

Öryggisúttektir EuroRAP á Íslandi í ViDA heimsgagnagrunninn.

Ólafur Guðmundsson

Tæknistjóri EuroRAP á Íslandi



Umfjöllunarefnið:

- Upphaf EuroRAP.
- Þróunin undanfarin ár.
- Fyrstu niðurstöður
- Ný útgáfa, skráning og tækni.
- Stöðluð framsetning á heimsvísu með ViDA.
- 4.000 km. af íslenska vegakerfinu að koma.
- Opið á fyrir alla á “Skýinu”
- Hvernig nýtum við þetta til framtíðar.



- Stofnað og þróað 2000.
- Umferðaröryggiskort Evrópu. Samvinna við EB.
- TERN. Trans European Road Network.
- Samvinna ríkisstjórna, veghaldara og bifreiðaeigendafélaga.
- Mikill vöxtur núna í nýju EB ríkjunum.

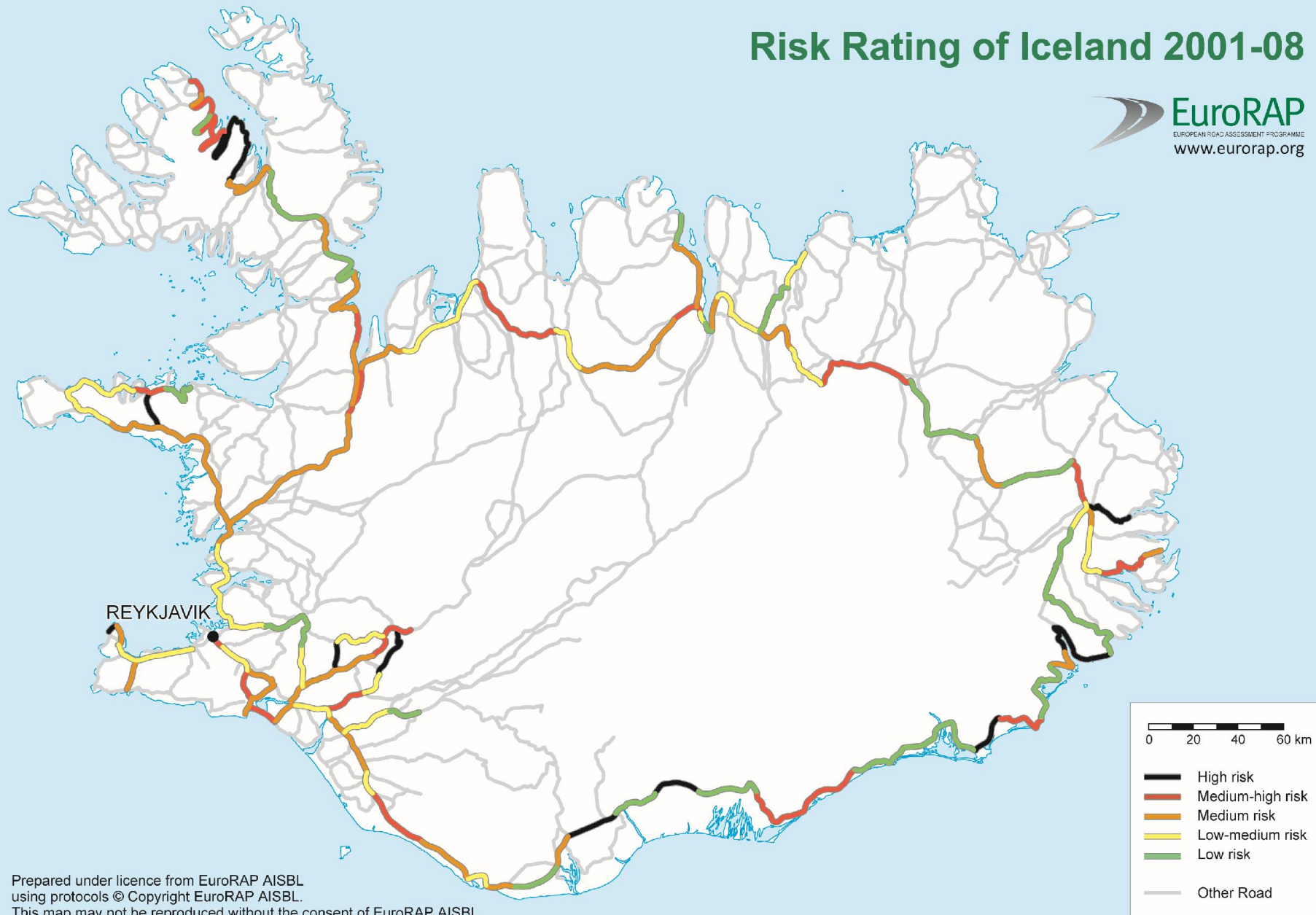




Tvær megin aðferðir.

- Öryggisskoðun vega - SPS (RPS) – Safety protection score.
 - Mat á öryggi vega framkvæmt úr bíl og tölvuvinnslu.
- Áhættukort vega – RRM - Risk rate mapping.
 - Slysakort sem byggja á KSI yfir 3 til 5 ára tímabil.
 - Reiknað sem áhætta á hverja milljón ekinna kílómetra.
- Árangursmat – Performance tracking.
 - Áhættukortin borin saman milli 3 – 5 ára tímabila.
 - Árangur mældur í færri slysum og minni áhættu.

Risk Rating of Iceland 2001-08



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Þróun og útbreiðsla RAP



Öryggisúttekt á 50% helstu vega heims til ársins 2020.

Þróunarahjálp í samvinnu við Alþjóðabankann.



WORLD BANK GLOBAL
ROAD SAFETY FACILITY



Á 10 árum er RAP búið að vaxa....



Hópurinn á Grand Hótel – Apríl 2015



Öruggt umferðarkerfi.



5 stjörnu vegur.



5 stjörnu
ökutæki.

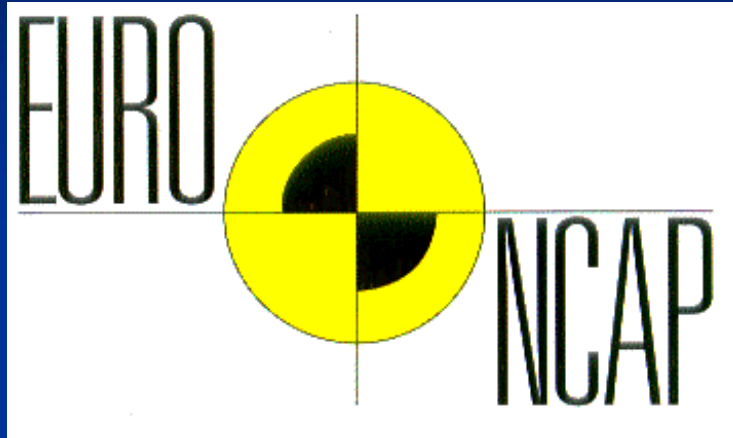


Sameiginleg ábyrgð!

5 stjörnu
hegðun.



