. Main rout from Reykjavik to west and north sides of Iceland.

Today there are two intersection with yield.

High peak traffic on Sunday afternoons from north towards Reykjavík.

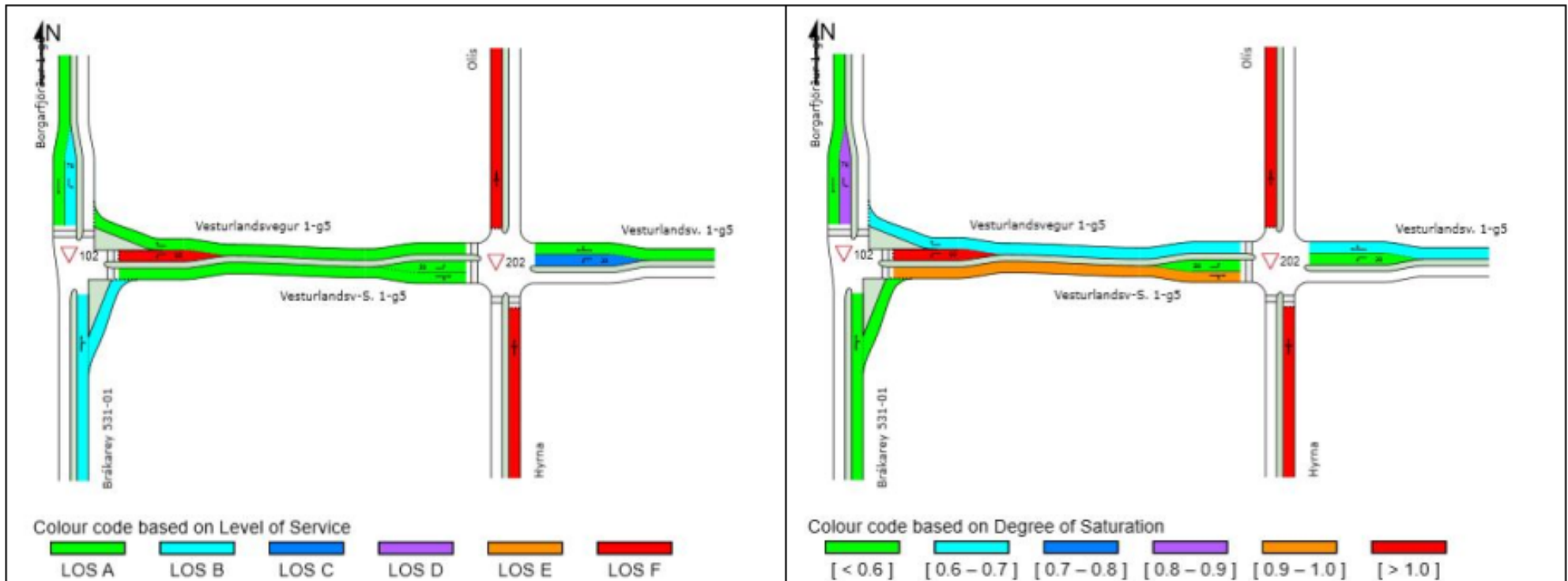
- Left turn from north has long queues
- X-intersection wide, difficult left turns from side streets.

Project was to find the best solution for the intersection during high peak traffic 2037.



