



Cycle Data Hub

Steven Soetens



Why a CycleDataHub?

1. Uniformity
2. Multimodality
3. Comparability
4. Innovation and Development



The Cycling Ref



1

You have a bicycle

- Available

2

You know how to cycle

- Understand
- Balance

3

You can process other traffic

- You know traffic rules

4

You like bicycles and you encourage others

- Publicity
- Policy
- Discovery



Provincie
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North Sea Region
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European Regional Development Fund



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The Data Reflex

1

Available

- Make information available to all partners

2

Understand

- Understand the information and format of all datasets

3

Process

- GDPR
- Data standards
- Open Data

4

Publish

- Share
- Discover
- Innovate
- Develop ITS



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North Sea Region
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European Regional Development Fund



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Cycle data: Available

Cycle Use

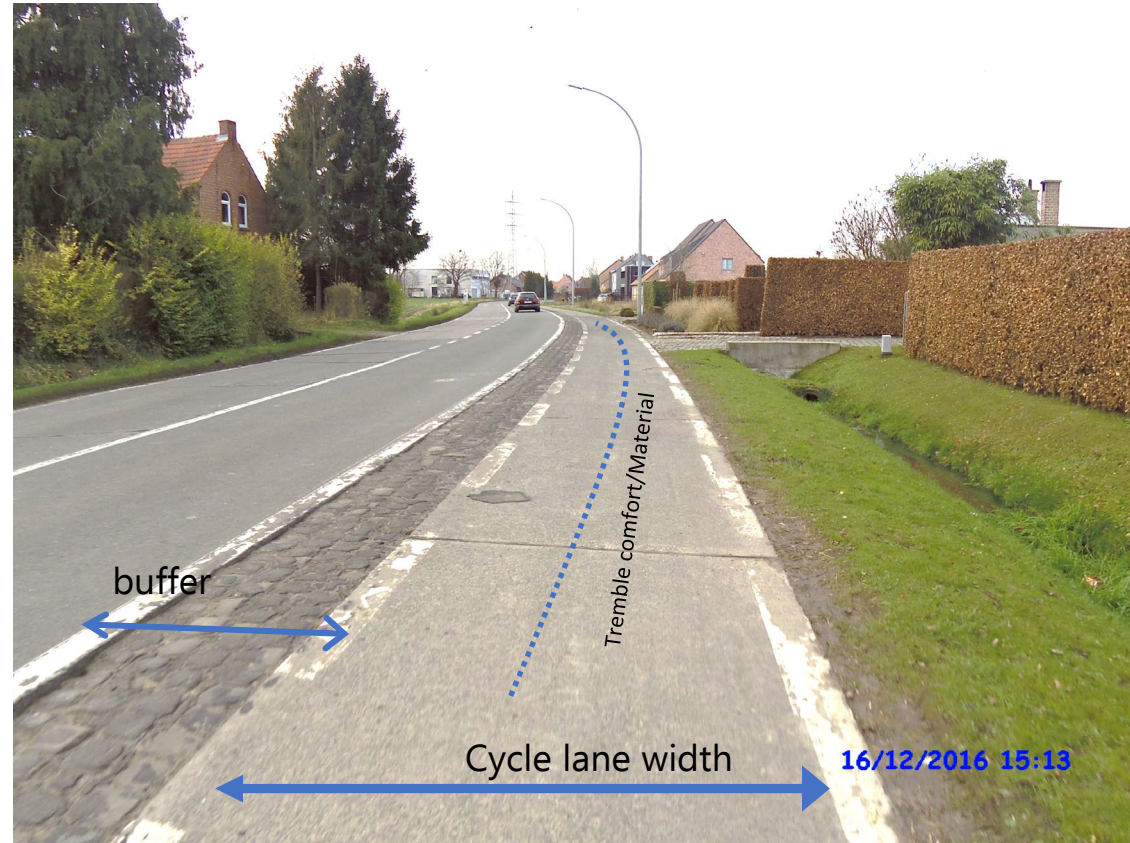


Datum				Opmerking	T16	T24	T16±%	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
ma. 03/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2920	3011	57%	6	6	2	4	6	16	84	346	564	187	87	80	118	91	81	153	296	437	206	109	45	36	35	16
di. 04/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2505	2610	35%	11	3	2	1	6	17	80	316	484	175	59	62	95	67	67	109	269	317	211	99	61	34	39	26
wo. 05/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2681	2796	44%	16	3	2	3	6	14	82	284	462	156	67	73	152	130	91	130	237	375	248	91	61	42	47	24
do. 06/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		3032	3171	63%	13	3	5	5	7	17	92	329	547	208	77	66	115	109	99	175	319	426	229	134	67	40	51	38
vr. 07/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		2613	2748	40%	10	7	6	2	7	16	69	252	454	157	65	83	134	126	137	157	297	315	170	92	64	41	45	42
za. 08/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		771	921	-59%	31	23	10	9	15	8	18	19	42	58	66	65	57	69	80	38	44	55	48	47	35	30	18	36
zo. 09/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		369	439	-80%	13	16	11	7	1	4	6	16	9	33	31	34	24	24	31	41	41	38	22	12	3	4	8	10
ma. 10/02/2020	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		0	11	-100%	4	5	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0