European New Car Assessment program



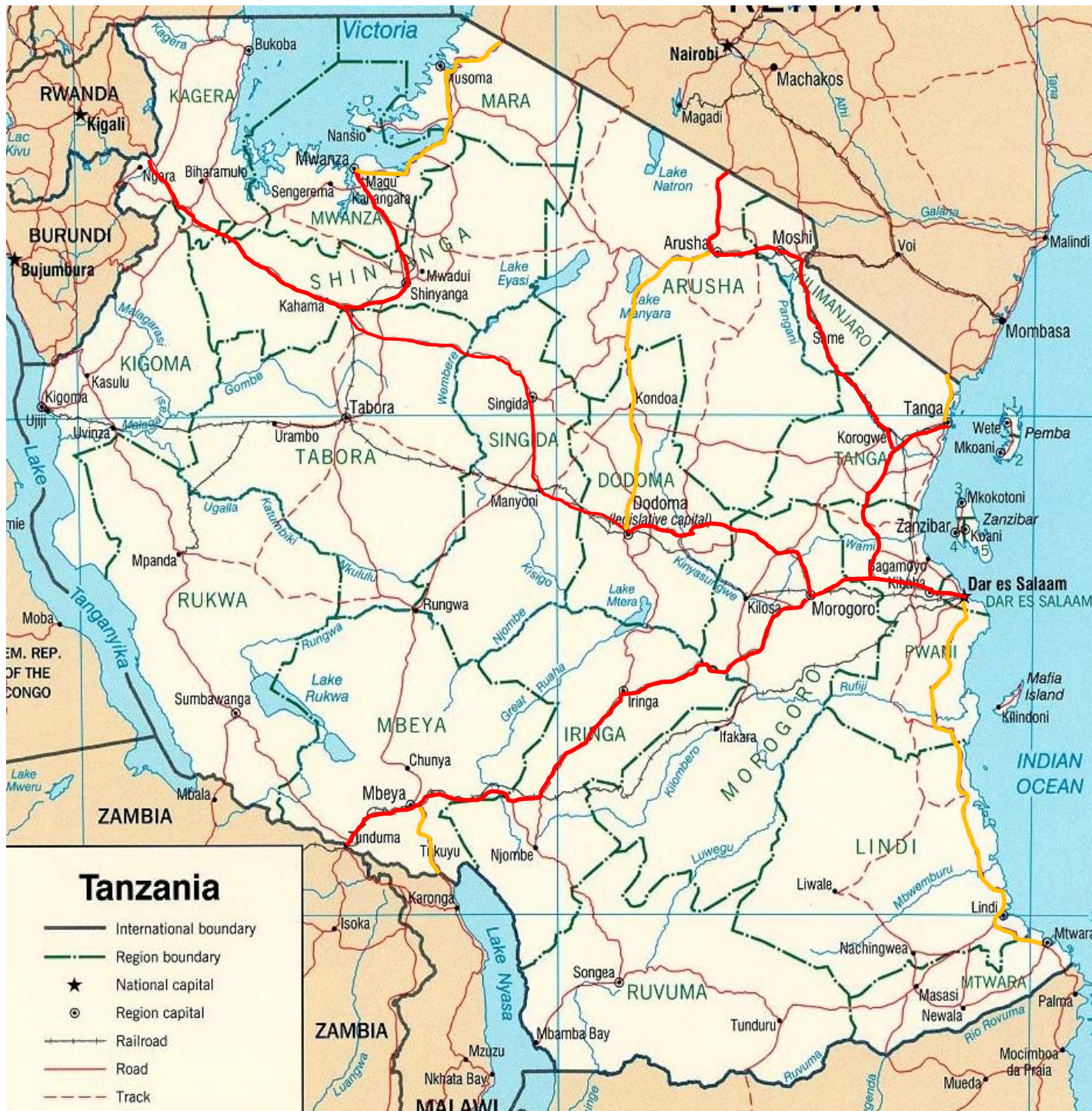
- Gæðapróf á öryggi nýrra bíla.
- Veitir bílum stjórnur fyrir vörn manna við óhöpp:
 - Árekstur framaná.
 - Hliðarárekstur.
 - Veltur.
 - Gangandi fólk.
- Hefur skilað mikið öruggari bílum frá 1997. (37%)
- Hugmyndin komin úr Formulu 1.
- Max Mosley & Claes Tingvall



Niðurstöður 3.600 km.

Road Protection Score





Tanzanía

Samvinna
iRAP
FIA Foundation
og
Alþjóðabankans

1. – 28. febrúar
2010

James Bradford
Ólafur Guðmundsson
Raphael Dziub

5500 km. eknir.

Uppb. 15.000 km. skoðaðir á Íslandi.
4.000 km. af vegakerfinu.



Rekstur og fjármögnun bílsins.



SAMSKIP



Skyggna 16

A4

MÆLI MEÐ ÞVÍ AÐ ÞESSI UPPTALNING VERÐI SETT Í LISTA Á HANDOUTI - EKKI HÉR Í SHÓWINU.

Administrator; 18.1.2008







Sjónarhorn skoðunarmanns.



ON/OFF CONTRAST

KUAB ROAD LOGGER

11835 111 +298236

DISP UP DISP
R1+ STOP R2+
R1- DOWN R2-
CEN PRESET DISP

Median Type

0-1 1-5 5-10 10-20

Left side area

0-3 3-7 7-10 10+

0-3 3-7 7-10 ↑

CEN CUT

DITCH SLOPE SLOPE CLIFF

Notes

VOICE NOTE

SECTION CHANGE

Right side area

0-3 3-7 7-10 10+

0-3 3-7 7-10 ↑

CEN CUT

DITCH 1:3 SLOPE 1:2 SLOPE CLIFF

Speed limit

40 50 60

70 80 90

Controls

Started Speed Limit: 60
Started Left severity: 7-10m
Started Right severity: 0-3m
Started Median centre line only

Current Positioning Data

Speed: 00.0 HDOP: 02.0 Time: 2010-10-31 19:36:47.000
Bearing: 000.0 VDOP: 04.4 Long / Lat: 21.000003 64.150055
of Sat: 9 PDOP: 04.9 File: []

Start Stop

Instructions for data collection and recording.

- Select file BW/FW.
- Select section.
- Calibrate board (X2).
- Zero all counters.
- Start relevant items.
- Adjust camera light.
- Start recording.
- Warning light on.
- Follow counters (KUAB).
- Follow section count (PC).
- Confirm data collection.

- Stop all open items.
- Forward 1 meter.
- Stop recording.
- Close file on end.
- Warning light off.
- Backup every hour.

EuroRAP

Skráð atriði um 80 talsins

Paved shoulder – left
Sidewalk provision – left
Roadside object – left
Roadside distance - left

Area type
Speed
Vehicle flow

Motorcycle facility
Bicycle facility
Bicycles flow
Pedestrian flow

Curvature
Quality of curve

Paved shoulder – right
Sidewalk provision – right
Roadside object – right
Roadside distance - right

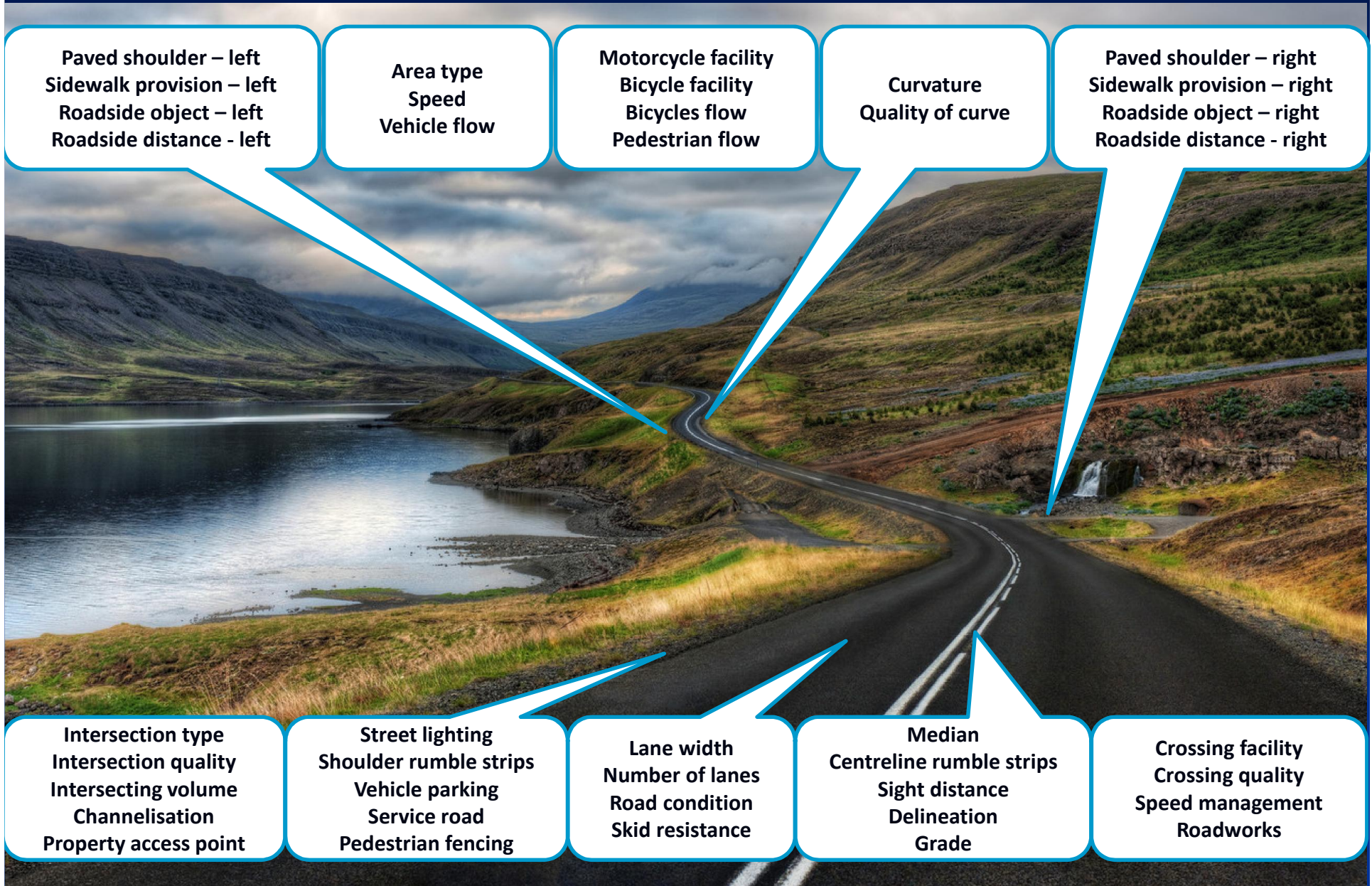
Intersection type
Intersection quality
Intersecting volume
Channelisation
Property access point