Borgarnes, Iceland

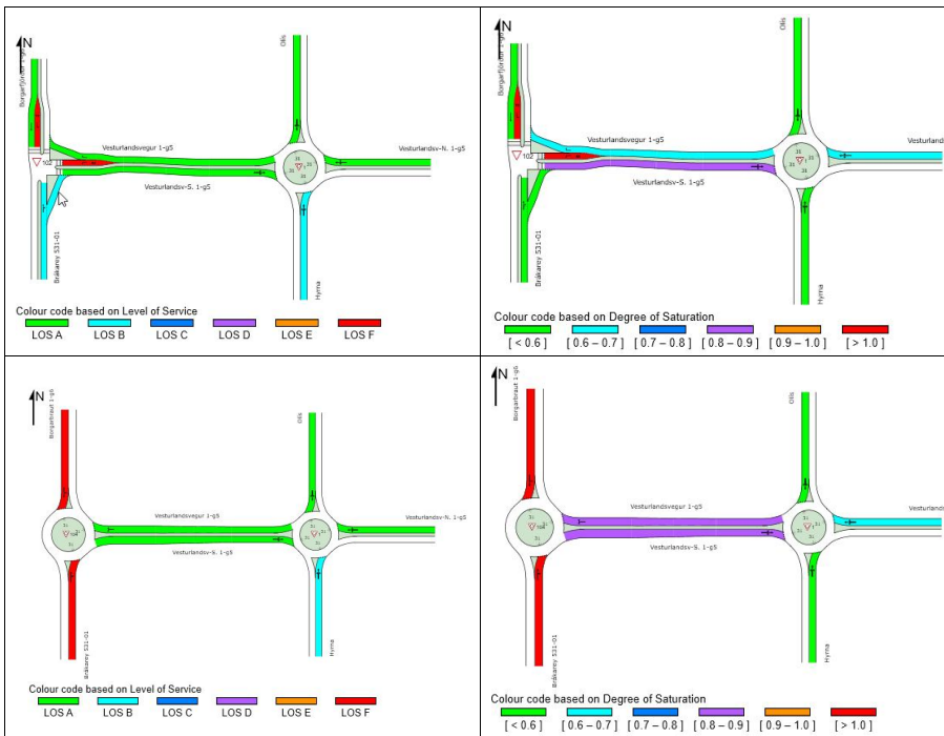
Yield in 2037. LOS and v/c



Mynd 3-12 Þjónustustig og mettunarhlutfall eftir 20 ár, 2037. 30. stærsta klukkustund.

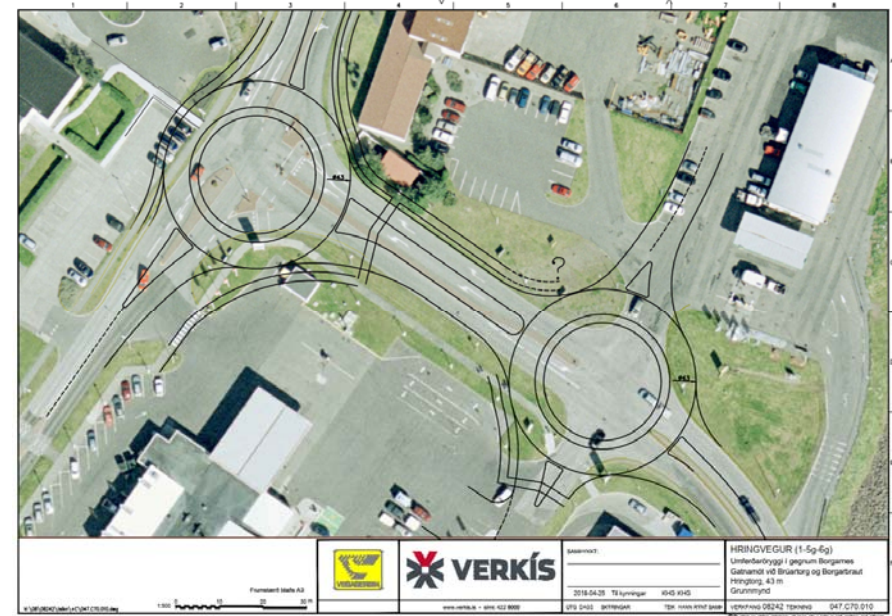
Borgarnes, Iceland

Roundabout in 2037. LOS and v/c



Mynd 3-18 Þjónustustig og mettunarhlutfall 30. stærstu klukkustund 2037.

