Innovative Cycling counting methods and data collection approaches

Viesturs Laurs, IE.LA inženieri

The role of modelling and data in developing multi and intermodal transport system – status quo and future perspectives

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BEF LATVIA

Vecāķi
Mangaļsala
Trīsciems
Vecdaugava
Vecmilgrāvis
Daugavgrīva
9 km
Jaunciems
Mīlgrāvis
Bolderāja
Voleri
Kundziņsala
Buļļi
Suži
Mežaparks
5 km
Bukulti
Kleisti
Čiekurkalns
Sarkandaugava
3 km
Spilve
Jugla
Berģi
Pētersala-Andrejsala
Skanste
Brasa
Teika
Iļģuciems
Mežciems
Brekši
Grīziņkalns
Imanta
Dzirciems
Ķīpsala
Purvciems
Dreiliņi
Zasulauks
Vecpilsēta
Avoti
Beberbeķi
Mūkupurvs
Zolitūde
Šampēteris
Āgenskalns
Dārzciems
Pļavnieki
Pleskodāle
Maskavas forštate
Torņakalns
Salas
Bieriņi
Šķirotava
Ķengarags
Atgāzene
Katlakalns
Bišumuiža
Ziepniekkalns
Rumbula
Dārziņi

Cycling strategy of Riga

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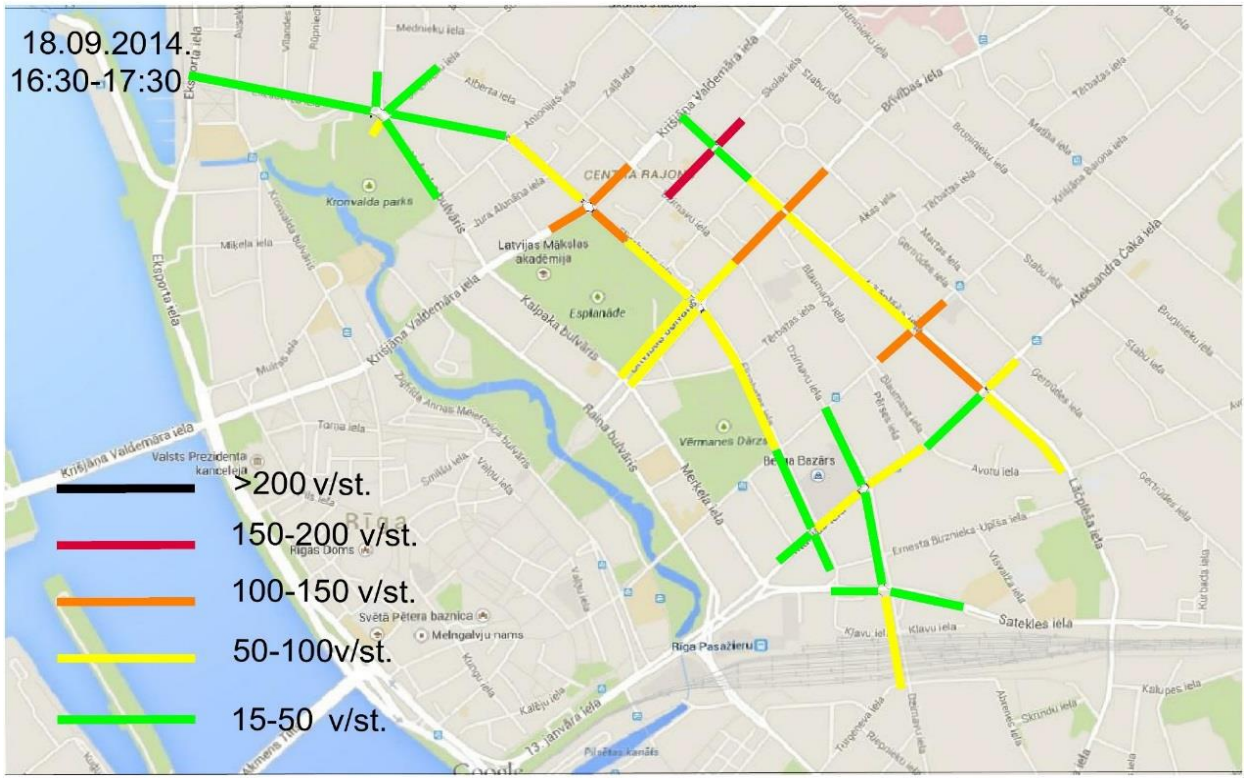
Space for everyone?

