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Building new cycle-routes in Amsterdam:

The cost-benefit appraisal tool

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Cycling in Amsterdam

Photographer:
Fotodatabank gemeente Amsterdam

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Cycling in Amsterdam

845.000 inhabitants
78% own a bicycle
1,9 bicycles per household
665.000 trips made by bicycle daily
30km/h speedlimit on 90% of the roads

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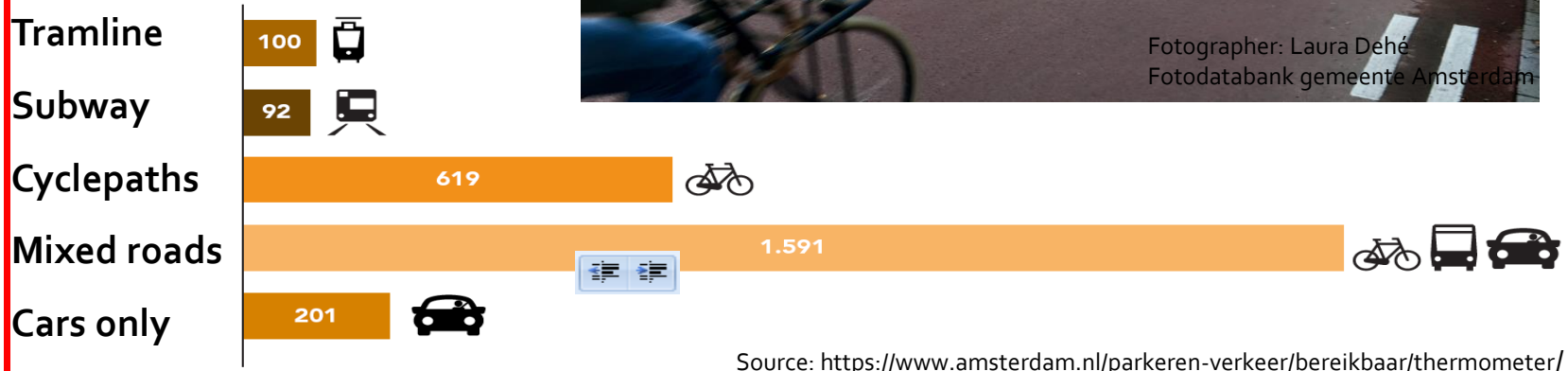
The cycling network of Amsterdam

Fotographer: Laura Dehé
Fotodatabank gemeente Amsterdam



Source: https://www.amsterdam.nl/parkeren-verkeer/bereikbaar/thermometer/

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The cycling network of Amsterdam

Getting from A to B quickly and comfortably

Source: http://maps.amsterdam.nl/plusnetten_inspraak/?LANG=nl

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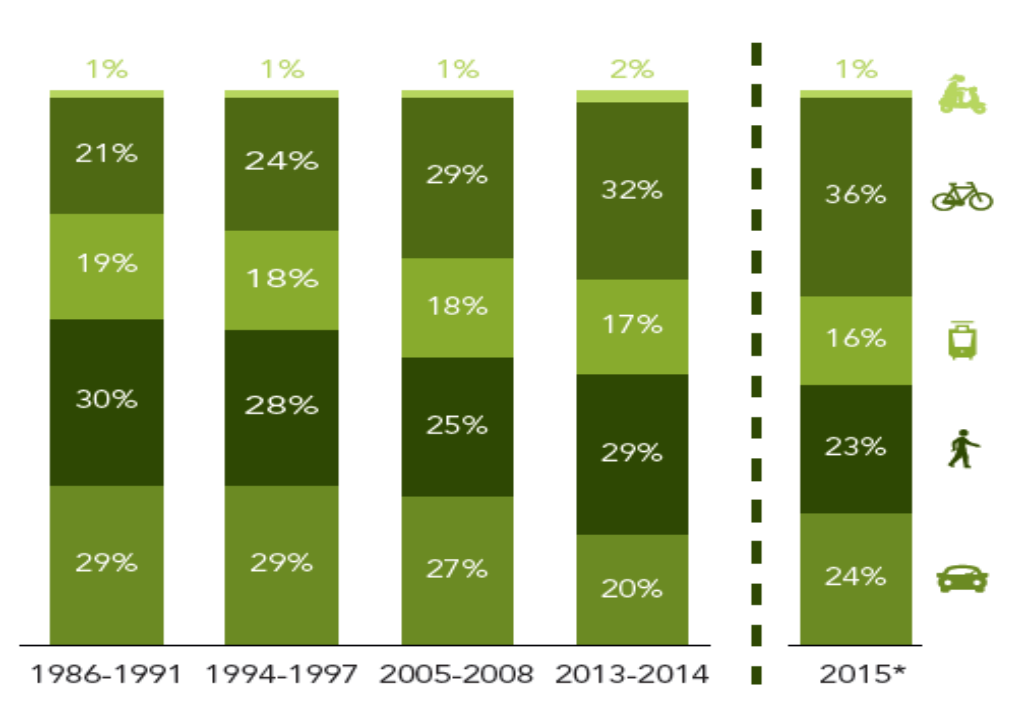
Building for the future:



Growing numbers of cyclists

Source: https://www.amsterdam.nl/parkeren-verkeer/bereikbaar/thermometer/

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Building for the future:

Missing links in the cycling network

Photographer:
Fotodatabank gemeente Amsterdam

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Building for the future:
Adding routes to the cycling network

Over 150 potential additions for the network

- bridges

- routes through parks or pedestrian areas

- tunnels

Prioritizing investments with the Cost-Benefit appraisal tool by DTV Consultants

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Wishlist appraisal tool Amsterdam

- Quick
- Simple
- Re-useable (update each year)

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Input tool

Gained travel time for cyclists

Potential use by current cyclists

Potential number of new cyclists

(Modal Shift from Car)

Costs

Costs per hour of gained travel time

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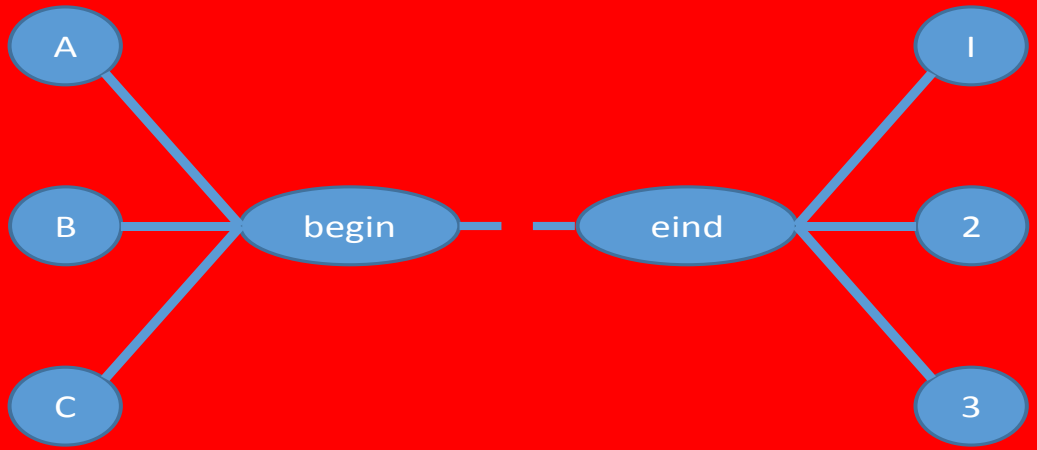
Gained travel time

"Transport model Amsterdam" not applicable due to large calculation times



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Gained travel time

	latitude,longitude
schakel beginpunt	52.37084977474824,
schakel eindpunt	52.37115262325054,
A	52.3732, 4.90691
B	52.36794, 4.90757
C	52.37085, 4.90584
1	52.37421, 4.92078
2	52.36877, 4.92166
3	52.37187, 4.92275

gemiddelde fietssnelheid 20 km/h
lengte van de schakel 160 m

Gebruiksaanwijzing

De cellen met oranje achtergrond zijn cellen die ingevuld moeten worden. Vul de breedte- en lengtegraden van het begin- en eindpunt van de schakel in. Kies drie punten (A, B en C) op 500 meter afstand van het beginpunt van de schakel verspreid om het beginpunt. Vul van deze punten de breedte- en lengtegraden in. Kies drie punten (1, 2 en 3) op 500 meter afstand van het eindpunt van de schakel, verspreid om het eindpunt. Vul ook van deze punten de breedte- en lengtegraden in. Vul de gemiddelde fietssnelheid en de lengte van de schakel in. Druk op de knop 'bereken reistijdwinst'.