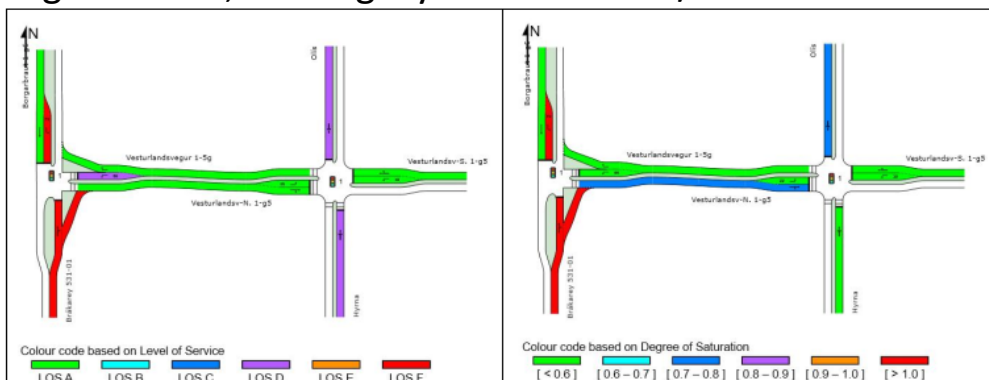
There is very little space for roundabouts and being on highway 1 it has to be at least $D=43$ m. Left turn too big for one lane roundabout and no space for two lanes so we did not analyze it.



Gap Acceptance - Settings											
Borgarbr-hringt-2017/2037-30			Gap Acceptance Capacity: SIDRA Standard (Akçelik M3D)								
Borgarbr-hringt-2037-30			Gap Acceptance Capacity: --								
SITE			Critical Gap sec	Follow-up Headway sec		Minimum Departures veh/min		Exiting Flow Effect %		% Opp. By Nearest Lane %	
Vehicle Movement Data - Path Data											
SITE		Turn	Approach Cruise Speed km/h	Exit Cruise Speed km/h	Negotiation Speed km/h		Negotiation Distance m	Downstream Distance m		Negotiation Radius m	
No Difference											
Vehicle Movement Data - Calibration											
SITE		Turn	Queue Space m	Vehicle Length m	Vehicle Occupancy pers/veh	[Factor	Turn Veh Effect	Radius] m	Gap Accep Factor	Opng. Veh Factor	Prac. Deg. Of Satn.
Light Vehicles (LV)											
From: South											
Borgarbr-hringt-2017/2037-30		T1	7	4,5	1,2	1	-	-	1	1	0,85
Borgarbr-hringt-2037-30		T1	7,6	5,1	1,2	1	-	-	1	1	0,85
Borgarbr-hringt-2017/2037-30		R2	7	4,5	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2037-30		R2	7,6	5,1	1,2	1,18	-	-	1	1	0,85
From: East											
Borgarbr-hringt-2017/2037-30		L2	7	4,5	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2037-30		L2	7,6	5,1	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2017/2037-30		R2	7	4,5	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2037-30		R2	7,6	5,1	1,2	1,18	-	-	1	1	0,85
From: North											
Borgarbr-hringt-2017/2037-30		L2	7	4,5	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2037-30		L2	7,6	5,1	1,2	1,05	-	-	1	1	0,85
Borgarbr-hringt-2017/2037-30		T1	7	4,5	1,2	1	-	-	1	1	0,85
Borgarbr-hringt-2037-30		T1	7,6	5,1	1,2	1	-	-	1	1	0,85
Heavy Vehicles (HV)											
From: South											
Borgarbr-hringt-2017/2037-30		T1	13	10	1,2	1	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		T1	14	11	1,2	1	-	-	2	2	0,85
Borgarbr-hringt-2017/2037-30		R2	13	10	1,2	1,09	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		R2	14	11	1,2	1,18	-	-	2	2	0,85
From: East											
Borgarbr-hringt-2017/2037-30		L2	13	10	1,2	1,09	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		L2	14	11	1,2	1,05	-	-	2	2	0,85
Borgarbr-hringt-2017/2037-30		R2	13	10	1,2	1,09	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		R2	14	11	1,2	1,18	-	-	2	2	0,85
From: North											
Borgarbr-hringt-2017/2037-30		L2	13	10	1,2	1,09	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		L2	14	11	1,2	1,05	-	-	2	2	0,85
Borgarbr-hringt-2017/2037-30		T1	13	10	1,2	1	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		T1	14	11	1,2	1	-	-	2	2	0,85
Buses (B)											
From: East											
Borgarbr-hringt-2017/2037-30		L2	13	10	30	1,09	-	-	1,5	1,5	0,85
Borgarbr-hringt-2037-30		L2	14	11	30	1,05	-	-	2	2	0,85
Large Trucks (TR)											
From: East											
Borgarbr-hringt-2017/2037-30		L2	25	22	1,2	1,09	-	-	2,5	2,5	0,85
Borgarbr-hringt-2037-30		L2	25	22	1,2	1,05	-	-	3	3	0,85