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Cycle Infrastructure

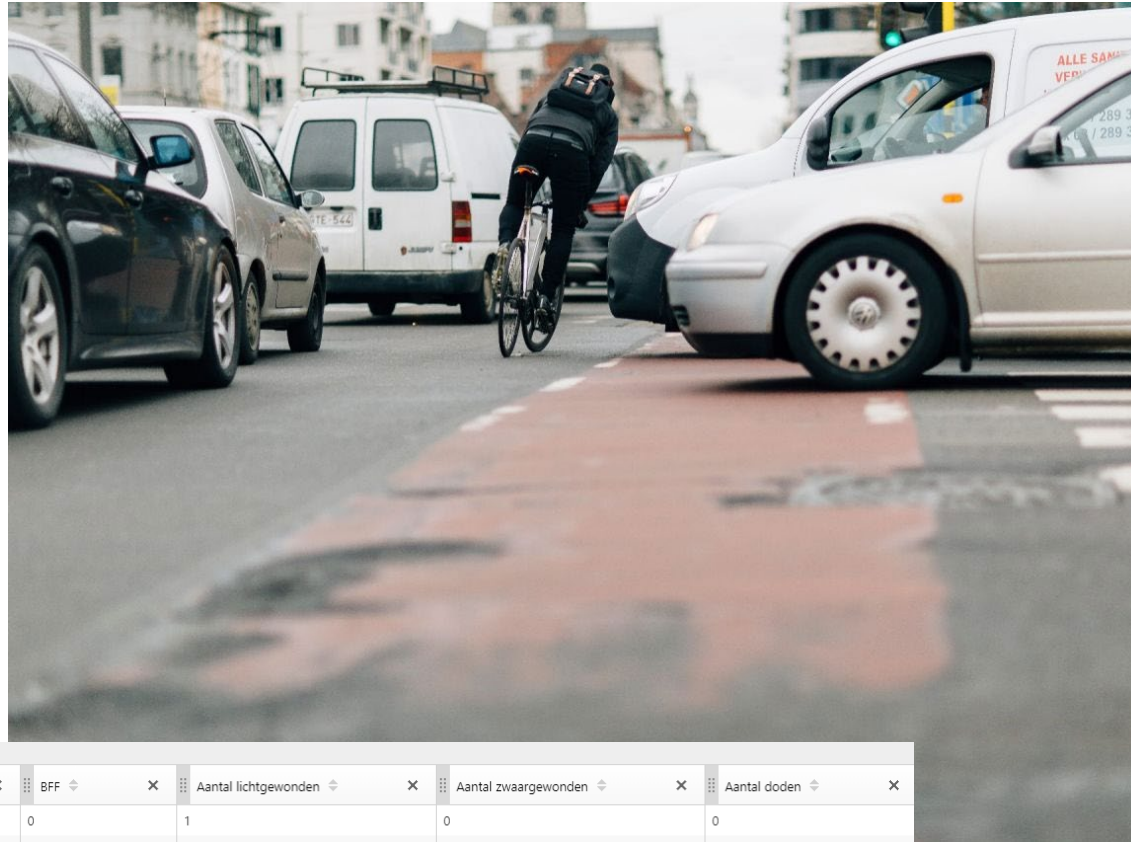


lering	Reden breedtemindering	Effectieve breedte (breedte bij aanleg - breedtemindering)	Score breedte /10	BFF	Type tracé	Snelheidszone langs fietspad	Richting
...	Geen breedtemindering	100	2,5	Functionele route	Gemarkeerd trace	50 km/h	Enrichting
...	Geen breedtemindering	100	2,5	Functionele route	Zonder verkeersbord noch ma...	50 km/h	Enrichting
...	Geen breedtemindering	100	2,5	Functionele route	Gemarkeerd trace	50 km/h	Enrichting
...	Geen breedtemindering	165	9,1	Functionele route	D7 trace	50 km/h	Enrichting
...	Geen breedtemindering	175	10,0	Functionele route	Gemarkeerd trace	50 km/h	Enrichting
...	Geen breedtemindering	150	7,5	Functionele route	D7 trace	70 km/u	Enrichting



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Safety



Fietsongevallen 2017

Gemeente	Locatie 1	Locatie 2	Kruispunt	BFF	Aantal lichtgewonden	Aantal zwaargewonden	Aantal doden
Brecht	Mieksebaan 163		niet op kruispunt	0	1	0	0
Brecht	N117000		niet op kruispunt	1	1	0	0
Brecht	N115000		niet op kruispunt	1	0	1	0
Brecht	Brugstraat	Ebeslaan	op kruispunt	1	1	0	0
Brasschaat	N001000	Wipstraat	op kruispunt	1	1	0	0
Brasschaat	N001000		niet op kruispunt	1	1	0	0
Brecht	Brasschaatbaan 49		niet op kruispunt	1	1	0	0
Brasschaat	N001000	Eikendreef	op kruispunt	1	1	0	0
Brasschaat	Valeriaan 9		niet op kruispunt	0	2	0	0
Brecht	Brugstraat 183		niet op kruispunt	1	1	0	0
Brasschaat	N121000		niet op kruispunt	0	1	0	0

incie
verpen

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To measure is to know

1

Available

- Make information available and accessible to all partners

How much is a lot?



Do you use any kind of data related to cycling today?

YES: you came to the right place

NO: you are welcome, we hope we can convince you to start now



Do you handle any data yourself (or anyone of your company or institution)?