Met de knoppen 'bewaar scenario' en 'laad scenario' kunnen de berekeningen opgeslagen en weer bekeken worden.

reistijden fiets zonder schakel gemiddeld 0:04:31

	begin	eind	A	B	C	1	2	3
begin		0:01:03	0:04:55	0:02:04	0:04:19	0:03:24	0:02:03	0:02:48
eind	0:02:02		0:05:06	0:04:48	0:04:30	0:03:02	0:02:15	0:02:26
A	0:02:50	0:03:54				0:06:15	0:04:54	0:05:39
B	0:01:53	0:03:23				0:05:44	0:04:23	0:05:08
C	0:02:13	0:03:17				0:05:38	0:04:17	0:05:02
1	0:01:59	0:02:55	0:05:03	0:04:45	0:04:27			
2	0:03:21	0:02:05	0:06:25	0:06:53	0:05:49			
3	0:03:52	0:02:21	0:06:56	0:05:32	0:06:20			

reistijden fiets via schakel gemiddeld 0:04:38

	begin	eind	A	B	C	1	2	3
begin		0:00:28				0:03:30	0:02:43	0:02:54
eind	0:00:28		0:05:23	0:02:32	0:04:47			
A		0:03:18				0:06:20	0:05:33	0:05:44
B		0:02:21				0:05:23	0:04:36	0:04:47
C		0:02:41				0:05:43	0:04:56	0:05:07
1	0:03:23		0:08:18	0:05:27	0:07:42			
2	0:02:33		0:07:28	0:04:37	0:06:52			
3	0:02:49		0:07:44	0:04:53	0:07:08			

verschil gemiddeld 0:00:23

	begin	eind	A	B	C	1	2	3
begin		0:00:35				0:00:00	0:00:00	0:00:00
eind	0:01:34		0:00:00	0:02:16	0:00:00			
A		0:00:36				0:00:00	0:00:00	0:00:00
B		0:01:02				0:00:21	0:00:00	0:00:21
C		0:00:36				0:00:00	0:00:00	0:00:00
1	0:00:00		0:00:00	0:00:00	0:00:00			
2	0:00:48		0:00:00	0:02:16	0:00:00			
3	0:01:03		0:00:00	0:00:39	0:00:00			

gemiddelde reistijdwinst 23

bereken reistijdwinst

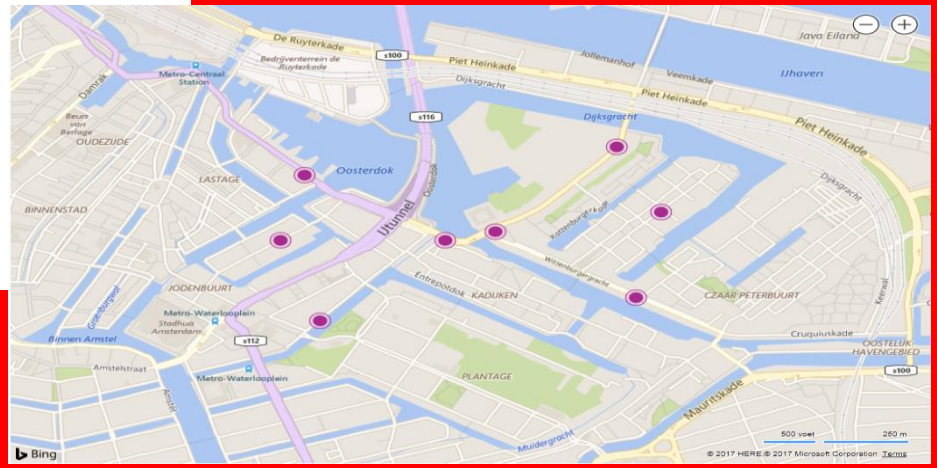
potentiële nieuwe fietsers

bij 7 minuten reistijdwinst 8% nieuwe fietsers

bij de berekende reistijdwinst betekent dit 0,44% nieuwe fietsers (overstap vanuit auto of ov)

bewaar scenario laad scenario

Routing API with OpenStreetMaps calculates travel time between 16 relations with and without adding the cycle route: average gained travel time