Riga traffic department bike lane monitoring



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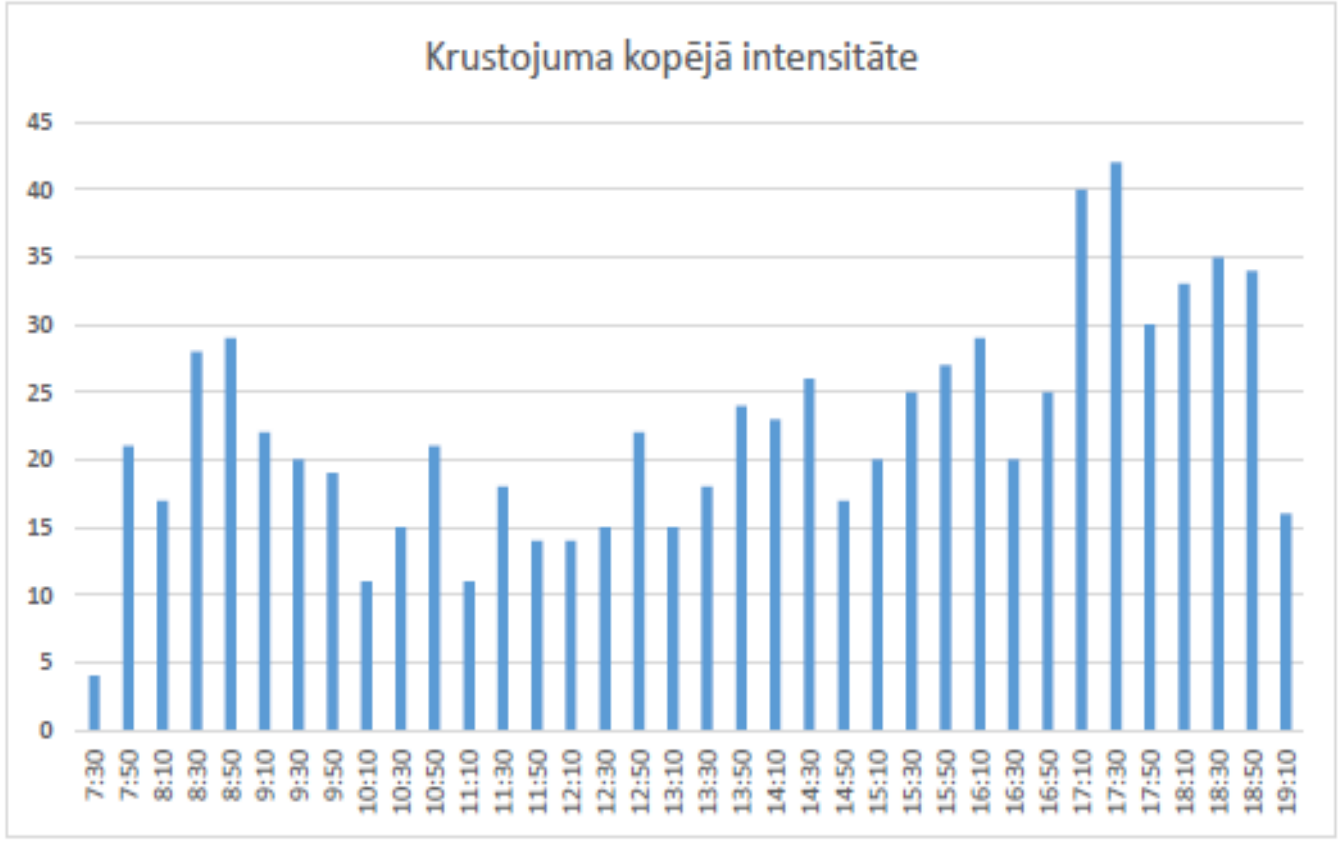
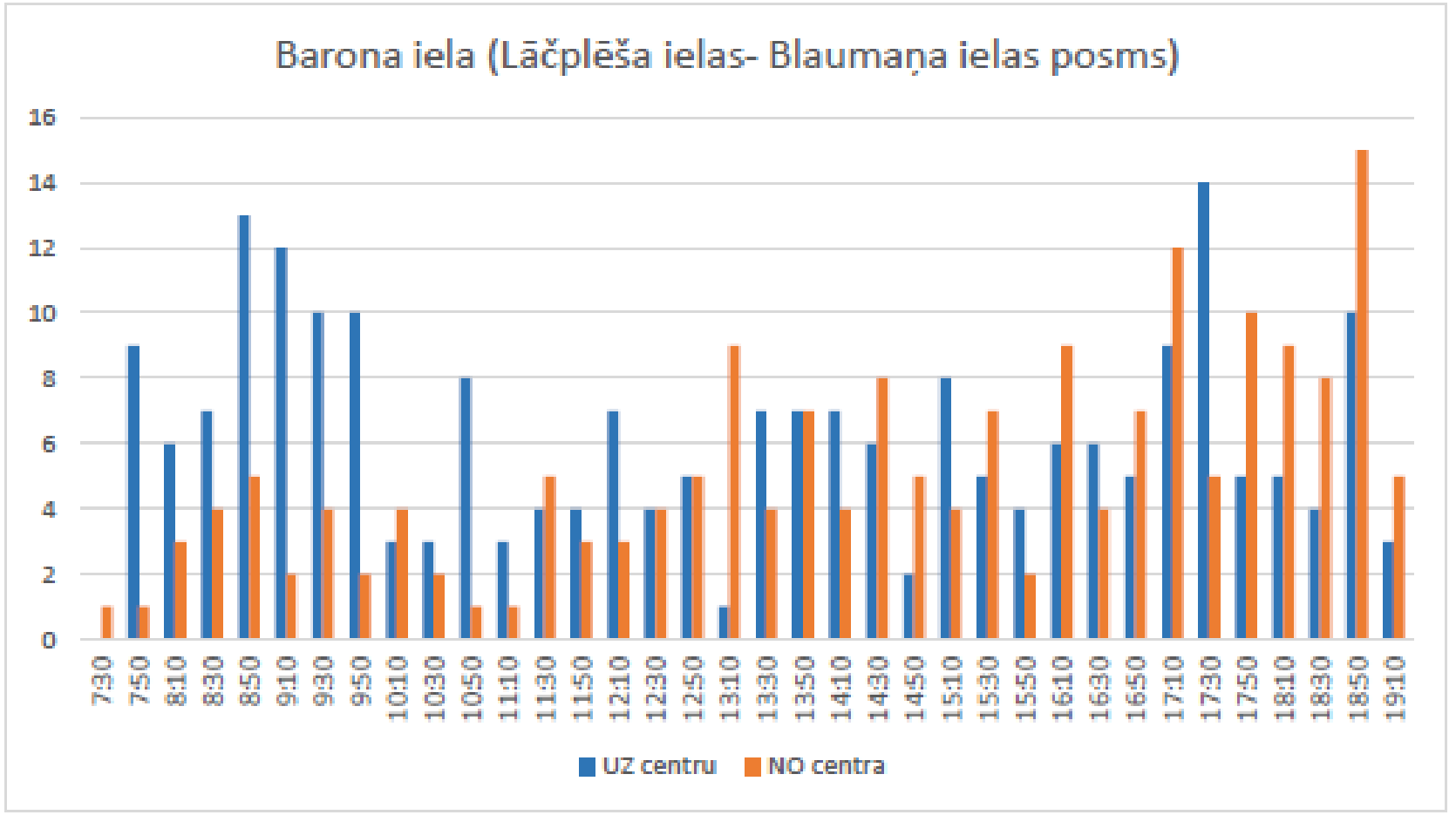
There are slight differences in daily rotation between cycling flows and car traffic flows.