YES: great, you probably have a certain level of data reflex, which is the starting point for making that data useful for cyclists

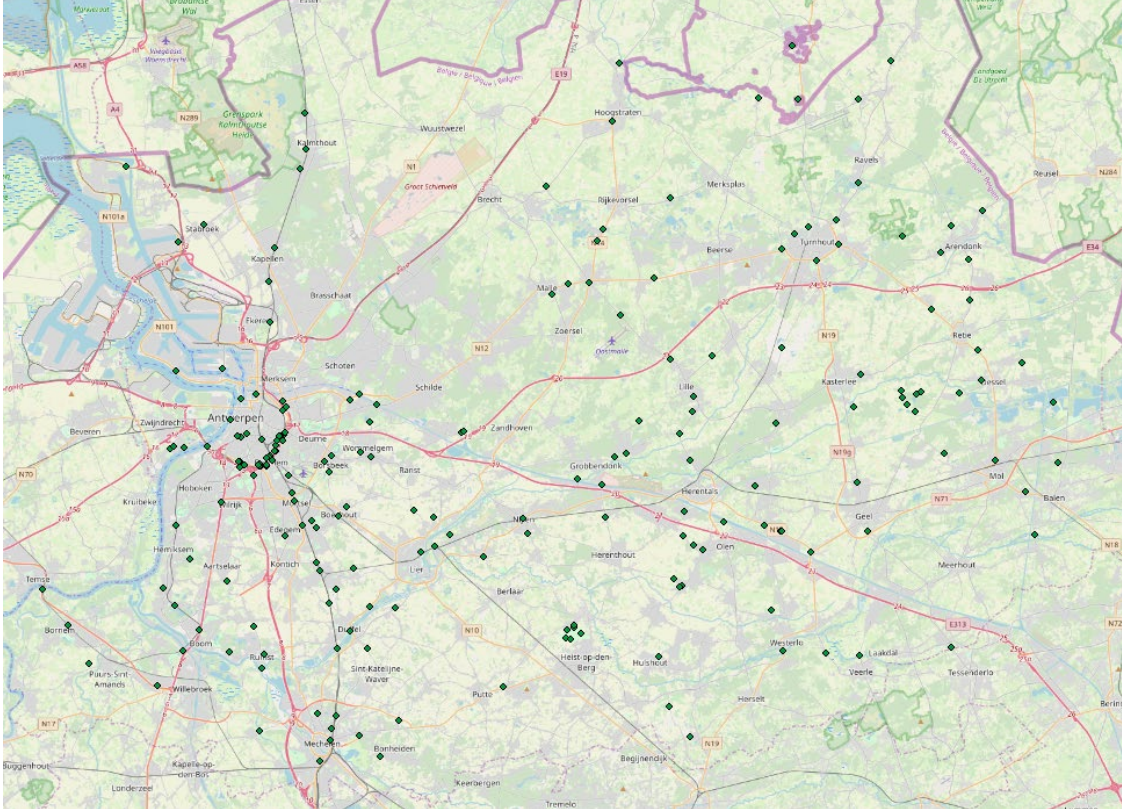
NO: we hope to encourage you to get involved with these datasets, because it allows you to better understand what these data mean and how you can use those numbers



Cycle data: Understanding the data



or



or

```

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<gpx:rpt lat="52.046527862548828" lon="4.947795867919922">
<gpx:Subclass>0600597E8A01E08715001F002600A45FA800</gpx:Subclass>
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<

```



What did you order?
 What is yours?
 In what format is it?
 And what can you do with it?

1. Be precise
2. Know what you own
3. Prepare for later



When you order cycling data, do you define data formats in the contract beforehand?

YES: you have a developed datareflex, you are already anticipating the further use of your data

NO: you already understand that data will provide you insights in cycling, but you are probably still wondering how you or anyone could possible (re)use these datasets



Cycle data: Processing



mapillary

Privacy



Do you have privacy sensitive data? (gps tracks, photo, video)

YES: you are aware of the sensitivity of your data, second, you are probably also aware of the GDPR that your data have to comply to, or of any other privacy legislation

NO: you're lucky 😊, although tracks are extremely useful to learn more on speed, location, numbers, travel time, origin-destinations of cyclists




PUBLIC SERVICE ANNOUNCEMENT:

OUR DIFFERENT WAYS OF WRITING DATES AS NUMBERS CAN LEAD TO ONLINE CONFUSION. THAT'S WHY IN 1988 ISO SET A GLOBAL STANDARD NUMERIC DATE FORMAT.

THIS IS *THE* CORRECT WAY TO WRITE NUMERIC DATES:

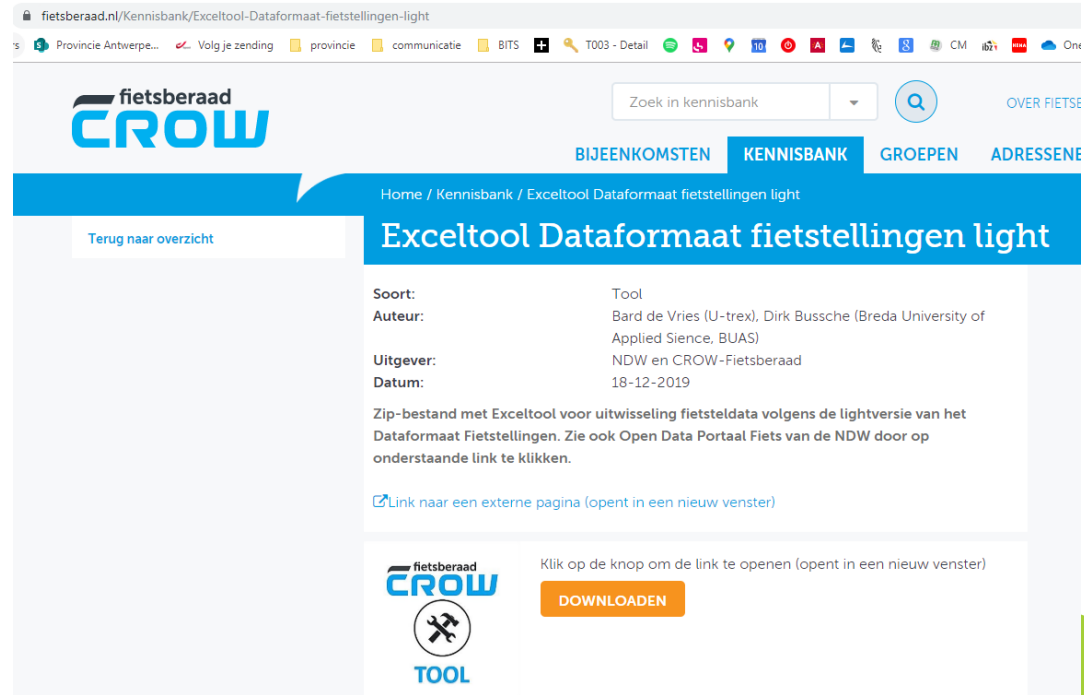
2013-02-27

THE FOLLOWING FORMATS ARE THEREFORE DISCOURAGED:

02/27/2013 02/27/13 27/02/2013 27/02/13
20130227 2013.02.27 27.02.13 27-02-13
27.2.13 2013. II. 27. 27/2-13 2013.158904109
MMXIII-II-XXVII MMXIII $\frac{LVII}{CCCLXV}$ 1330300800
 $((3+3) \times (111+1) - 1) \times 3 / 3 - 1 / 3^3$ 2013 Missss
10/11011/1101 02/27/20/13 $\begin{matrix} 2 & 3 & 1 & 4 \\ 0 & 1 & 2 & 3 & 7 \\ 5 & 6 & 7 & 8 \end{matrix}$ 

Standard format

ISO8601



fietsberaad.nl/Kennisbank/Exceltool-Dataformaat-fietstellingen-light

Provincie Antwerpe... Volg je zending provincie communicatie BITS T003 - Detail CM

fietsberaad CROW Zoek in kennisbank OVER FIETSE

BIJENKOMSTEN KENNISBANK GROEPEN ADRESSENE

Home / Kennisbank / Exceltool Dataformaat fietstellingen light

Terug naar overzicht Exceltool Dataformaat fietstellingen light

Soort: Tool
Auteur: Bard de Vries (U-trex), Dirk Bussche (Breda University of Applied Science, BUAS)
Uitgever: NDW en CROW-Fietsberaad
Datum: 18-12-2019

Zip-bestand met Exceltool voor uitwisseling fietsteldata volgens de lightversie van het Dataformaat Fietstellingen. Zie ook Open Data Portaal Fiets van de NDW door op onderstaande link te klikken.

[Link naar een externe pagina \(opent in een nieuw venster\)](#)

Klik op de knop om de link te openen (opent in een nieuw venster)

fietsberaad CROW TOOL DOWNLOADEN



1	SITE	DATE	ZONE	FROM	TO	VALUE
2	GEE02	11/9/2018	2->1	11:45	12:0	1
3	GEE02	11/9/2018	1->2	12:0	12:15	3
4	GEE02	11/9/2018	2->1	12:0	12:15	5
5	GEE02	17/9/2018	1->2	6:15	6:30	1
6	GEE02	17/9/2018	2->1	12:15	12:30	5
7	GEE02	17/9/2018	1->2	13:15	13:30	1
8	GEE02	17/9/2018	2->1	13:15	13:30	2
9	GEE02	17/9/2018	1->2	13:45	14:0	23
10	GEE02	17/9/2018	2->1	13:45	14:0	3
11	GEE02	17/9/2018	1->2	14:0	14:15	3
12	GEE02	17/9/2018	2->1	14:0	14:15	1
13	GEE02	17/9/2018	1->2	14:15	14:30	25
14	GEE02	17/9/2018	2->1	14:15	14:30	6
15	GEE02	17/9/2018	1->2	14:30	14:45	22
16	GEE02	17/9/2018	2->1	14:30	14:45	1
17	GEE02	17/9/2018	1->2	14:45	15:0	1
18	GEE02	17/9/2018	1->2	15:0	15:15	6
19	GEE02	17/9/2018	1->2	15:15	15:30	68
20	GEE02	17/9/2018	2->1	15:15	15:30	8
21	GEE02	17/9/2018	1->2	15:30	15:45	105
22	GEE02	17/9/2018	2->1	15:30	15:45	1
23	GEE02	17/9/2018	1->2	15:45	16:0	68
24	GEE02	17/9/2018	2->1	15:45	16:0	3
25	GEE02	17/9/2018	1->2	16:0	16:15	78
26	GEE02	17/9/2018	2->1	16:0	16:15	1
27	GEE02	17/9/2018	1->2	16:15	16:30	78
28	GEE02	17/9/2018	1->2	16:30	16:45	73
29	GEE02	17/9/2018	2->1	16:30	16:45	2
30	GEE02	17/9/2018	1->2	16:45	17:0	39
31	GEE02	17/9/2018	1->2	17:0	17:15	52
32	GEE02	17/9/2018	2->1	17:0	17:15	1
33	GEE02	17/9/2018	1->2	17:15	17:30	38
34	GEE02	17/9/2018	1->2	17:30	17:45	30
35	GEE02	17/9/2018	1->2	17:45	18:0	19
36	GEE02	17/9/2018	1->2	18:0	18:15	21
37	GEE02	17/9/2018	1->2	18:15	18:30	7
38	GEE02	17/9/2018	1->2	18:30	18:45	15
39	GEE02	17/9/2018	1->2	18:45	19:0	10
40	GEE02	17/9/2018	2->1	18:45	19:0	1
41	GEE02	17/9/2018	1->2	19:0	19:15	13
42	GEE02	17/9/2018	2->1	19:0	19:15	1
43	GEE02	17/9/2018	1->2	19:15	19:30	8
44	GEE02	17/9/2018	2->1	19:15	19:30	1
45	GEE02	17/9/2018	1->2	19:30	19:45	7
46	GEE02	17/9/2018	1->2	19:45	20:0	6
47	GFF02	17/9/2018	1->2	20:0	20:15	6

2020-02-11 12:32 Uurwaarden.xlsx - Excel

Gegevens Controleren Beeld Ontwikkelaars Power Pivot Geef aan wat u wilt doen...