Street lighting
Shoulder rumble strips
Vehicle parking
Service road
Pedestrian fencing

Lane width
Number of lanes
Road condition
Skid resistance

Median
Centreline rumble strips
Sight distance
Delineation
Grade

Crossing facility
Crossing quality
Speed management
Roadworks



Gagnasöfnun og úrvinnsla:

- GPS punktar teknir á hálftrar sekúndu fresti.
- Veglínan verður til sjálfvirkt meðan ekið.
- Video myndir teknar samtímis.
- Video og gagnaskráning samtengd.
- Ákveðin atriði skráð meðan á akstri stendur.
- Fleiri atriði skráð síðar af video myndum (X 4).
 - (Mismunandi skráningarmyndir)
- Auðvelt að breyta skráningarmyndum og atriðum.
- Breytingar, leiðréttingar og gæðaprófun.
 - (Sjá video mynd)
- Gagnaskrár sendar erlendis í lokavinnslu + gæði.
- Úrvinnsla brotin niður á 100 metra vegkafla.
- Allar niðurstöður settar inn í ViDA úrvinnslukerfið.

Start	Duration
00:00	00:25
00:03	00:03
00:03	00:03
00:06	00:03
00:06	00:03

Shoulder

10+	0-3	3-7	7-10
DITCH	SLOPE 1:3	SLOPE 1:2	CLIFF

Right side area

0-3	3-7	7-10	10+	0-3	3-7	7-10
CEN	CONCRETE CEN	CUT	DITCH	SLOPE 1:3	SLOPE 1:2	CLIFF

Lane width

10-20	20+
-------	-----

Number of lanes

1 LANE	2 LANE	3 LANE	4 LANE	2+1 LANE
--------	--------	--------	--------	----------

Lines

LINES	LINES
-------	-------

Road condition

70	80
120	130

Curvature

CONDITION	CONDITION	CONDITION
-----------	-----------	-----------

C.Quality

GOOD	POOR
------	------

Vertical

VERT	VERT	VERT
------	------	------

Extra

INTERSEC	EDRMAL
----------	--------

Int. Quality

INT	INT
-----	-----

Int. Volume

LOW VOLUME	MED VOLUME	HIGH VOLUME
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Notes

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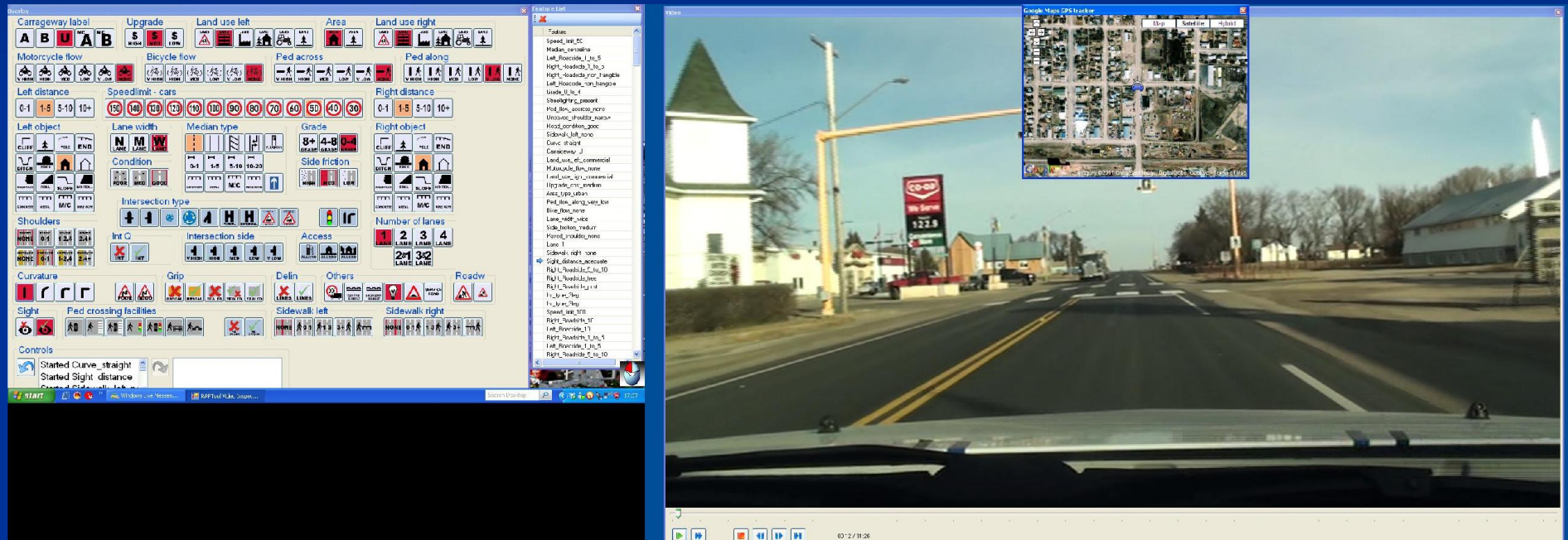
Google Maps GPS tracker