Barona iela (Lāčplēša ielas- Blaumaņa ielas posms)
16
14
12
10
8
6
4
2
0
7:30
7:50
8:10
8:30
8:50
9:10
9:30
9:50
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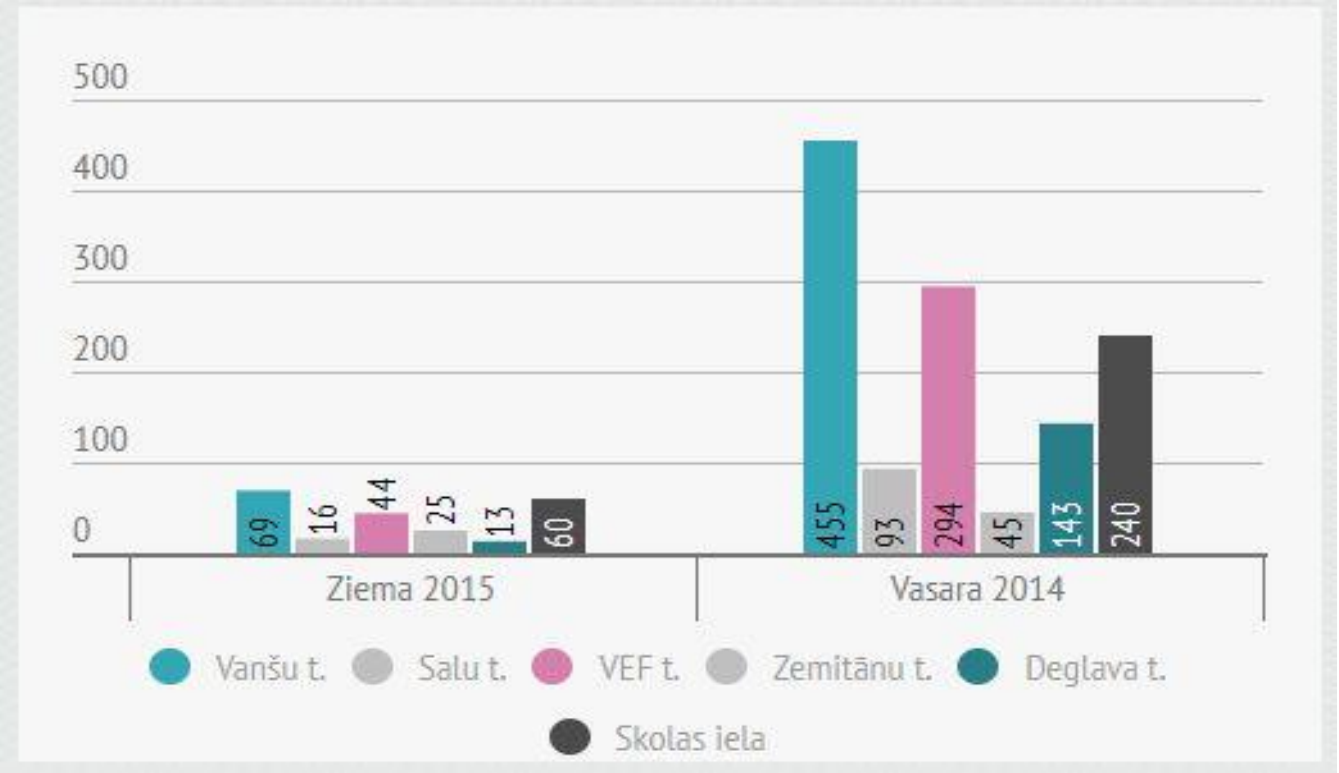
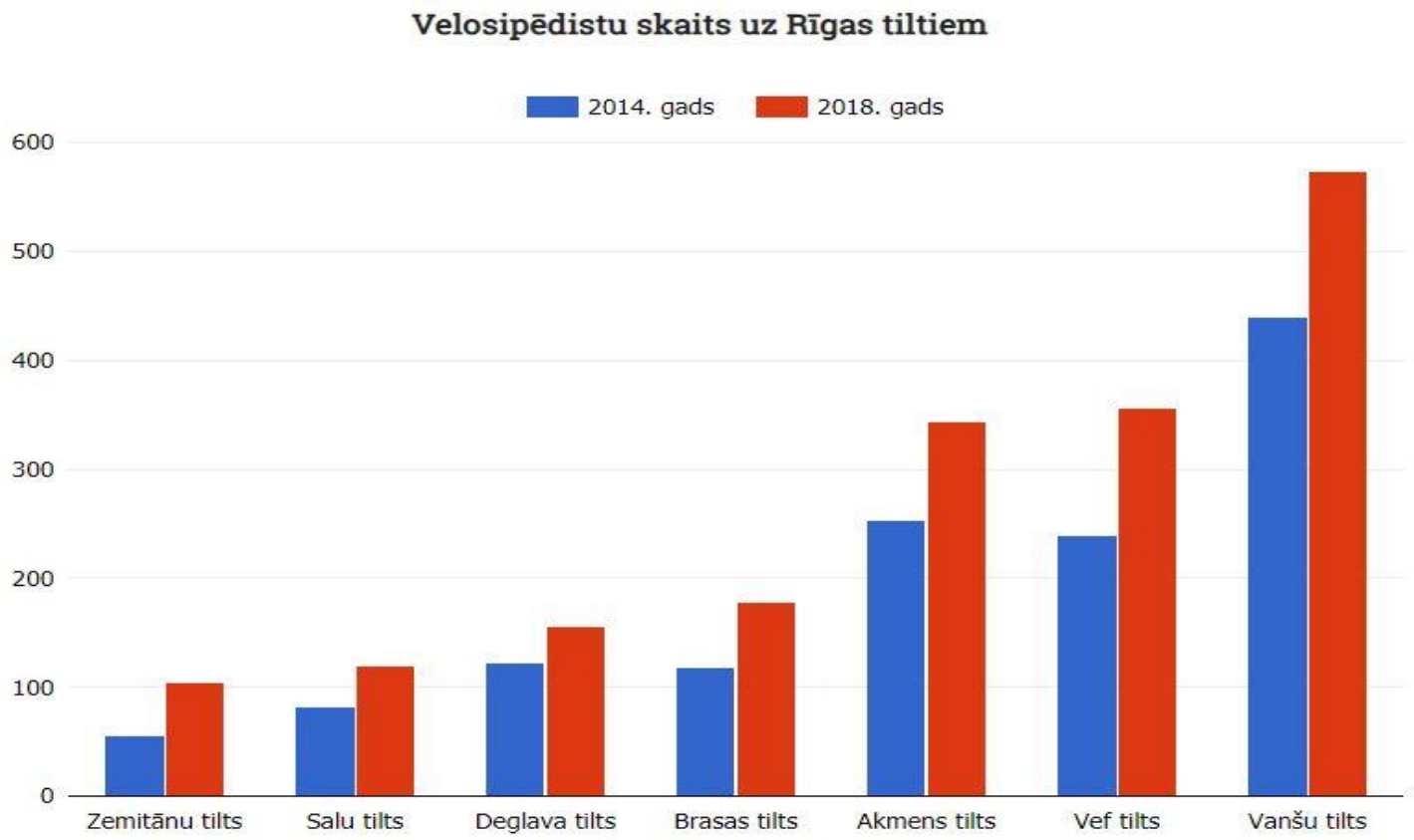
15:10
15:30
15:50
16:10
16:30
16:50
17:10
17:30
17:50
18:10
18:30
18:50
19:10
UZ centru
NO centra