Formulebalk Koppen In-/uitzoomen 100% Inzoomen op selectie In-/uitzoomen

Nieuw venster Alle vensters Blokkeren Verbergen Zichtbaar maken Venster

Naast elkaar weergeven Synchroon schuiven Vensterpositie herstellen



Dagverloop (Haven - Antwerpen)

Startdatum	woensdag 1 januari 2020
Einddatum	dinsdag 11 februari 2020
DetectorCode	PAM01_VL_2_FUN_1
Oorsprong (Hoofdrichting)	Haven
Bestemming (Hoofdrichting)	Antwerpen
Straat	Scheldelaan
Postcode	1930
Stad	Zaventem
Land	België



Legende

Werkdag: Alle dagen van de week exclusief zaterdag en zondag.
 Weekdag: alle dagen van de week.
 T24: Etmaal = 00h00 tot en met 23h59.
 0h: 1uur van 00h00 tot en met 00h59.
 T16: 16 uren van 06h00 tot en met 21h59.
 T16%: Percentage van T16
 T24%: Percentage van T24
 Aantal dagen: Aantal dagen die in rekening werden gebracht

Hoofdrichting (Haven - Antwerpen)

Dagverloop - Gemiddelde waarden

	Werkdag			Zaterdag			Zondag			Weekdag		
T16	459			80			67			349		
T24	489			99			78			375		
Aantal dagen	30			6			6			42		
	gemiddelde	T16%	T24%	gemiddelde	T16%	T24%	gemiddelde	T16%	T24%	gemiddelde	T16%	T24%
0h	0	0%	0%	1	1%	1%	0	0%	0%	0	0%	0%
1h	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%
2h	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%
3h	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%
4h	0	0%	0%	0	0%	0%	0	0%	0%	0	0%	0%
5h	0	0%	0%	1	1%	1%	0	0%	0%	0	0%	0%
6h	20	4%	4%	21	26%	21%	10	15%	13%	19	5%	5%
7h	5	1%	1%	4	5%	4%	7	10%	9%	5	1%	1%
8h	5	1%	1%	3	4%	3%	4	6%	5%	4	1%	1%

	1h	2h	3h	4h	5h	6h	7h	8h	9h	10h	11h	12h	13h	14h	15h	16h	17h	18h	19h	20h	21h	22h	23h	Meteo (Auto)	M
1	1	1	0	5	13	60	180	206	61	35	37	40	45	39	45	61	72	51	29	21	14	10	4	7,7	
2	1	2	1	5	13	68	208	230	64	38	36	47	48	38	44	61	76	59	36	31	21	15	6	7,8	
3	1	2	1	5	13	59	169	197	79	63	51	61	51	46	44	56	70	53	36	29	20	13	6	7,7	
4	1	1	1	5	11	60	178	215	62	38	27	44	48	42	46	61	72	57	35	28	17	14	7	7,8	

Standard structure



Open data have no or limited restrictions in use

Open data are electronically available

Open data use open standards

efficiency

transparency



Open

innovation



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Are your data in an open format

YES: You are my friend and we should talk. I would love to have access to your data and add them to the CycleDataHub

No: You are still my friend and we should talk. Openness of data is not very complicated and makes your data reusable, sustainable, and much more valuable!





Email attachment
CD-rom
download online
webservice
API



Data exchange: Language, transmission, iteration



Are your data available online? (open or restricted by passwords)

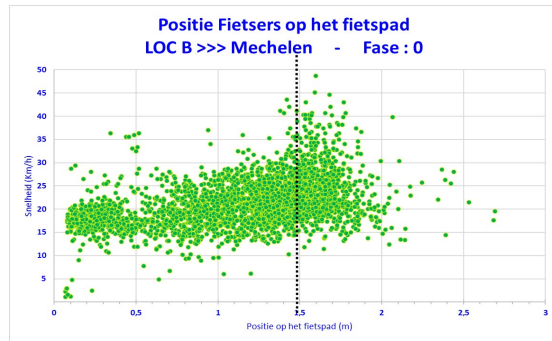
YES: you are willing to share not just the insights the data gave you, but also the data itself (and we are all grateful, businesses, researchers, policy-makers and cyclists)

NO: you are probably uncertain on how to share, or to what use you should do that. We hope that these sessions can encourage you to discuss, learn, and who knows, somehow share your data with us 😊