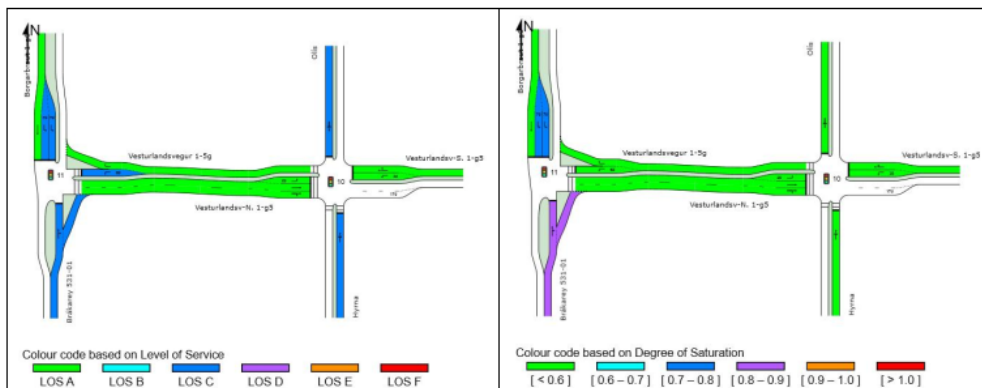
Borgarnes, Iceland

Signals 2037, existing layout. LOS and v/c

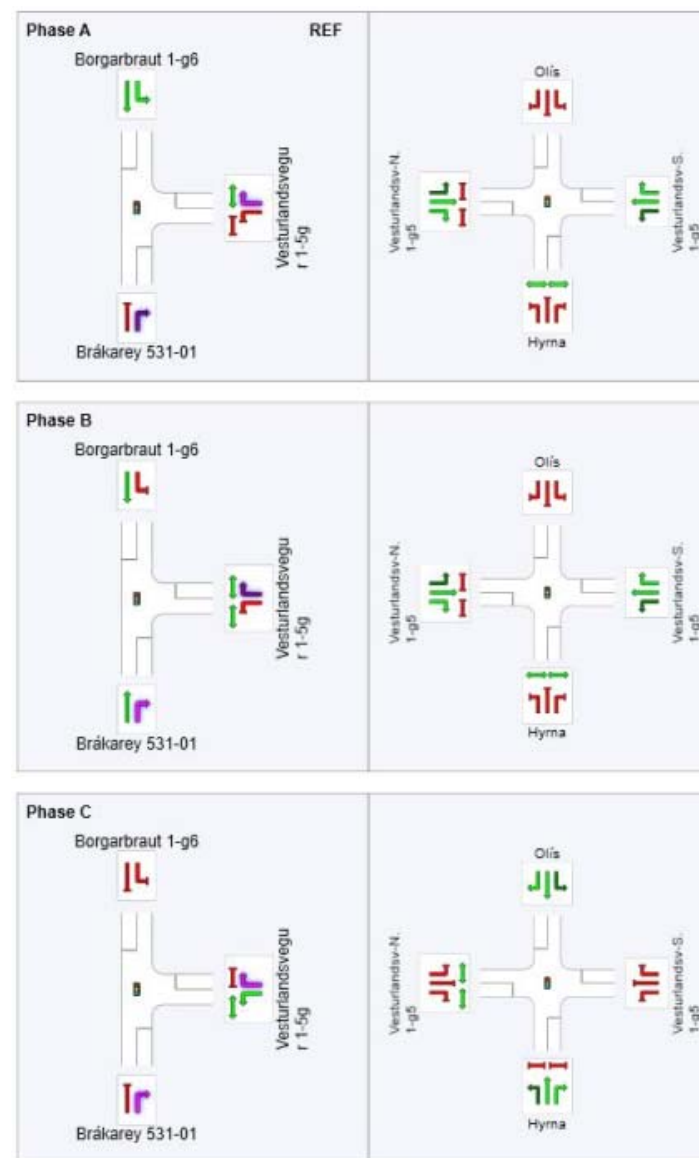