LCU bicycle counting



NGO bicycle counting



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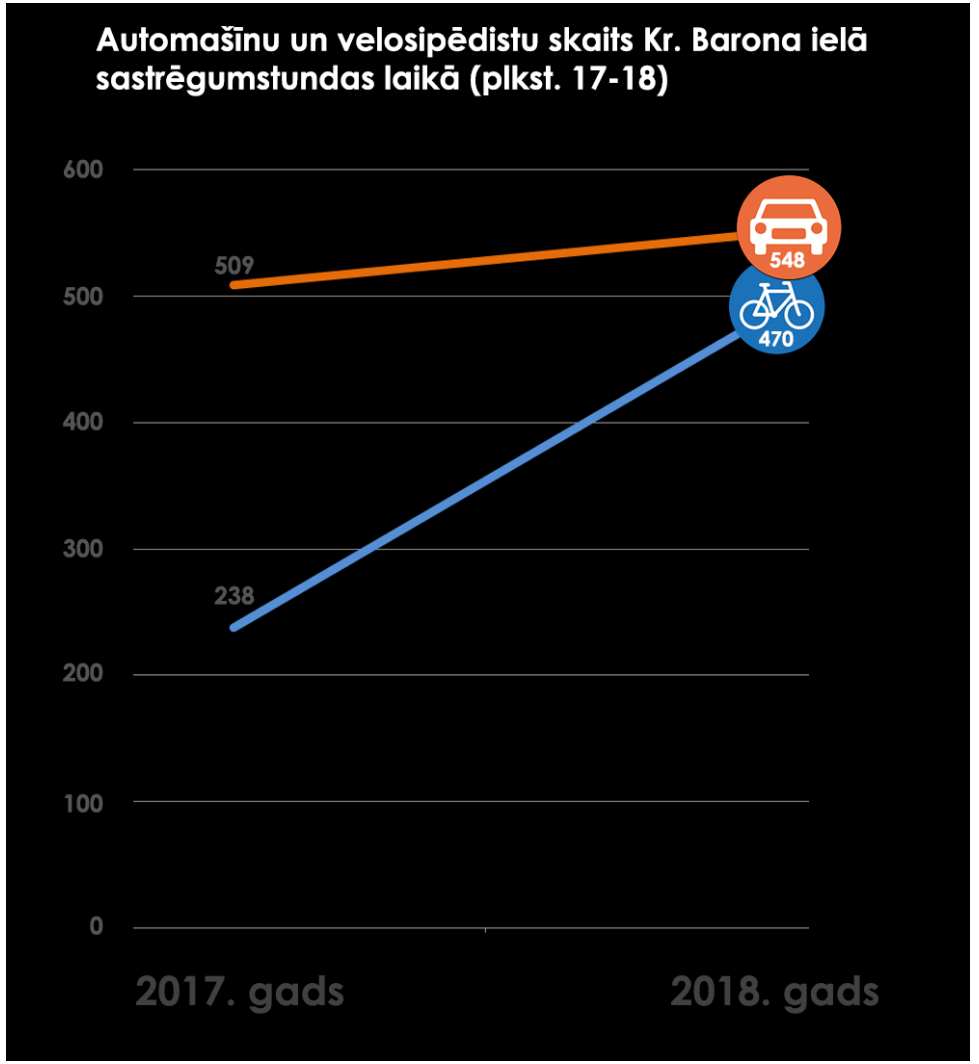
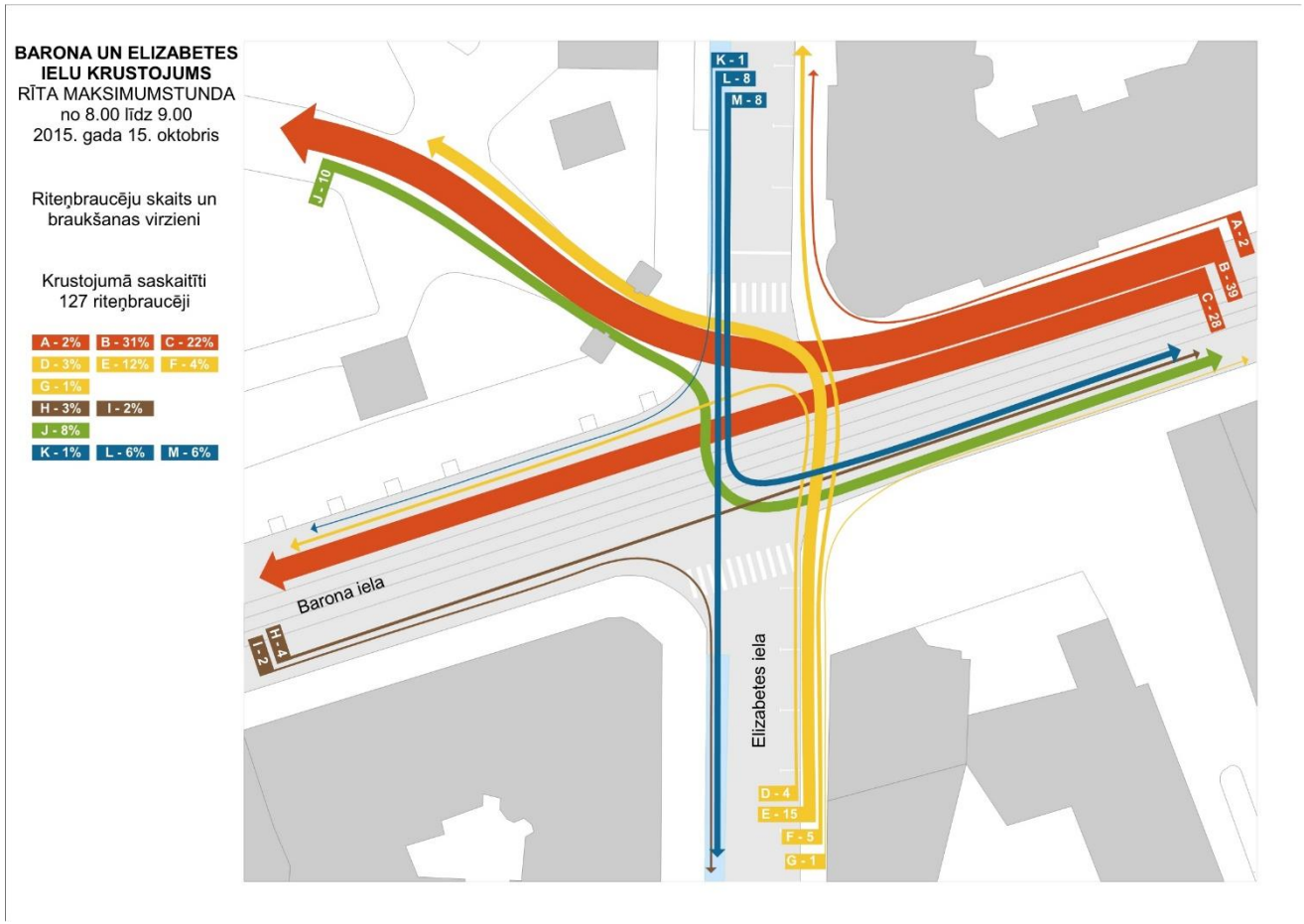
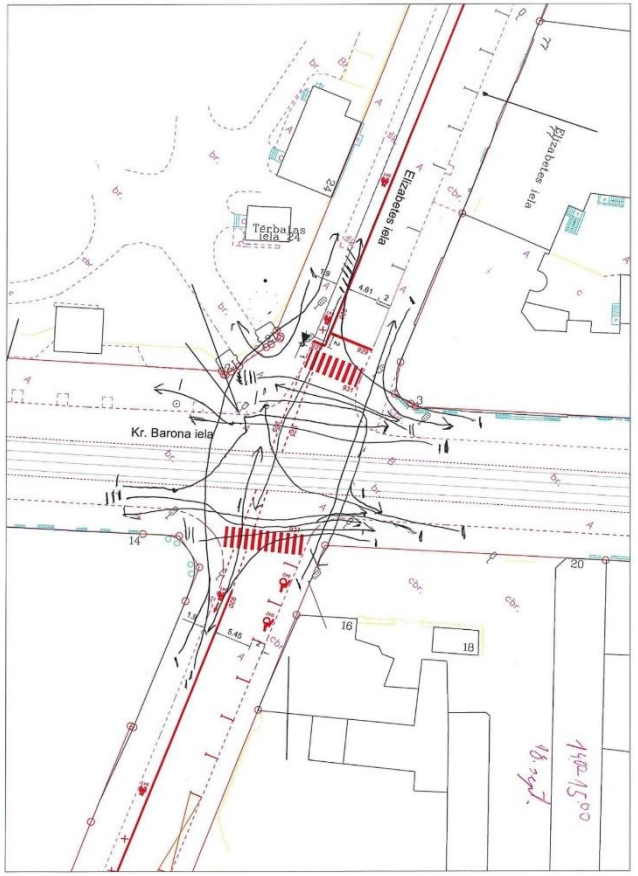
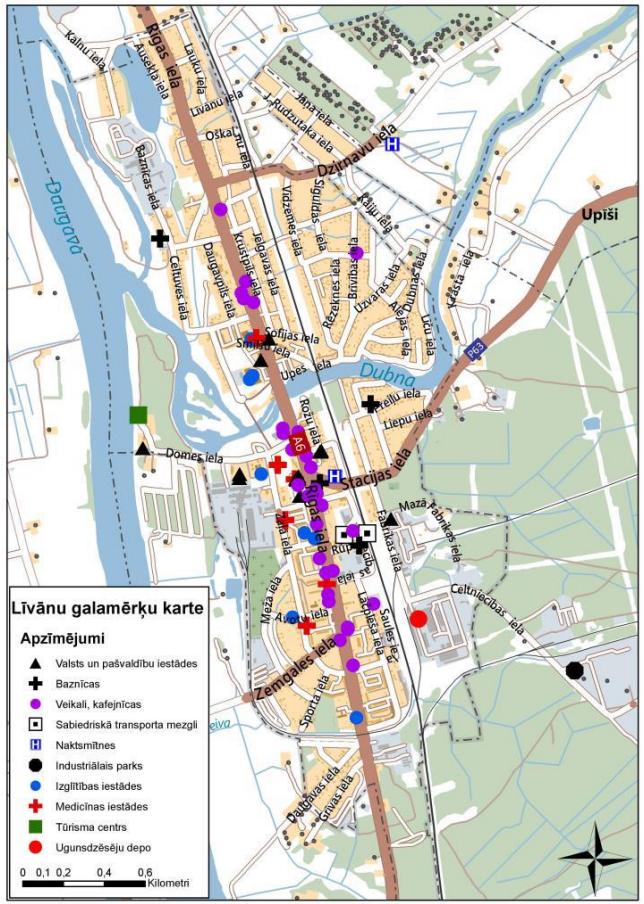

Automašīnu un velosipēdistu skaits Kr. Barona ielā sastrēgumstundas laikā (plkst. 17-18)
600
500
400
300
200
100
0
509
548
238
470
2017. gads
2018. gads