Map | Satellite

Map navigation controls: ↑ ↓ ← → + -

Video

BHP Billiton – Canada 2011



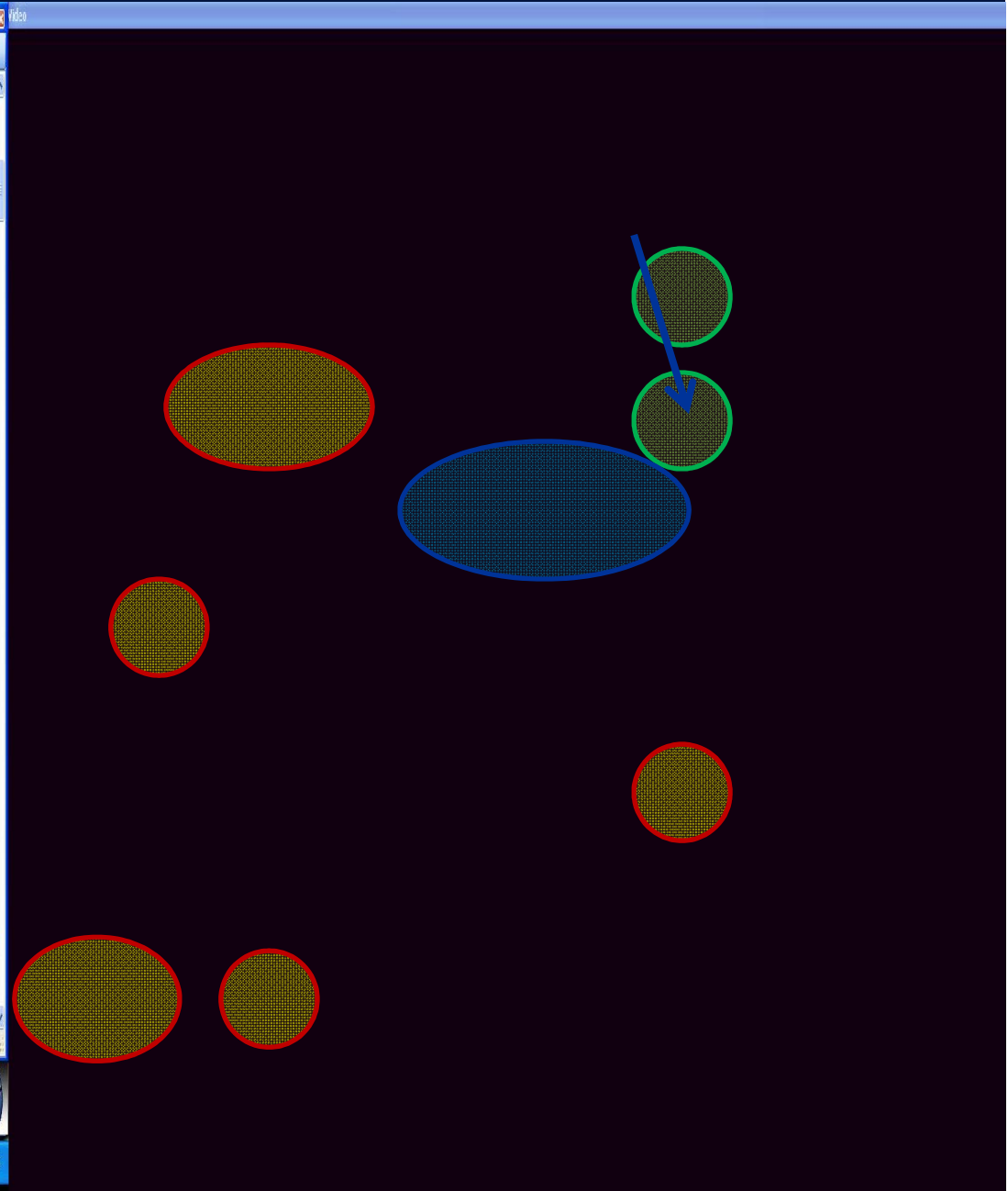
Nýjasta útfærslan - V-3.2

The screenshot displays the V-3.2 software interface, which is used for road design. The interface is divided into several sections, each containing various icons and options for road design. The sections include:

- Land use left/right:** Icons for different land use types.
- Carriageway label:** Letters A, B, U, A, B for road classification.
- Upgrade:** Icons for road upgrade types.
- Area:** Icons for different area types.
- Roadw:** Icons for road width types.
- Land use right:** Icons for different land use types.
- Left distance/Right distance:** Sliders for distance settings.
- Speedlimit - cars:** Speed limit icons for cars.
- Left object/Right object:** Icons for road objects.
- Lane width:** Lane width icons.
- Median type:** Median type icons.
- Access:** Access icons.
- Condition:** Condition icons.
- Parking:** Parking icons.
- Left Shoulders/Right Shoulders:** Shoulder icons.
- Intersection type:** Intersection type icons.
- Grip:** Grip icons.
- Intersection side:** Intersection side icons.
- Grade:** Grade icons.
- Delin:** Delin icons.
- Others:** Other icons.
- Left Ped/Right Ped:** Pedestrian icons.
- Curvature:** Curvature icons.
- Ped across:** Pedestrian crossing icons.
- Bicycle flow:** Bicycle flow icons.
- Motorcycle:** Motorcycle icons.
- Number of lanes:** Lane icons.
- Sidewalk left/right:** Sidewalk icons.
- Bike facilities:** Bicycle facility icons.
- Ped crossing facilities main/side:** Pedestrian crossing icons.
- Fence:** Fence icons.
- Lighting:** Lighting icons.
- MC facilities:** Motorcycle facility icons.
- Speedlimit - motorcycle/Speedlimit - trucks:** Speed limit icons for motorcycles and trucks.

The **Feature List** on the right side of the interface shows a list of features, including:

- Curve_straight
- Median_C_to_1
- Grade_0_to_4
- Land_use_left_residential
- Right_Fooside_1_to_5
- Right_Fooside_post
- Left_Roadside_0_to_1
- mesection_flow_1Rk
- rt_type_3leg
- mesection_quality_poon
- Left_Roadside_slope_down
- Right_Fooside_barrier_metal
- Right_Fooside_0_to_1
- Median_centerline
- Left_Roadside_barrier_end
- Left_Roadside_barrier_metal
- Right_Fooside_barrier_metal
- Left_Roadside_post
- Left_Roadside_barrier_metal
- Left_Roadside_barrier_metal
- Right_Fooside_0_to_1
- 3directioning_not_present
- Left_Roadside_slope_down
- Left_Roadside_barrier_end
- Left_Roadside_slope_down
- Land_use_left_farming
- Right_Fooside_barrier_end
- Land_use_right_farming
- Right_Fooside_slope_down
- Land_use_right_farming
- mesection_flow_1k
- mesection_quality_poon
- rt_type_3leg
- Curve_straight
- Speed_limit_70
- Speed_limit_30
- rt_type_3leg



ViDA – “Líf á spænsku”

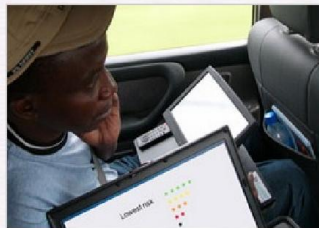
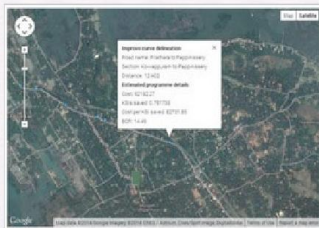
//vida.irap.org/en-gb/home

iRAP **Welcome**

Support Language

Welcome to ViDA

The iRAP online software to help create a world free of high risk roads



Login

Email address

Password

[Forgot password?](#)

Register

New to ViDA?

iRAP is supported by:



Donate to help iRAP create a world free of high risk roads

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Show Project filters

Show Reporting options

Iceland Iceland 2012-2014

Show Total length: 699km

ViDA – 500 km. komnir inn

Star Rating ?