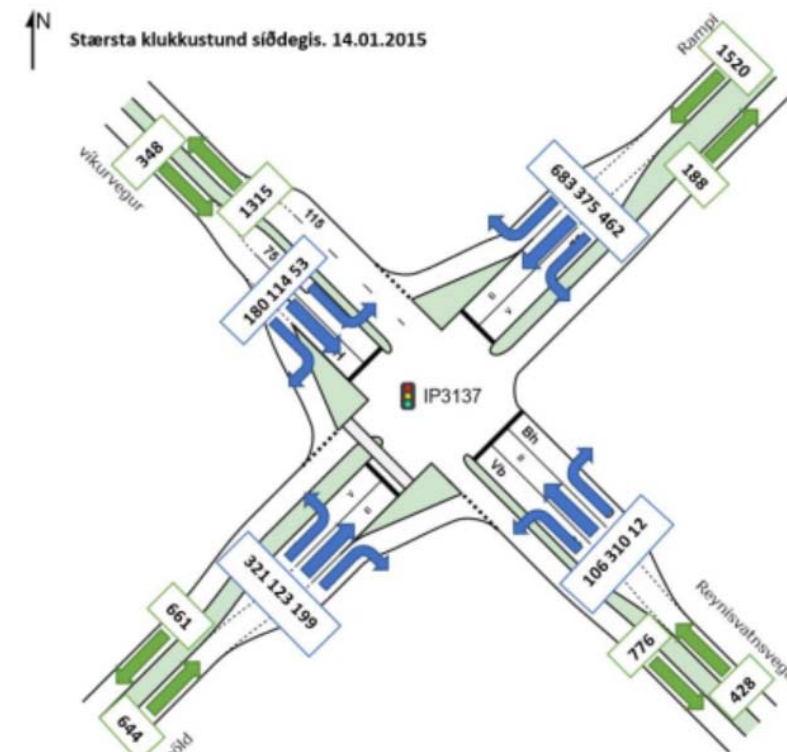
Mynd 3-32 Þjónustustig og mettnarhlutfall 2037, 30. stærsta klukkustundin. Lotutími 90 s.