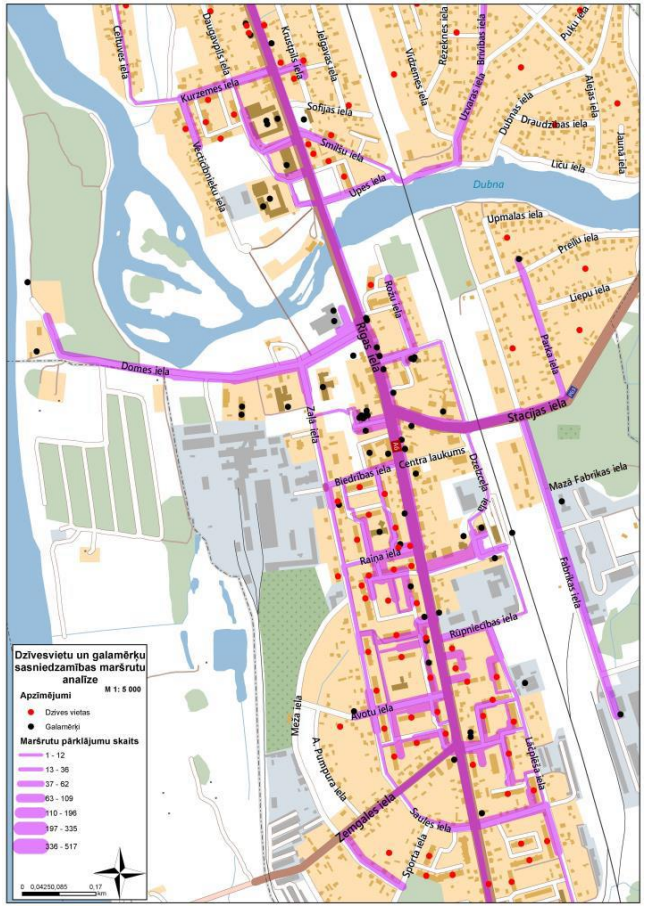
Chaotic cycling directions





Origin to destination approach





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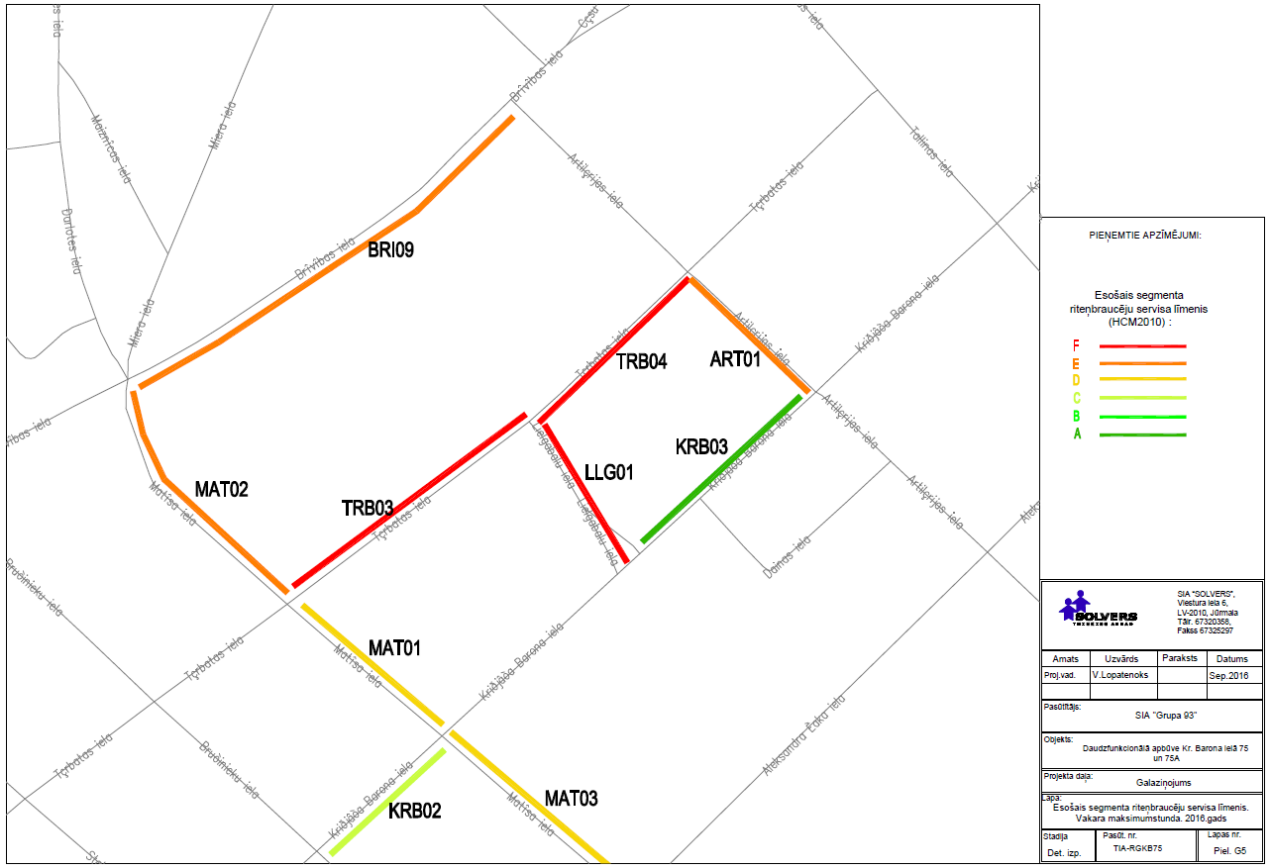
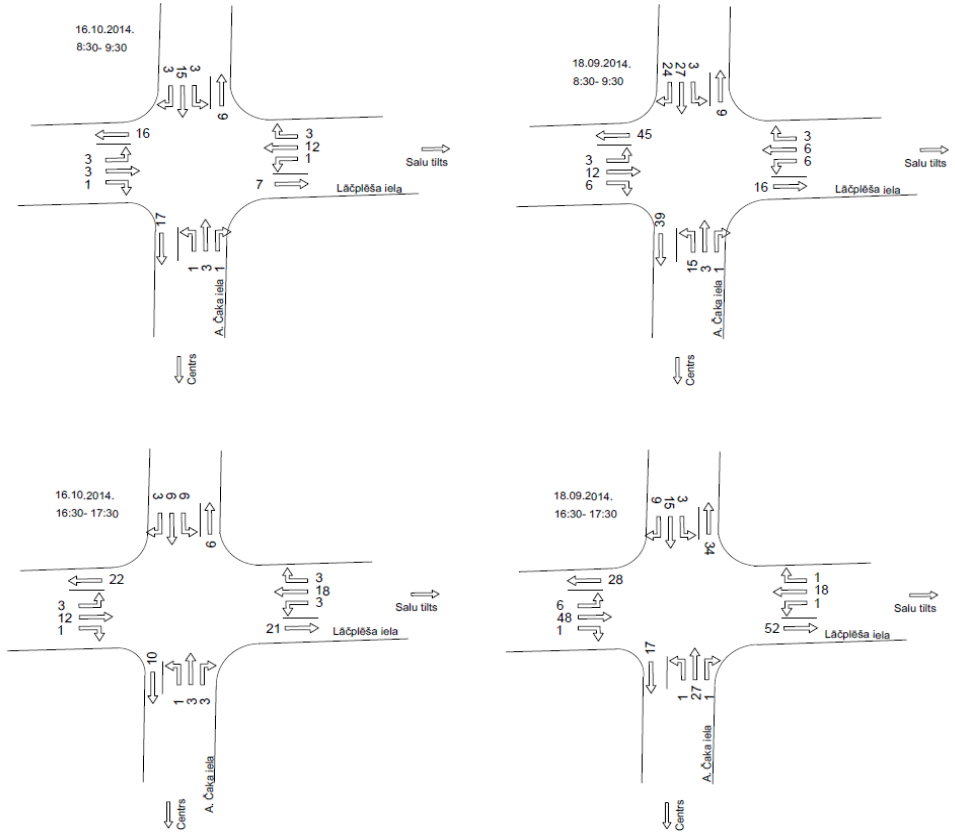
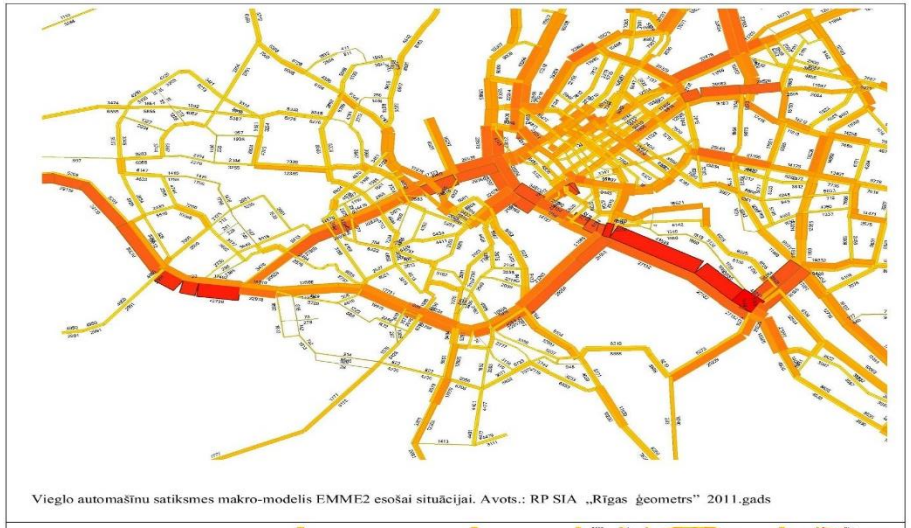
Data from detailed plans and local plans