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Potential use current cyclists

"Transport model Amsterdam" used to redistribute current cyclists with missing link

Cyclists at link per 24 hours

Varies between 22 to 15.000 cyclists

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Potential new cyclists

Research Amsterdam:
Every 7 minutes less travel time, leads to 8% more cyclists

Cyclists at link per 24 hours

Varies between 0 to 628 new cyclists per link

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Scores

$$\frac{GTT * (UCC + 0.5 * UNC)}{COSTS}$$

GTT: Gained Travel Time
UCC: Use by Current Cyclists
UNC: Use by New Cyclists

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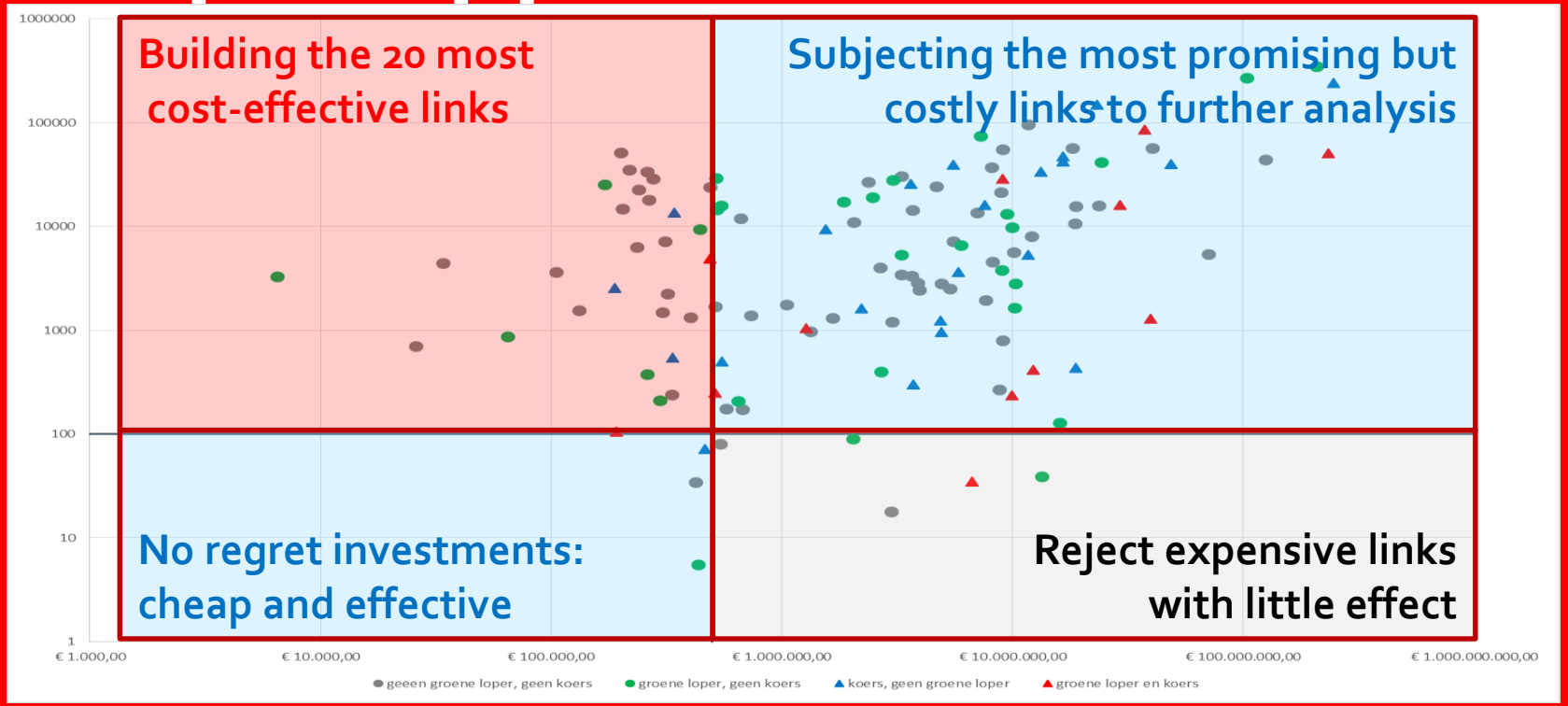
Output appraisal tool



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Thank you

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