Signals 2037, two extra lanes. LOS and v/c

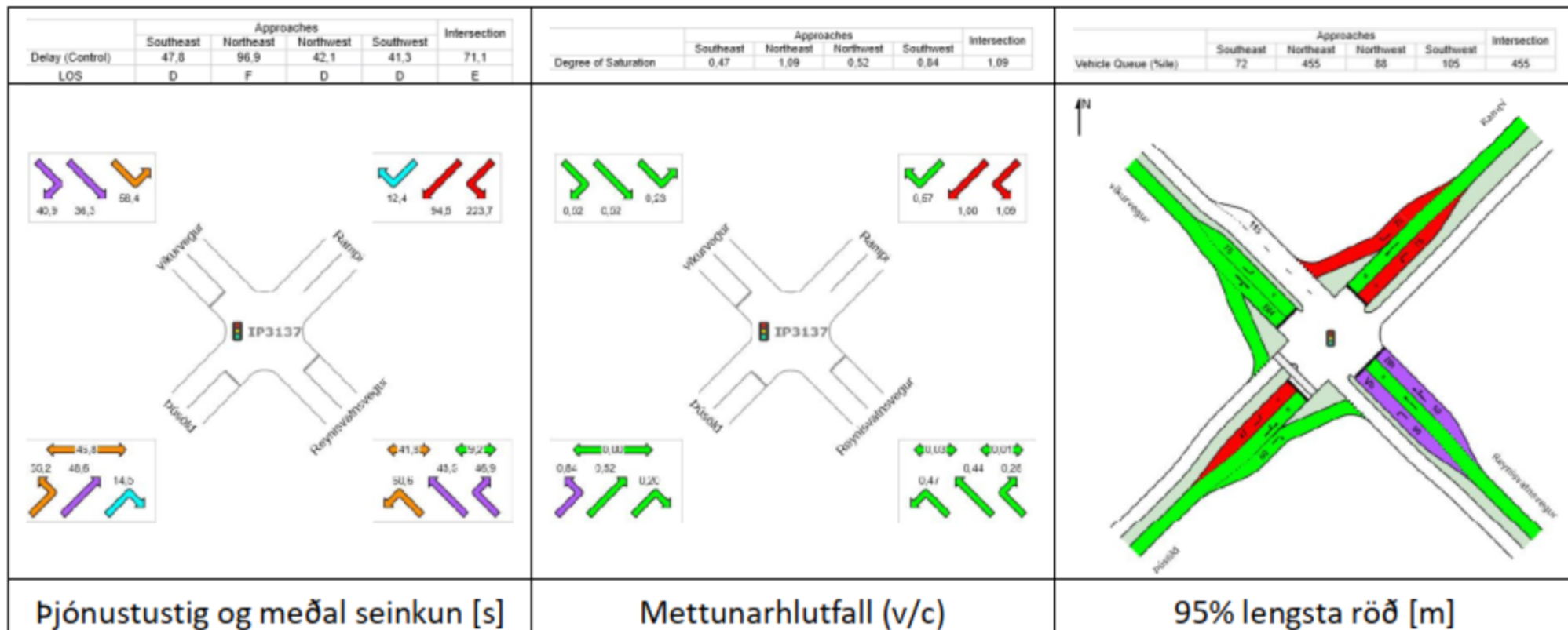


Mynd 3-35 Þjónustustig og mettnarhlutfall 2037. 30. stærsta klukkustund, tvær akreinar til suðurs. Lotutími 40s.