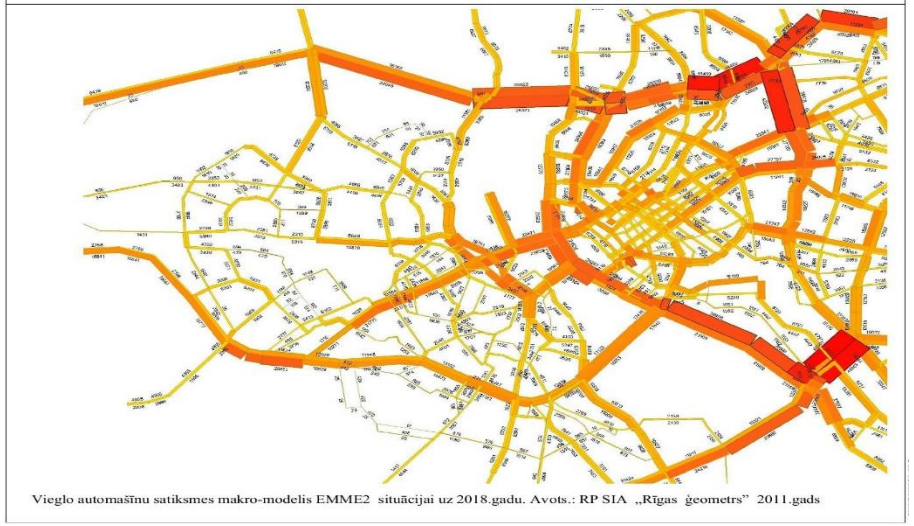




Riga Transport Model and EMME Transport Modeling Software.



Vieglo automašīnu satiksmes makro-modelis EMME2 esošai situācijai. Avots.: RP SIA „Rīgas ģeometrs" 2011.gads



Vieglo automašīnu satiksmes makro-modelis EMME2 situācijai uz 2018.gadu. Avots.: RP SIA „Rīgas ģeometrs" 2011.gads

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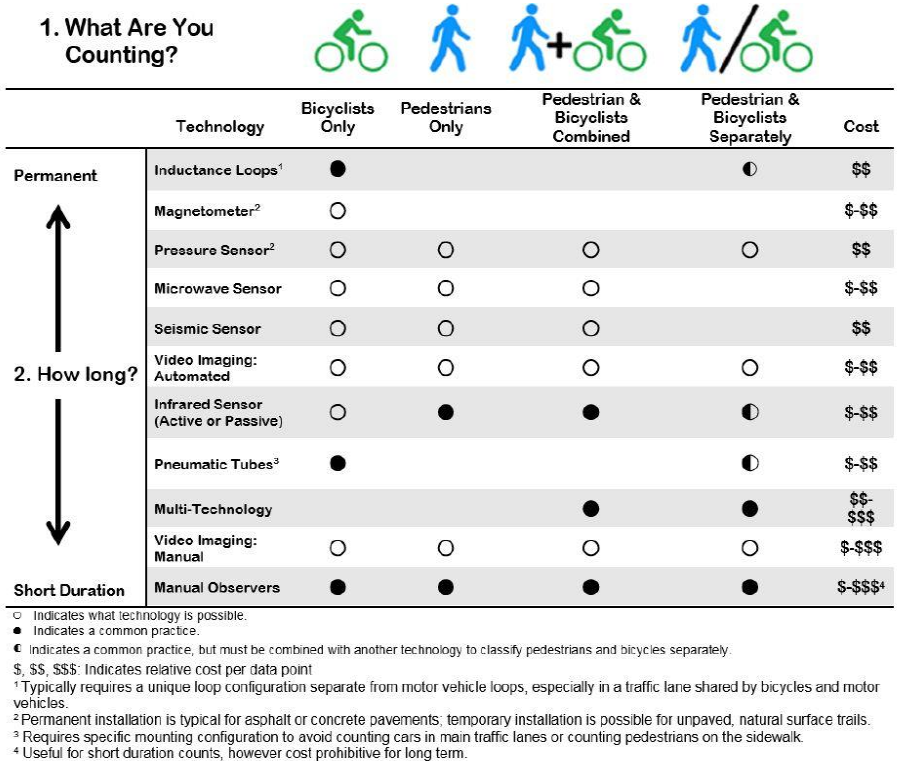
Cycling data collecting conditions:

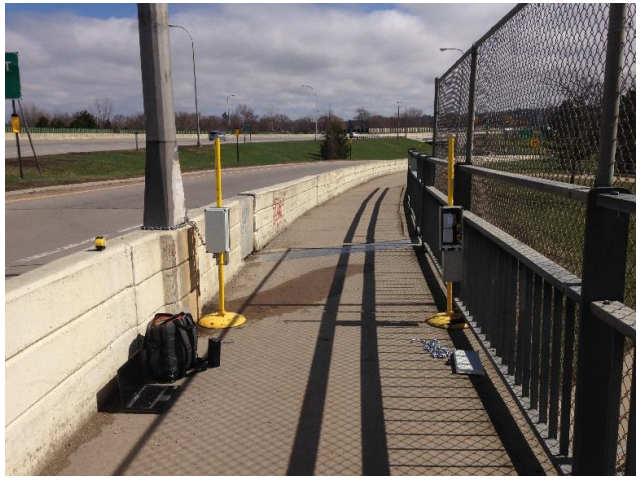
- Obtaining data in an activity or project
- Long-term or continuous acquisition of data
- Getting data at junctions and straight streets
- Cycling data collection and publication format
- Traffic flow tracking methodology
- Data collecting methods

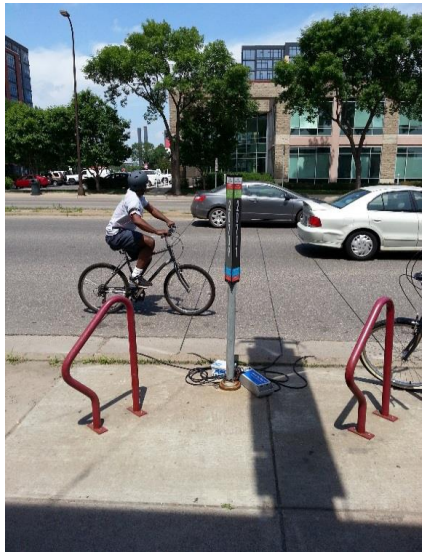
- citizen survey
- manually / using video;
- using pneumatic tubes;
- using microwaves;
- using inductive loops;
- using infra-red rays;
- using inductive loops together with infra-red rays.
- using video analysis (computer vision technology)
- popular cell phone application
- bikeshare data and PT data
- mobile positioning data



1. What Are You Counting?	Technology	Bicyclists Only	Pedestrians Only	Pedestrian & Bicyclists Combined	Pedestrian & Bicyclists Separately	Cost
Permanent	Inductance Loops[1]	●			◐	$$
	Magnetometer[2]	○				$-$$
	Pressure Sensor[2]	○	○	○	○	$$
	Microwave Sensor	○	○	○		$-$$
	Seismic Sensor	○	○	○		$$
2. How long?	Video Imaging: Automated	○	○	○	○	$-$$
	Infrared Sensor (Active or Passive)	○	●	●	◐	$-$$
	Pneumatic Tubes[3]	●			◐	$-$$
	Multi-Technology			●	●	$$-$$$
	Video Imaging: Manual	○	○	○	○	$-$$$
Short Duration	Manual Observers	●	●	●	●	$-$$$[4]