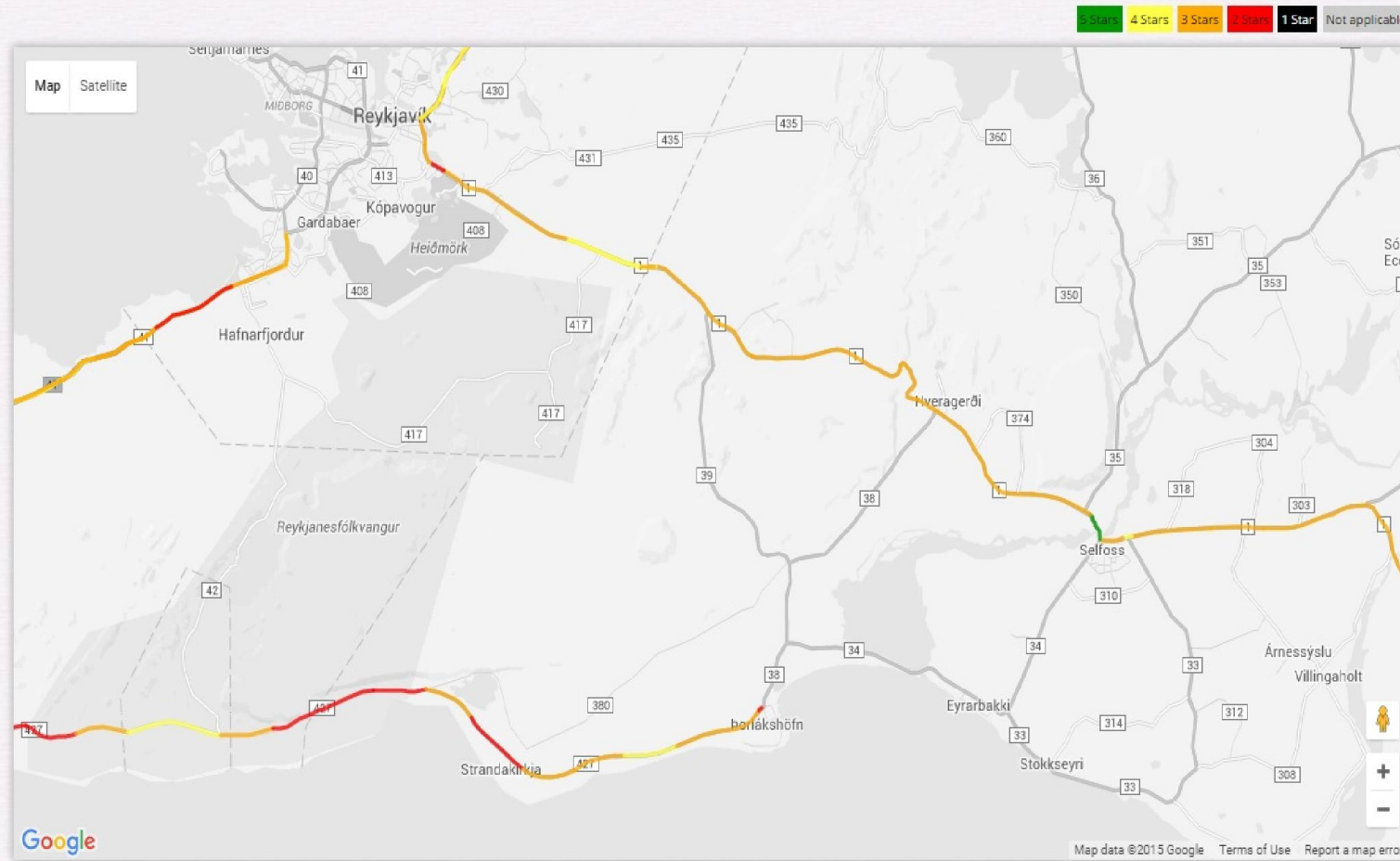
Vehicle Occupant Star Rating Smoothed Star - Before countermeasure implementation

5 Stars 4 Stars 3 Stars 2 Stars 1 Star Not applicable



Star Rating ?

Vehicle Occupant Star Rating Smoothed Star - Before countermeasure implementation



iRAP is supported by:



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Report options

Star rating type

- Smoothed
- Raw

Star Rating user group

- Vehicle Occupant
- Motorcyclist
- Pedestrian
- Bicyclist

SRIP implementation

- Before
- After

 Iceland Iceland 2012-2014

[Show](#) Total length: 12km

Star Rating

Vehicle Occupant Star Rating Smoothed Star - Before countermeasure implementation

5 Stars 4 Stars 3 Stars 2 Stars 1 Star Not applicable



Show Project filters

Hide Reporting options

Apply filters & options

Report options

Star rating type

Smoothed

Raw

Star Rating user group

Vehicle Occupant

Motorcyclist

Pedestrian

Bicyclist

SRIP implementation

Before

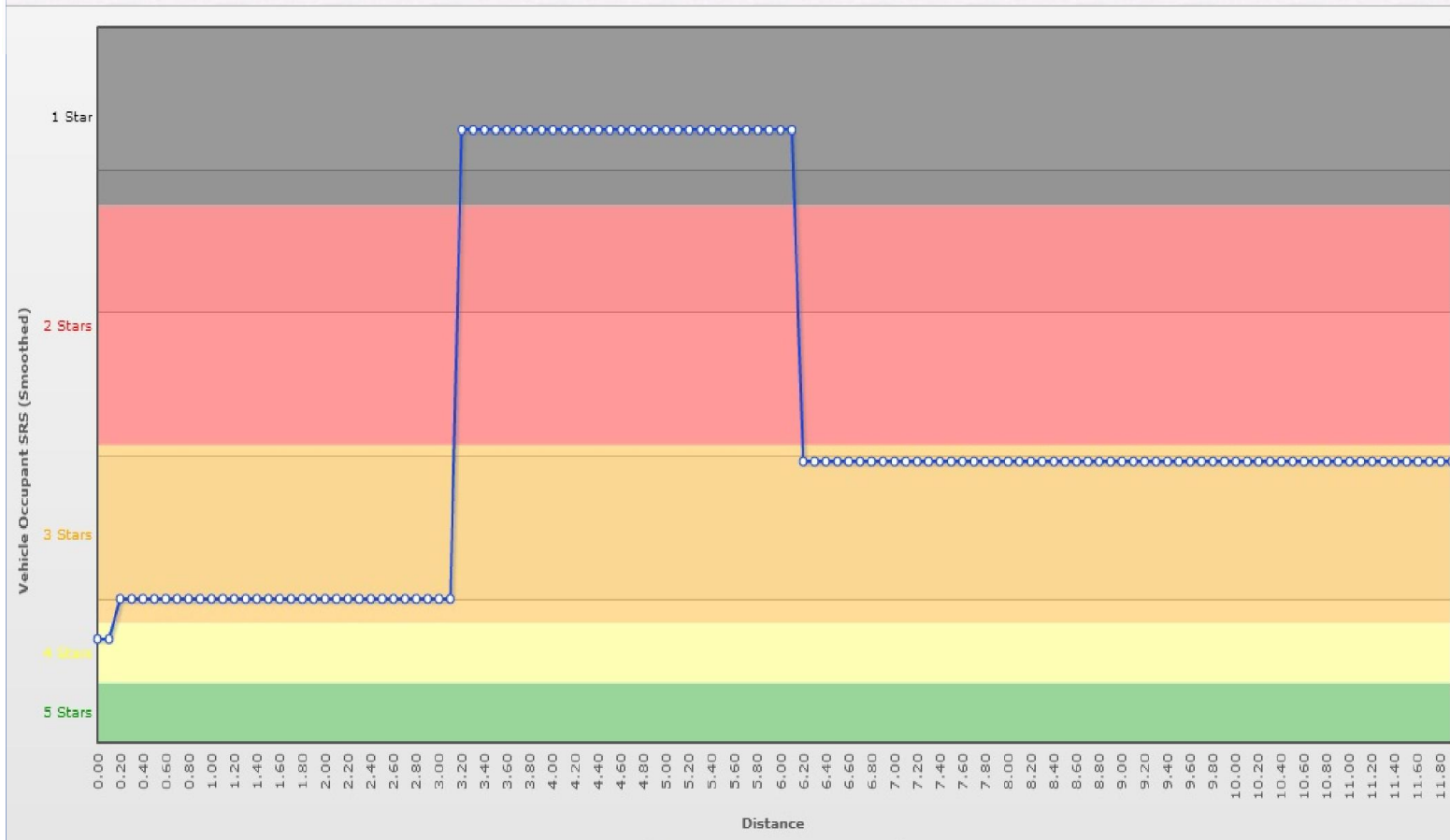
After

Iceland Iceland 2012-2014

Show Total length: 12km

Risk Worm

Vehicle Occupant SRS (Smoothed) - Before countermeasure implementation



Show Project filters

Hide Reporting options

Apply filters & options

Report options

Star rating type

- Smoothed
- Raw

SRIP implementation

- Before
- After

Iceland Iceland 2012-2014

Show Total length: 12km

Star Ratings ?