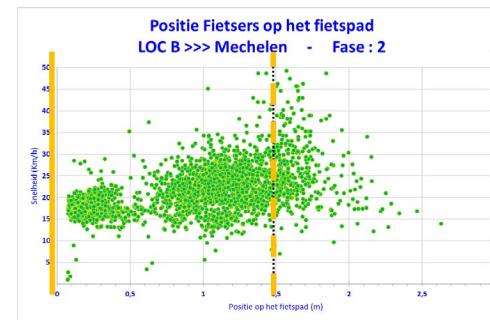


Cycle data: Publishing, Sharing, Re-using

Counts → change design



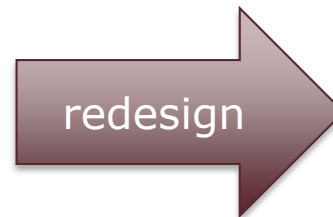
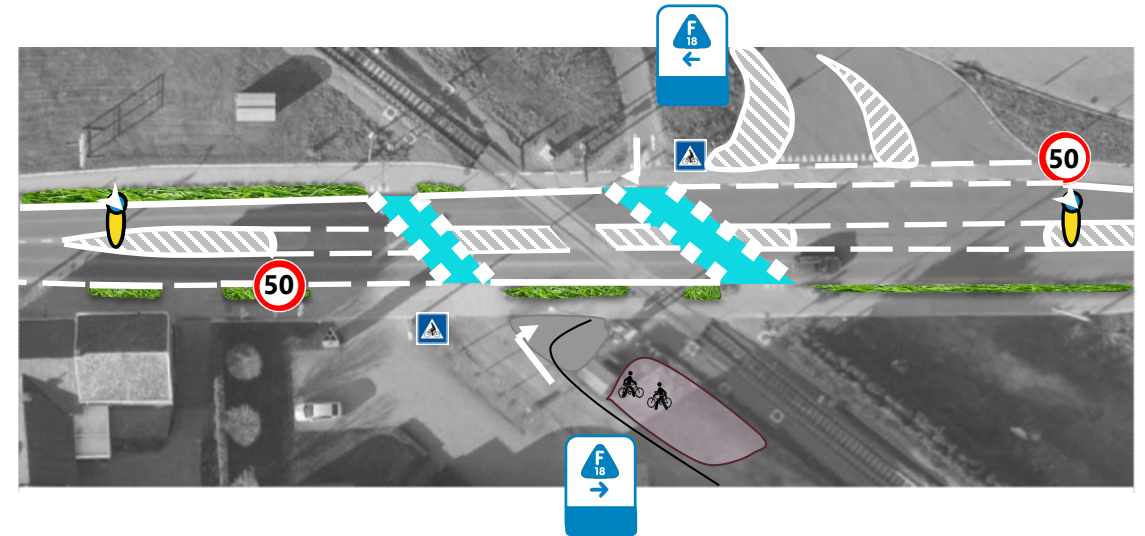
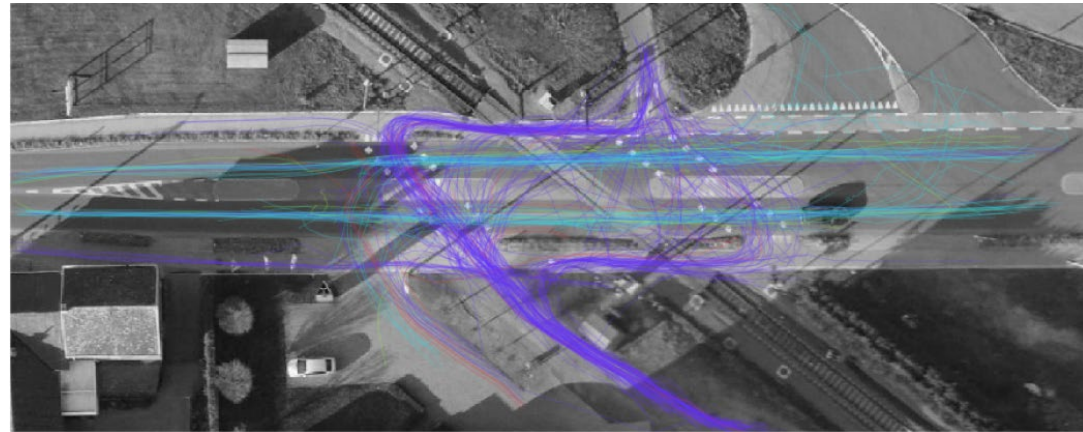
Fase 0: 1.139 m



Fase 2: 0.974 m

Object Identification → change design

Near accidents



TYPE	Total	Per day	Per hour
Bicycle-Bicycle	113	28.33	1.180413
Bicycle-Vehicle	32	8.02	0.334276
Vehicle-Vehicle	29	7.27	0.302938
Pedestrian-Bicycle	19	4.76	0.198477
Pedestrian-Vehicle	4	1.00	0.041785
TOTAL	197	49.39	2.057889



MAKE CYCLING ON YOUR ROADS BETTER

Our lights' technology detects any road issues or unsafe routes you face on your ride. You can then share these insights via our app, all to help Planners upgrade cycling infrastructure and improve safety.