○ Indicates what technology is possible.
● Indicates a common practice.
◐ Indicates a common practice, but must be combined with another technology to classify pedestrians and bicycles separately.
$, $$, $$$: Indicates relative cost per data point
[1] Typically requires a unique loop configuration separate from motor vehicle loops, especially in a traffic lane shared by bicycles and motor vehicles.
[2] Permanent installation is typical for asphalt or concrete pavements; temporary installation is possible for unpaved, natural surface trails.
[3] Requires specific mounting configuration to avoid counting cars in main traffic lanes or counting pedestrians on the sidewalk.
[4] Useful for short duration counts, however cost prohibitive for long term.





mobike

STRAVA

bike citizens

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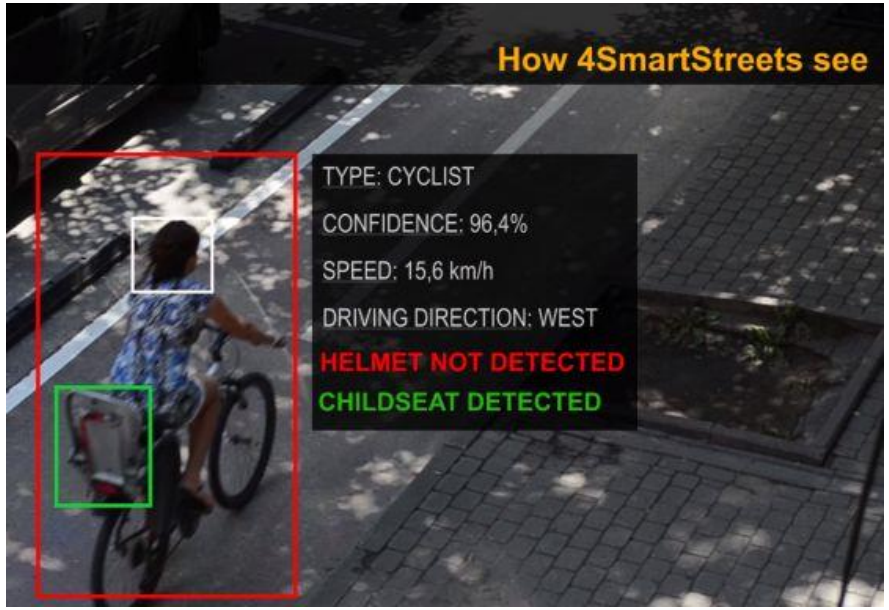
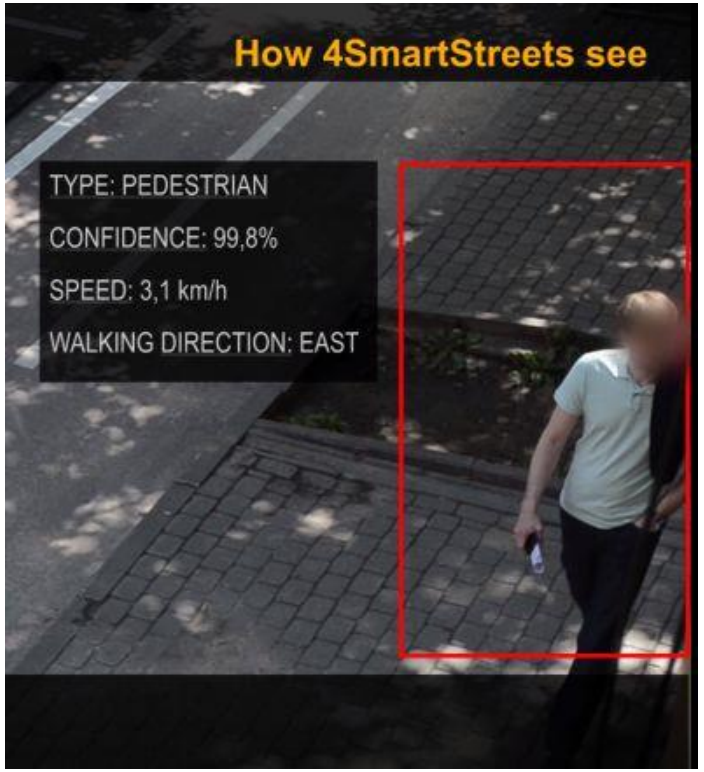
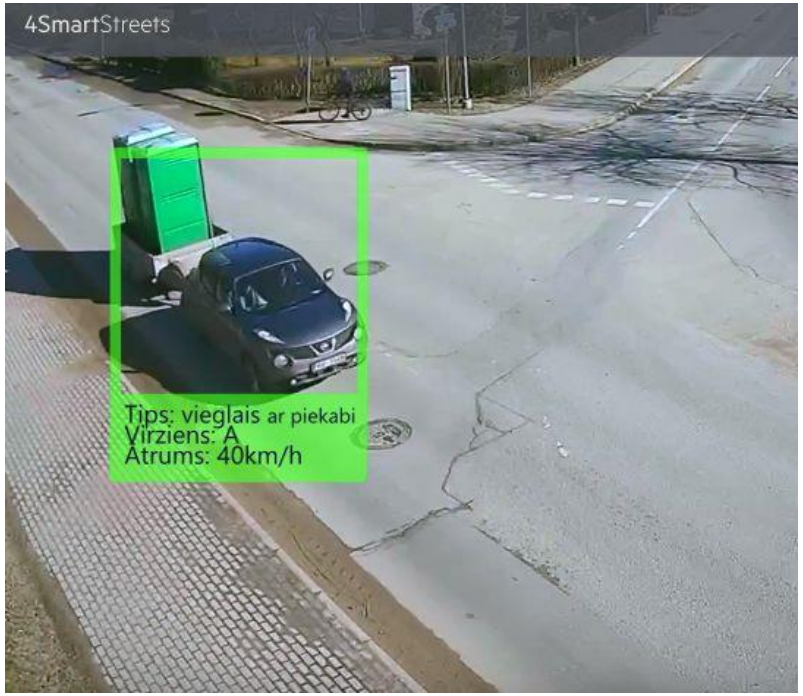
Qualitative biking data:

- Cyclist flows
- Route selection
- Driving speed
- Weather
- Cyclists age
- The share of electric bicycles
- Proportion of cargo bikes
- Use of helmets