Smoothed Star Ratings - Before countermeasure implementation

Star Ratings	Vehicle Occupant		Motorcyclist		Pedestrian		Bicyclist	
	Length (kms)	Percent	Length (kms)	Percent	Length (kms)	Percent	Length (kms)	Percent
5 Stars	0.00	0%	0.00	0%	0.00	0%	0.00	0%
4 Stars	0.20	2%	0.00	0%	0.00	0%	0.00	0%
3 Stars	8.80	73%	0.00	0%	0.00	0%	0.00	0%
2 Stars	0.00	0%	0.00	0%	0.00	0%	0.00	0%
1 Star	3.00	25%	0.00	0%	0.00	0%	0.00	0%
Not applicable	0.00	0%	12.00	100%	12.00	100%	12.00	100%
Totals	12.00	100%	12.00	100%	12.00	100%	12.00	100%

road_data | Star Rating | Investment | Plans

[+ Show](#) Project filters

[- Hide](#) Reporting options [Apply filters & options](#)

Report options

SRIP implementation

Before

After

Iceland Iceland 2012-2014

[+ Show](#) Total length: 12km

Detailed Road Conditions ?

[Roadside](#)
[Mid-block](#)
[Intersections](#)
[Flow](#)
[VRU facilities and land use](#)
[Speeds](#)
[Policy targets](#)

Roadside severity - driver-side distance	km	%
0 to <1m	3.90	33
1 to <5m	0.60	5
5 to <10m	2.80	23
>= 10m	4.70	39

Roadside severity - driver-side object	km	%
Safety barrier - wire rope	0.40	3
Upwards slope - rollover gradient	0.20	2
Upwards slope - no rollover gradient	0.60	5
Deep drainage ditch	3.00	25
Downwards slope	3.00	25
Sign, post or pole >= 10cm dia.	0.20	2
Semi-rigid structure or building	0.20	2
Unprotected safety barrier end	0.20	2
None	4.20	35

Roadside severity - passenger-side distance	km	%

Roadside severity - passenger-side object	km	%

Report options

Attributes (rows & columns)

Roadside severity - driver-side object
 Roadside severity - driver-side distance

SRIP implementation

Before
 After

Iceland Iceland 2012-2014

Show Total length: 12km

Road attribute matrix ?

Roadside severity - driver-side object	Roadside severity - driver-side distance (km)				
	0 to <1m	1 to <5m	5 to <10m	>= 10m	
Safety barrier - wire rope	0.4 3%				0.4 3%
Upwards slope - rollover gradient	0.1 1%		0.1 1%		0.2 2%
Upwards slope - no rollover gradient		0.4 3%	0.1 1%	0.1 1%	0.6 5%
Deep drainage ditch	0.1 1%		2.5 21%	0.4 3%	3 25%
Downwards slope	3 25%				3 25%
Sign, post or pole >= 10cm dia.	0.1 1%		0.1 1%		0.2 2%
Semi-rigid structure or building		0.2 2%			0.2 2%
Unprotected safety barrier end	0.2 2%				0.2 2%
None				4.2 35%	4.2 35%

Show Project filters

Show Reporting options

Netherlands Provincial Roads

Show Total length: 31km

Safer Roads Investment Plan

Currency: € EUR - Analysis Period: 20 years

Total FSI Saved	Total PV of Safety Benefits	Estimated Cost	Cost per FSI saved	Program BCR
98	31,539,837	24,259,153	247,485	1

Countermeasure	Length / Sites	FSIs saved	PV of safety benefit	Estimated Cost	Cost per FSI saved	Program BCR
Additional lane (2 + 1 road with barrier)	12.40 km	54	17,296,041	16,732,500	311,277	1
Roadside barriers - driver side	22.60 km	23	7,535,389	3,060,000	130,662	2
Roadside barriers - passenger side	17.90 km	12	3,719,288	2,422,500	209,574	2
Shoulder sealing driver side (>1m)	19.80 km	5	1,633,702	1,484,040	292,284	1
Central median barrier (1+1)	0.60 km	2	485,953	108,000	71,509	4
Bicycle Lane (off-road)	1.20 km	1	266,668	162,060	195,541	2
Shoulder rumble strips	2.00 km	1	279,703	23,928	27,526	12
Road surface rehabilitation	0.70 km	0	143,746	64,565	144,523	2
Shoulder sealing passenger side (>1 m)	2.00 km	0	148,900	178,360	385,421	1
Street lighting (mid-block)	0.20 km	0	30,446	23,200	245,185	1
		98	31,539,837	24,259,153	247,485	1

Show Project filters

Show Reporting options

Netherlands Projects

Show Total length: 31 km

Total FSIs Saved

98

Countermeasure

Additional lane (2 + 1 road with barrier)

Roadside barriers - drive

Roadside barriers - pass

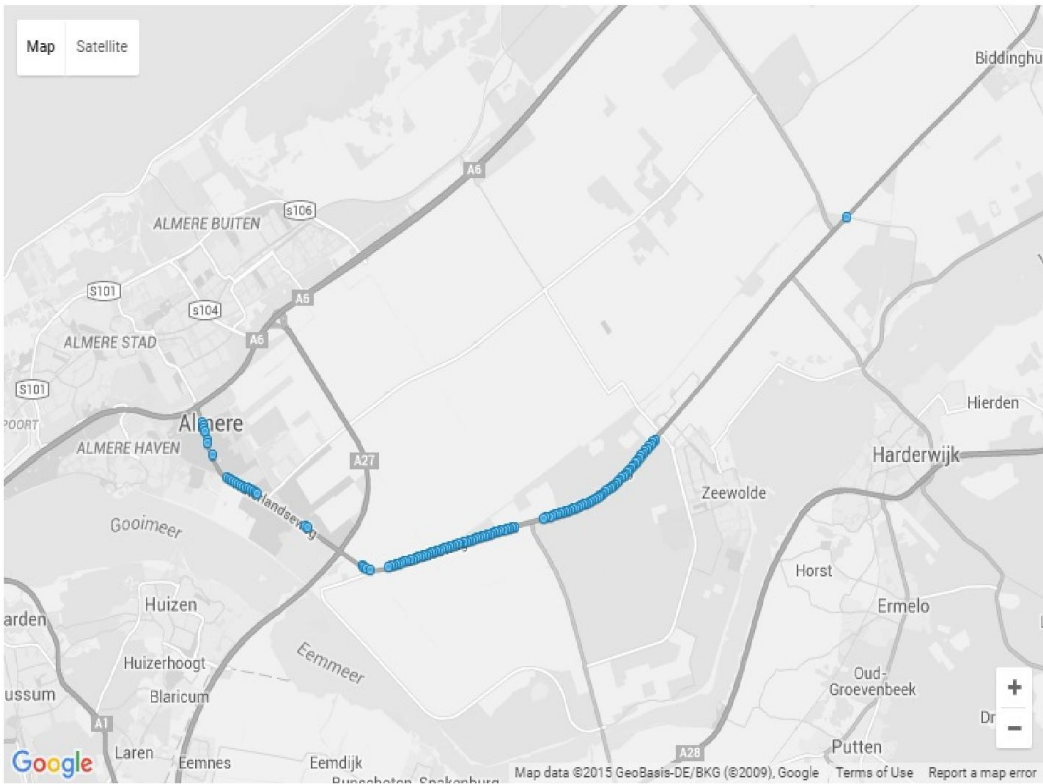
Shoulder sealing driver

Central median barrier

Bicycle Lane (off-road)

Shoulder rumble strips

Additional lane (2 + 1 road with barrier) [More info](#)



Program BCR

1

Program BCR

277 1

662 2

574 2

284 1

509 4

541 2

526 12

Road Data
 Star Rating
Investment Plans
 Downloads

Project filters

Reporting options

No options are available for this report.