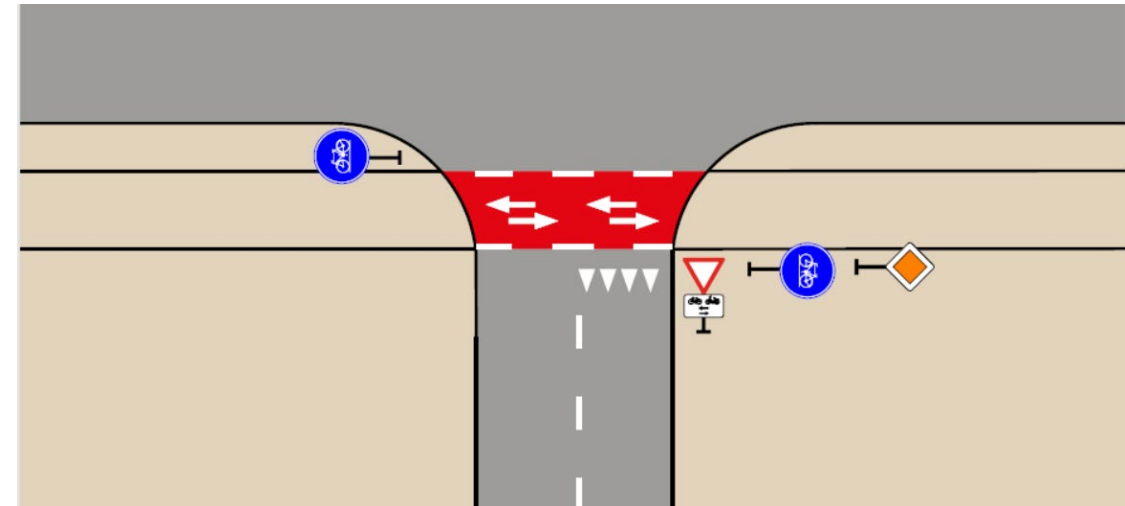
Two-way cyclelanes

Analysis of the spatial features at locations of bicycle accidents

Two-way cycle lane

- One on four intersections have a two-way cycling lane. A large number of two-way cycle lanes was found for the interesting intersection which have a large number of accidents with cyclists.
- The average amount of accidents at two-way cycle lanes is maximum for non-adjacent cycle lanes with a maximum speed of 50 km/h.
- Bringing cyclists in the view field of the drivers at a cross-section increases the safety.
- Painting two-way arrows on the road at an intersection has a positive effect and decreases the amount of accidents.

Improve safety



Air quality sniffing by bike sensor

ds
Regio Algemeen Sport Video Opinie Koken & Eten

PREMIUM



▲ Snuffelfiets wordt in Zwolle geïntroduceerd. De sensoren meten fijnstof, maar ook snelheid en bijvoorbeeld opstoppingen in het verkeer. © Snuffelfiets/Civify

In Zwolle fiets je straks om uitlaatgassen heen dankzij data uit de Snuffelfiets

Wat is de schoonste fietsroute van de stad en waar in Zwolle kun je maar beter omfietsen vanwege vervuilde lucht? Het moet de komende tijd in beeld worden gebracht met behulp van de Snuffelfiets. Inwoners van de stad krijgen een sensor op hun fiets die tijdens elk ritje de fijnstof meet, maar ook in de gaten houdt waar

Choose a healthy route



Have your data been used in an externally developed application?
(multimodality)

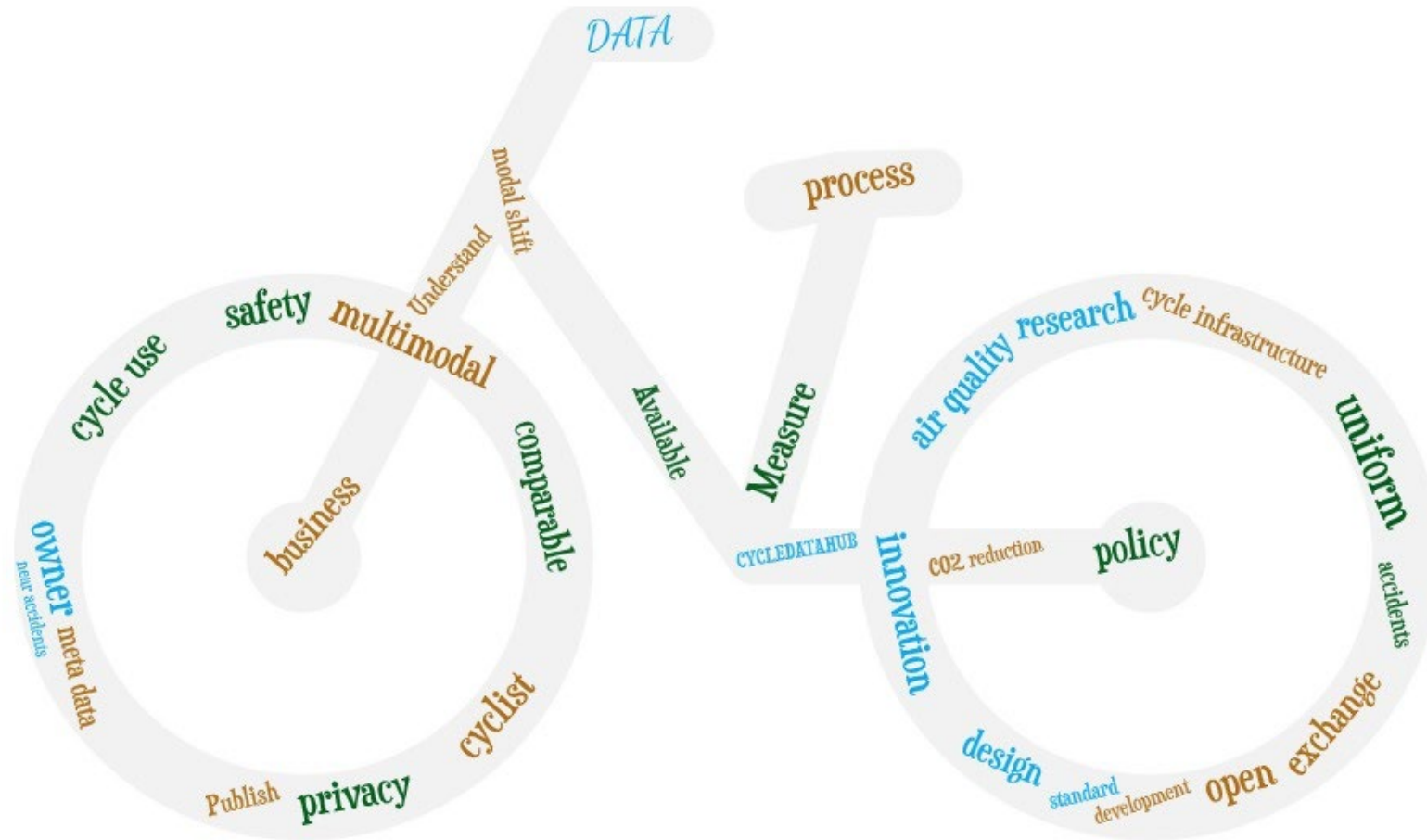
YES: that means your data is open, it is in a certain understandable and reusable standard, and your data are valuable to that degree that others are also using it for possible different purposes than you originally thought of

NO: again, don't worry, you are now curious to how your data can be used differently already.