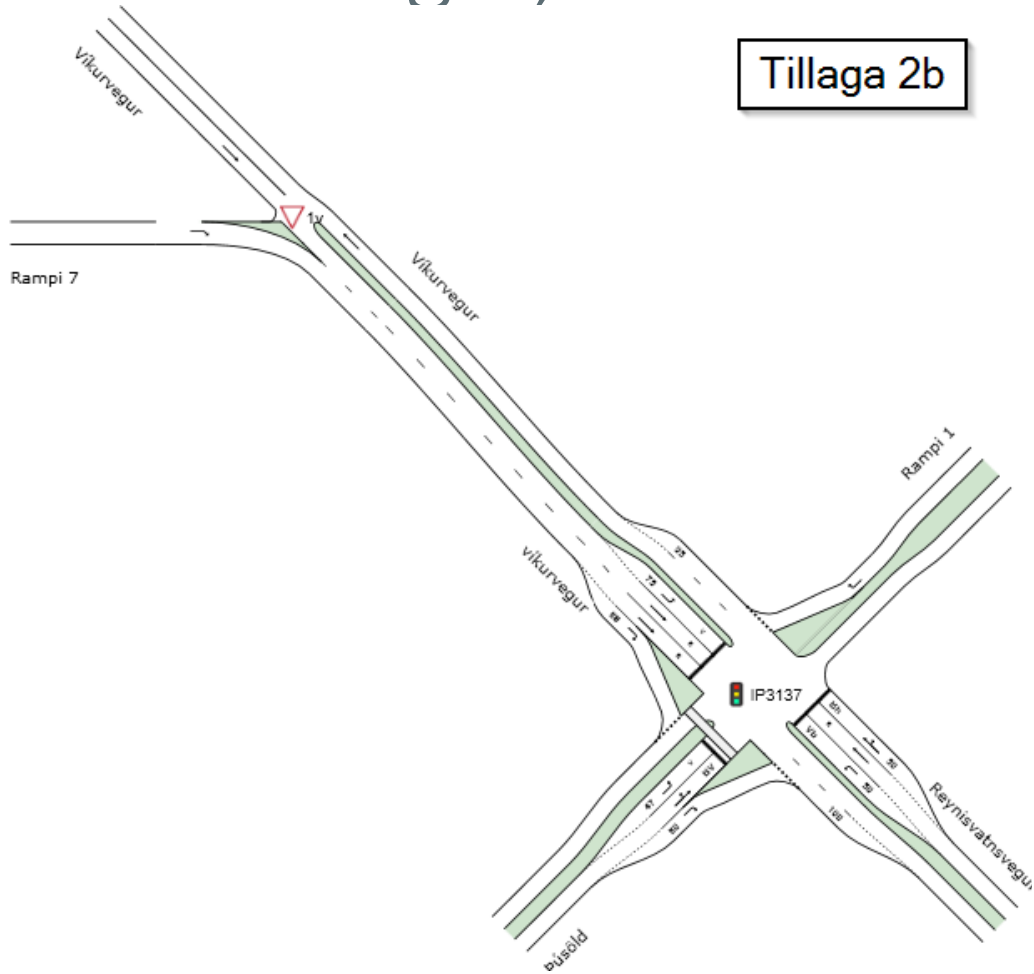


Víkurvegur, Iceland



Víkurvegur, Iceland

Tillaga 2b

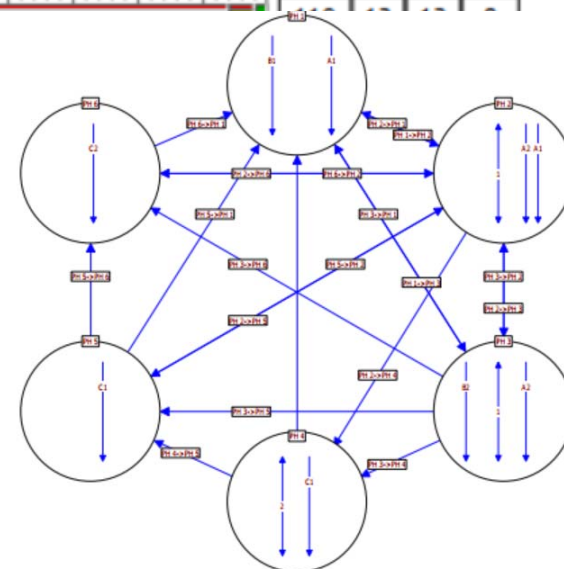
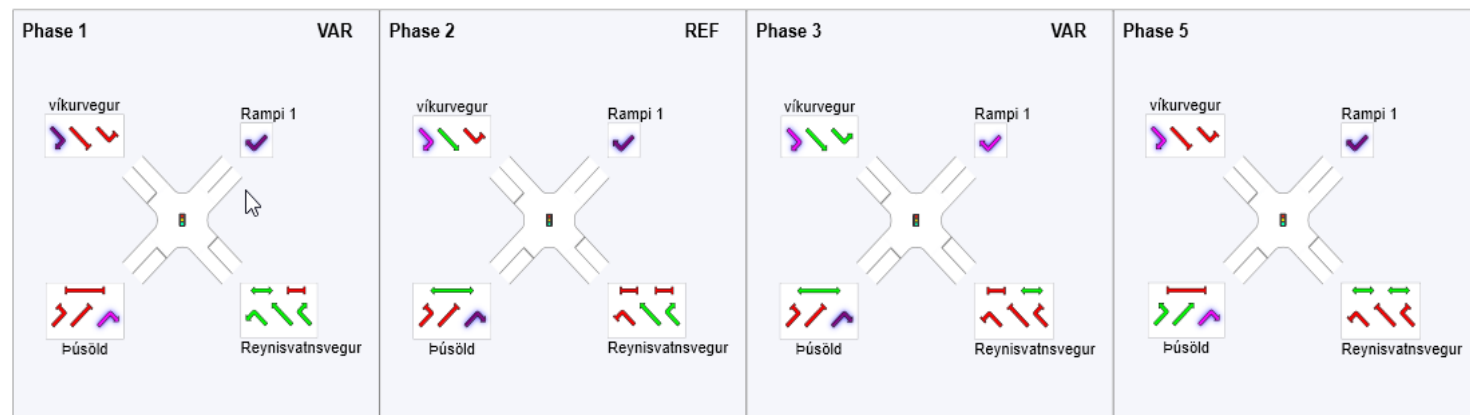
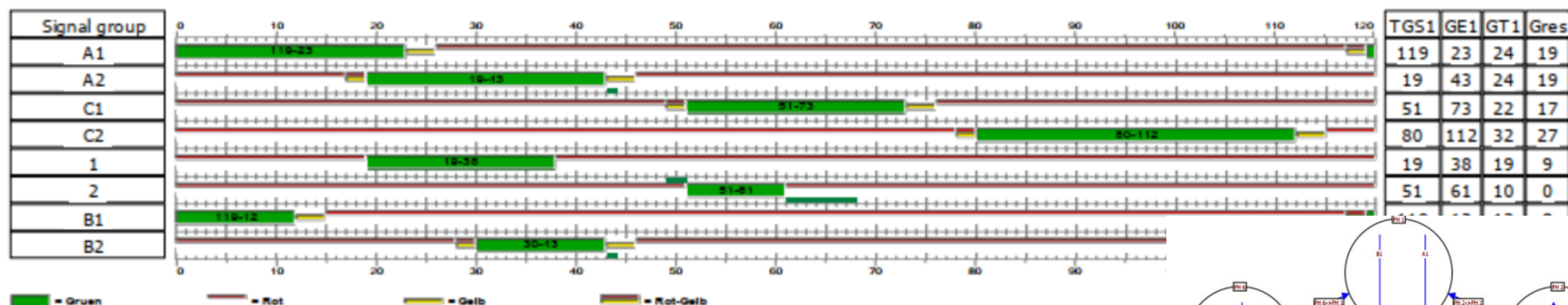


Tillaga 2e



Víkurvegur, Iceland

Ser. no.	O no.	Short name	Name	Description	Cycle time	CompartmentNo.	Type	Offset	Volume table	ITmatrix	OSmatrix	OEmatrix	TDD	S-On	TA	Start second
8	8	SP8	SP8		120	8	SG	0		ZM1			0	Einschaltp	Ausschaltp	0



Trial and error

Beginners problems:

Started using HCM – later switched to Standard. Had to redo a lot of work.

Peak flow period was not set according to the calculations we had (set to 15 min instead of 60 min)

Analysis option – took some time to figure it out, uniform vs. compound, etc. Still not sure how to use sensitivity analysis option.

How to read queue distances together?

Signal offsets

Separate pedestrians signals

Existing programs? How to replicate?



Thank you



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