Iceland Iceland 2012-2014

Total length: 12km

Safer Roads Investment Plan

Currency: kr ISK - Analysis Period: 20 years

Total FSIs Saved	Total PV of Safety Benefits	Estimated Cost	Cost per FSI saved	Program BCR
1	594,615	28,353,889	51,698,721	0

Countermeasure	Length / Sites	FSIs saved	PV of safety benefit	Estimated Cost	Cost per FSI saved	Program BCR
Improve Delineation	1.90 km	0	90,285	5,508,627	66,150,113	0
Improve curve delineation	0.80 km	0	96,155	2,319,256	26,150,489	0
Central hatching	0.50 km	0	11,309	462,426	44,332,997	0
Roadside barriers - passenger side	0.40 km	0	112,799	8,394,800	80,687,899	0
Roadside barriers - driver side	0.50 km	0	236,645	10,493,500	48,075,723	0
Sight distance (obstruction removal)	0.30 km	0	47,422	1,175,280	26,869,778	0
		1	594,615	28,353,889	51,698,721	0

Hide Reporting options

Apply filters & options

No options are available for this report.

Iceland Iceland 2012-2014

Show Total length: 12km

Total FSIs Saved

1

Countermeasure

- Improve Delineation
- Improve curve delineation
- Central hatching
- Roadside barriers - pass
- Roadside barriers - drive
- Sight distance (obstruction)

Program BCR

0

Program BCR

	Program BCR
113	0
489	0
997	0
899	0
723	0
778	0
721	0

Improve Delineation
More info
✕

Map
 Satellite

Improve Delineation
✕

Road name: Road 1
 Section: b4
 Distance: 5.5

Estimated programme details

Cost: 289927.72
 FSIs saved: 0.011915
 Cost per FSI saved: 24332113.69
 BCR: 0.04

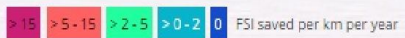
Map data ©2015 Google Imagery ©2015, Cnes/Spot Image, DigitalGlobe, Landsat, U.S. Geological Survey
Terms of Use
Report a map error

No options are available for this report.

Iceland Iceland 2012-2014

Show Total length: 12km

Predicted Casualty Reduction Map ?

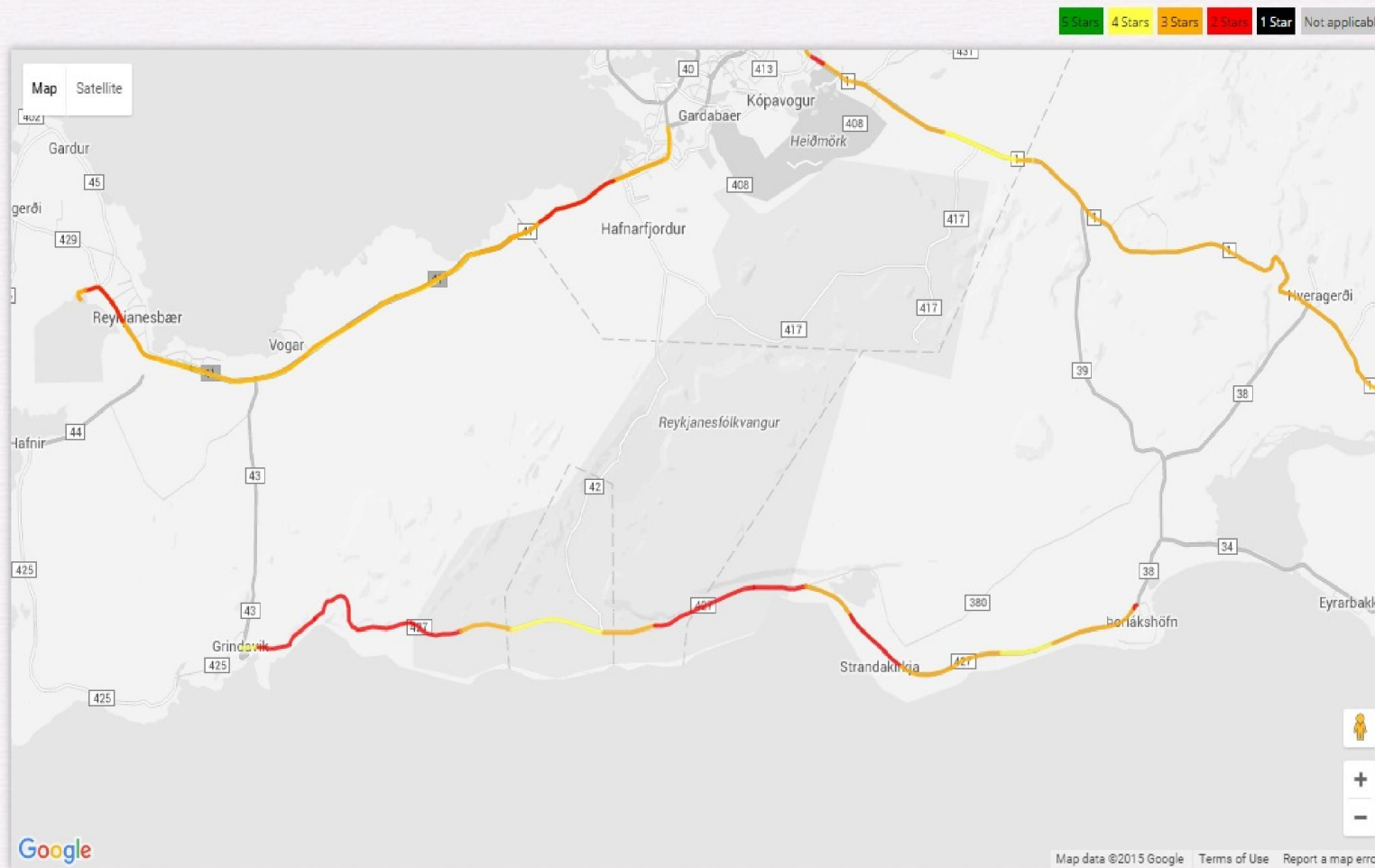


Map Satellite



Star Rating

Vehicle Occupant Star Rating Smoothed Star - Before countermeasure implementation



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Suðurstrandarvegur

Viðvörðunarkerfin virka ekki!!!



Vantar kanntlíkur – Of lítið öryggissvæði



Star Rating Demonstrator

427 - Suðurstrandarvegur



Eins og hann er...

Star Ratings

Chart

Roadside

Mid-block

Intersections

Flow

VRU facilities and land use

Speeds

Speed limit

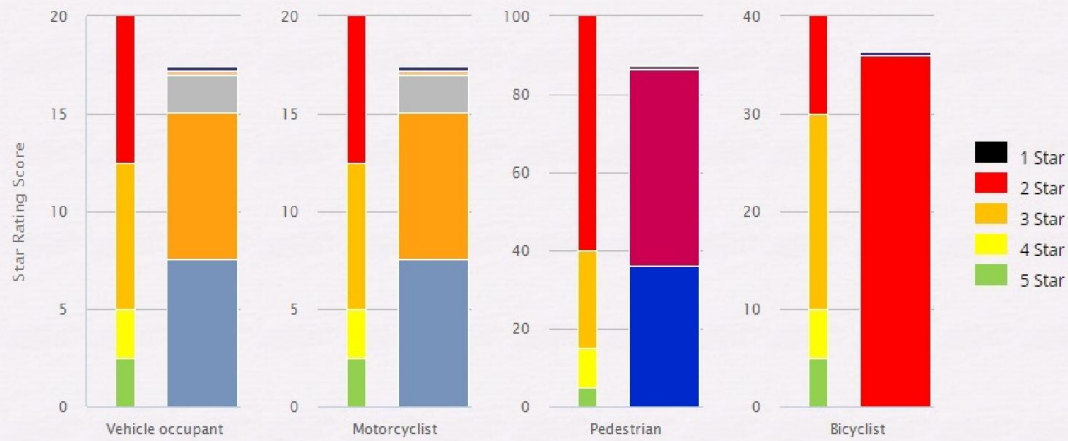
Differential speed limits

Speed management / traffic calming

Operating Speed (85th percentile)



Star Rating Demonstrator ?



- Run-off Driver-side
- Run-off Passenger-side
- Head-on Loss of Control
- Head-on Overtaking
- Intersection
- Access point
- Along
- Crossing through
- Crossing side
- Run off

Star Ratings **Chart**

Roadside Mid-block Intersections Flow VRU facilities and land use **Speeds**

Speed limit

Differential speed limits

Speed management / traffic calming

Operating Speed (85th percentile)

Star Rating Demonstrator ?