Cycle data: Europe

Smart data



Smart data

the cyclist wants to know

- What is the safest/fastest/greenest route to my destination?
- Where can I safely park my bike?
- Is this healthy for me?
- Where are the shared bicycle stations? How many bicycles are left?
- Can I buy a combi-ticket train-shared bike?

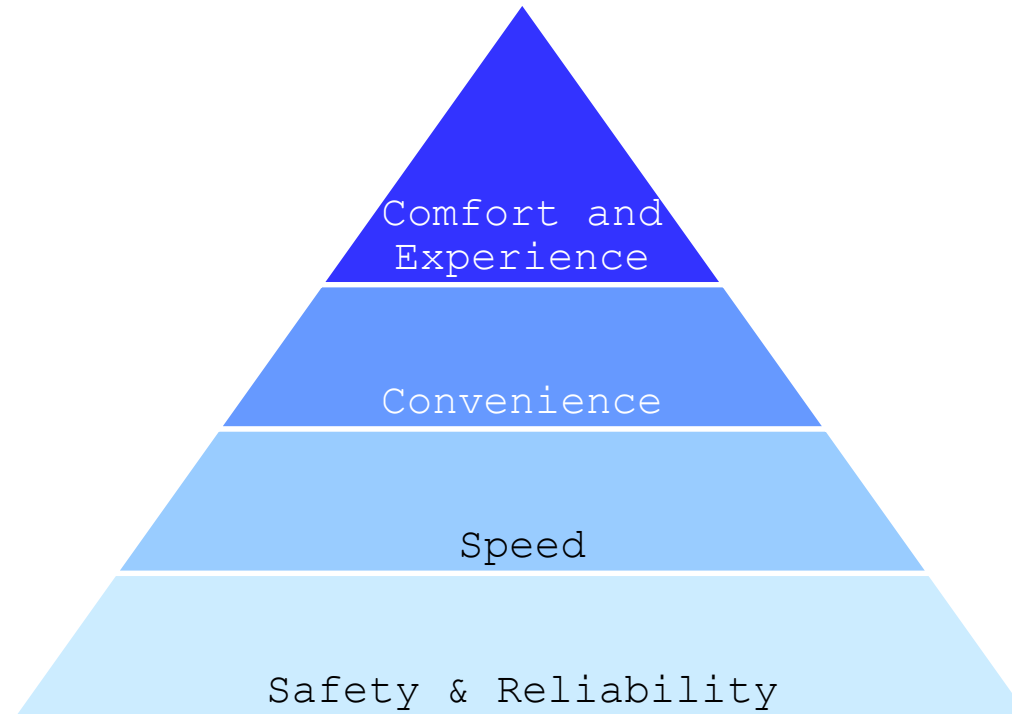
Business: is interested in

- What is the growth potential for bicycles (types) and where?
- How many people shop by bike/car/public transport and where?

Policy makers aim to know

- How many cyclists drive in my region? In this street?
- What is the modal split/shift?
- What is the quality of infrastructure (RoI)?
- How safe/unsafe is it to cycle?
- How much CO2 reduction did we achieve?
- How many children, elder, men/women cycle?

Smart data can lead to more and safer cyclists



Cycle Use

Cycling Infrastructure



Health & Safety

Climate

cycle Business Performance



Do you know the purpose of DCAT or DCAT-AP? Or what these abbreviations mean?

YES: you are a nerd, we should talk, we can learn from you.

NO: don't worry, I may have made you curious and that is good enough



Conclusions

Acquire a Data Reflex

1

Available

- Make information available and useable to all partners

2

Understand

- Understand the information and format of all datasets

3

Process

- GDPR
- Data standards
- Open Data

4

Publish

- Share
- Discover
- Develop

And add value to your data

Conclusions 2

By adding value to our data we are ready for

- the National Access Points
- the EU monitoring of cycling
- including cycling to a multimodal world
- more and safer and happier cyclists

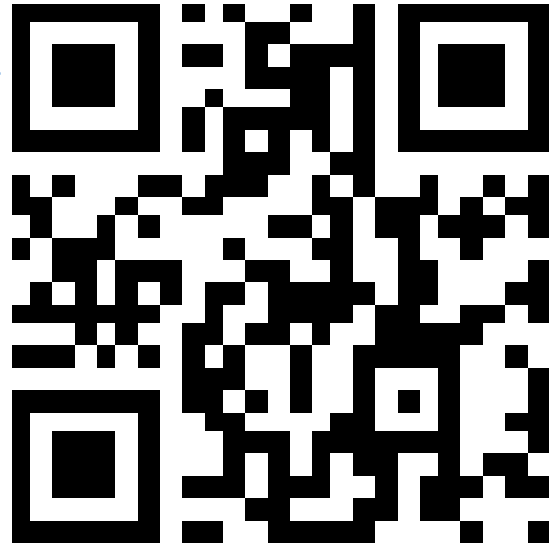


Task

Please fill in our online form:

<https://arcg.is/10f5yL0>

or



Cycle Data Hub

BITS

fietsen@provincieantwerpen.be

<https://www.provincieantwerpen.be/aanbod/drem/dienst-mobiliteit/fietsbeleid/bits.html>



Zwolle

BRUGGE



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