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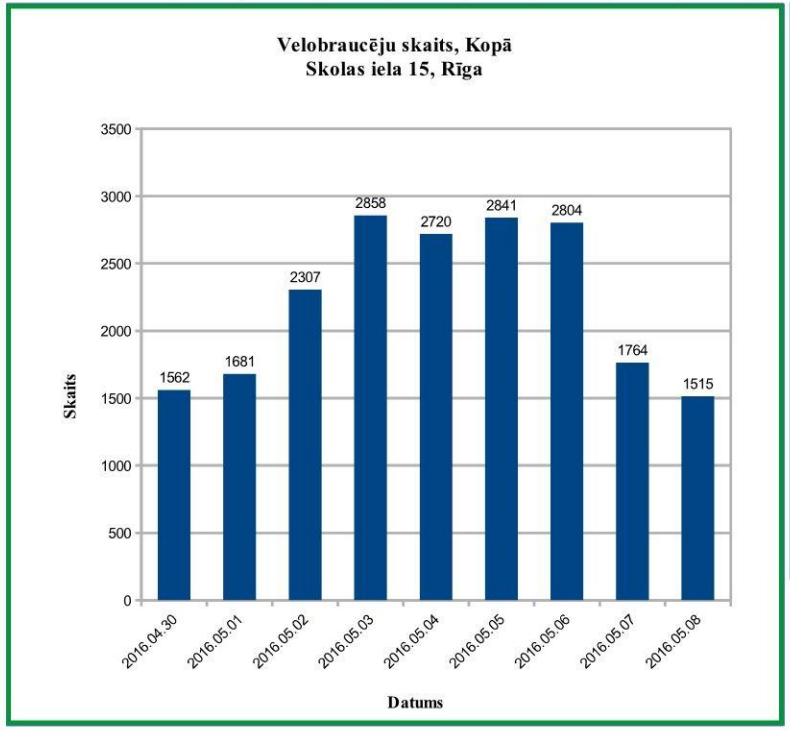
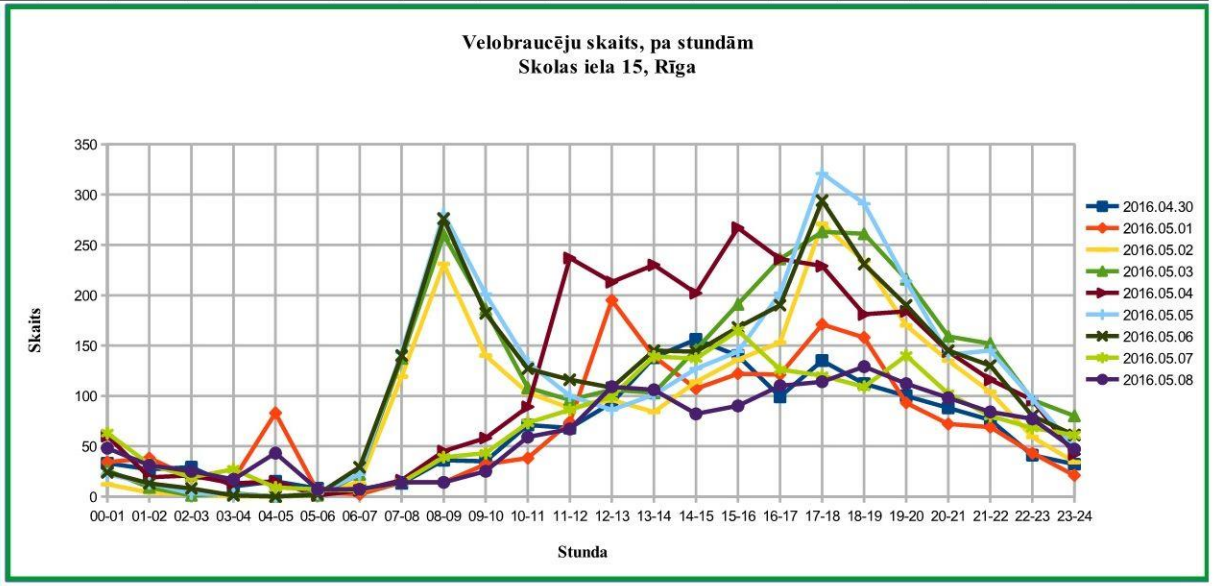
Velosipēdistu skaita grafiks
Skolas iela 15, Rīga

Datums \ Laiks	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	10-11	11-12	12-13	13-14	14-15	15-16	16-17	17-18	18-19	19-20	20-21	21-22	22-23	23-24	KOPĀ
2016.04.30	33	27	29	10	15	8	7	13	36	35	71	68	93	138	156	140	99	135	112	100	88	76	41	32	**1562**
2016.05.01	34	38	19	17	83	5	2	14	14	32	38	74	195	139	107	122	121	171	158	93	72	69	43	21	**1681**
2016.05.02	12	4	2	0	0	4	14	119	231	140	103	88	96	84	114	136	153	271	234	170	135	104	59	34	**2307**
2016.05.03	26	9	1	3	0	1	22	137	260	186	108	96	106	103	146	191	236	263	261	216	159	152	96	80	**2858**
2016.05.04	60	19	21	13	15	1	6	16	45	58	89	237	213	230	202	267	236	229	181	184	144	116	96	42	**2720**
2016.05.05	22	13	3	2	0	3	22	143	281	201	133	100	86	101	127	144	202	321	291	214	141	145	97	49	**2841**
2016.05.06	24	13	8	1	0	2	29	140	276	182	127	116	108	145	144	168	190	294	231	190	145	130	80	61	**2804**
2016.05.07	63	32	19	27	9	7	6	14	39	43	73	86	99	139	137	165	126	120	109	140	102	80	68	61	**1764**
2016.05.08	48	31	25	17	43	7	7	14	14	25	59	67	109	106	82	90	110	114	129	112	98	84	77	47	**1515**

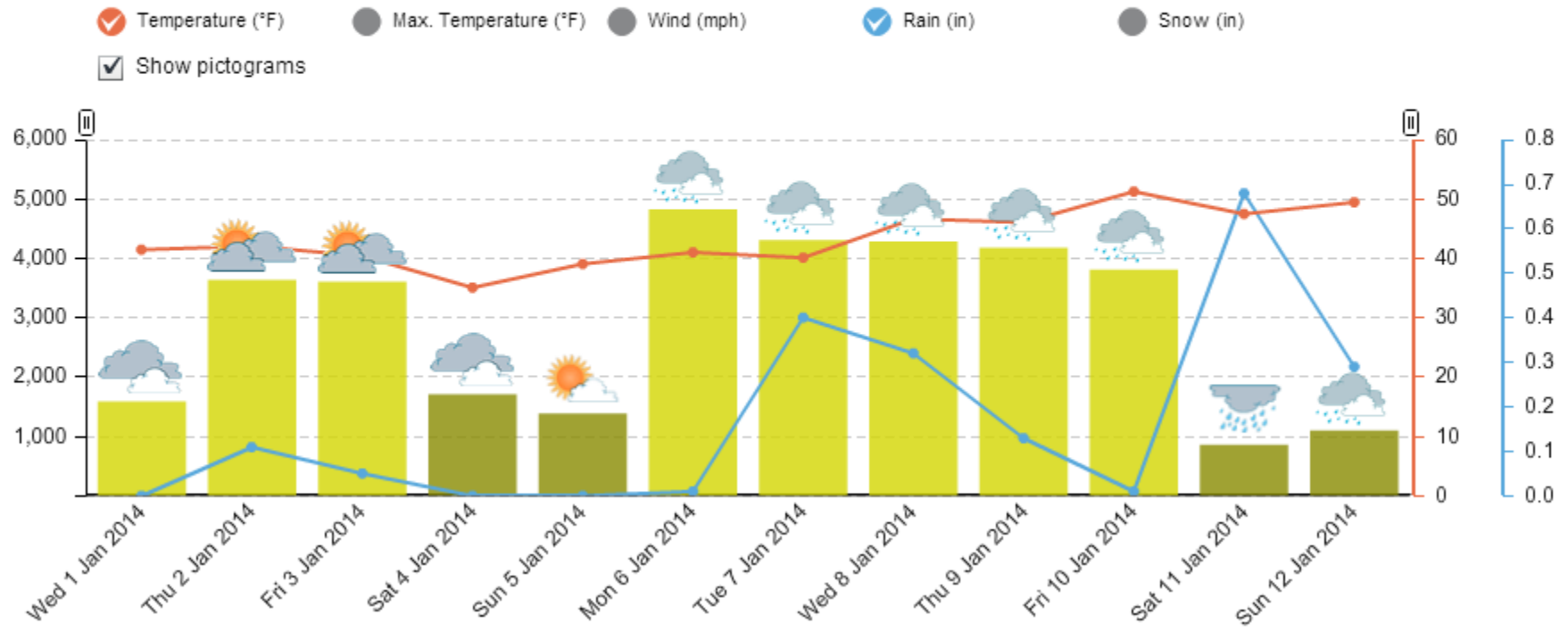




Norādītajā laika periodā kopā: **20052**

01/01/2014 - 01/12/2014

Hawthorne Bridge Total



eco counter

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Questions?

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