427 - Suðurstrandarvegur



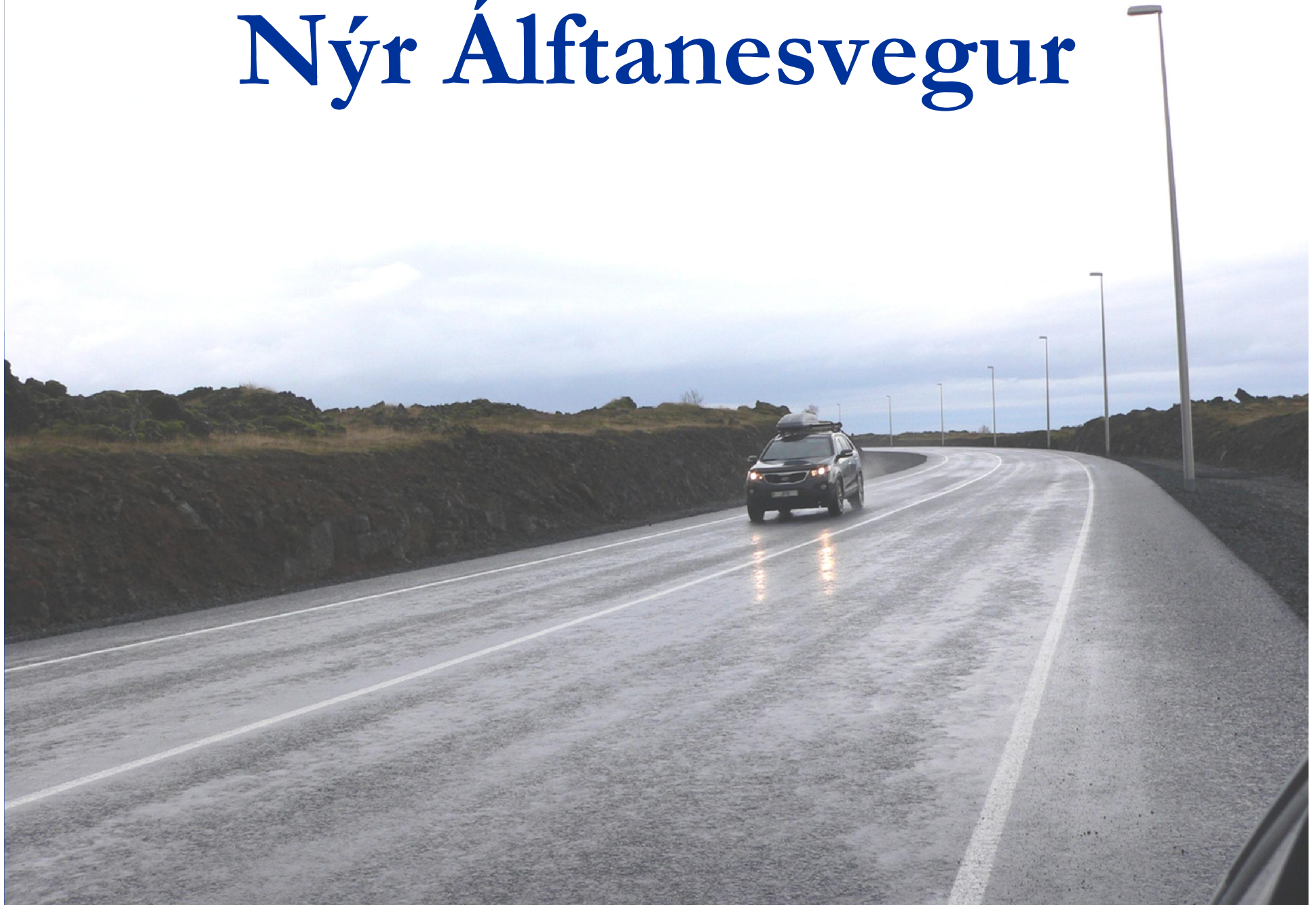
Með kanntlínnum og + 10 m. öryggissvæði

Star Ratings [Chart](#)

Roadside [Mid-block](#) [Intersections](#) [Flow](#) [VRU facilities and land use](#) [Speeds](#)

Roadside severity - driver-side distance	<input type="text" value=">= 10m"/>
Roadside severity - driver-side object	<input type="text" value="Aggressive vertical face"/>
Roadside severity - passenger-side distance	<input type="text" value=">=10m"/>
Roadside severity - passenger-side object	<input type="text" value="Aggressive vertical face"/>
Shoulder rumble strips	<input type="text" value="Not present"/>
Paved shoulder - driver-side	<input type="text" value="Narrow (>= 0m to < 1.0m)"/>
Paved shoulder - passenger-side	<input type="text" value="Narrow (>= 0m to < 1.0m)"/>

Nýr Álftanesvegur



Nýr Álftanesvegur





Star Rating Demonstrator

Álftanesvegur



Eins og hann er...

Star Ratings [Chart](#)

[Roadside](#)
[Mid-block](#)
[Intersections](#)
[Flow](#)
[VRU facilities and land use](#)
[Speeds](#)

Speed limit:

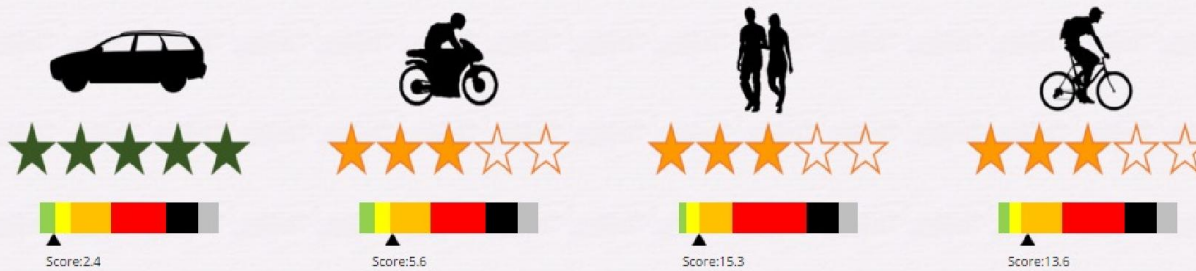
Differential speed limits:

Speed management / traffic calming:

Operating Speed (85th percentile):

Star Rating Demonstrator ?

Álftanesvegur



Með vegriðum og “Rumble strips”

Star Ratings

Chart

Roadside

Mid-block

Intersections

Flow

VRU facilities and land use

Speeds

Roadside severity - driver-side distance	1 to <5m
Roadside severity - driver-side object	Safety barrier - metal
Roadside severity - passenger-side distance	1 to <5m
Roadside severity - passenger-side object	Safety barrier - metal
Shoulder rumble strips	Present
Paved shoulder - driver-side	Medium (>= 1.0m to < 2.4m)
Paved shoulder - passenger-side	Medium (>= 1.0m to < 2.4m)

Pólítísk stefna til framtíðar

■ Svíþjóð

75% ferða á öruggum (3 eða 4-stjörnu) vegum 2020

■ Holland

Lágmark 3-stjörnur á helstu vegum fyrir 2020

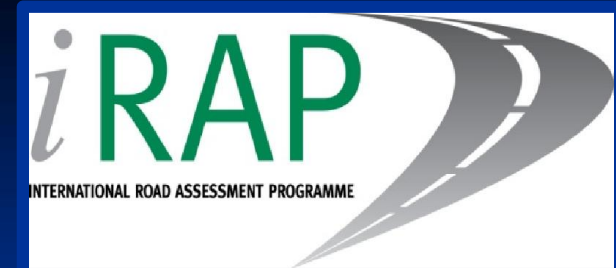
■ Nýja Sjáland

4-stjörnur fyrir “þjóðfélagslega mikilvæga vegi”

■ Alþjóðabankinn – Styrkir/lán

Hönnun verður að sýna amk. 3-stjörnur





Öryggisúttektir EuroRAP á Íslandi í ViDA heimsgagnagrunninn.

Takk fyrir áheyrnina.

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≡ **MAKE ROADS SAFE**

