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North-West Europe
CHIPS

European Regional Development Fund



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Flanders' Bike Valley

CHIPS
Cycle Highway Assessment
CH Academy, London, 04/10/2017



What are cycle highways?

European definition

“A Cycle Highway is a mobility product that provides a high quality functional cycling connection. As backbone of a cycle network, it connects cities and or suburbs, residential areas and major (work)places and it satisfies its (potential) users.”

ASSESSMENT van CYCLE HIGHWAYS on 22 CRITERIA

f.e comfort, directness, gamification, coherence (park&bike hubs), safety, self-explaining, sheltered...

ALL CRITERIA have 4 LEVELS (highest LEVEL = European Benchmark)

Goal of the CH Assessment?

- Assess AS IS CHs and future CHs
- Benchmark CH in other regions
- Compare and creation improvement plans based on CH Assessment
- CH Assessment = develop common language for CH Experts and CH Alumni
- CH Assessment contains FUTURE VISION >2020 (in LEVEL 3 & 4)
- Inspire & stimulate innovation

NOTE: Level 1 is a minimum CH level

Level 0





- Basics of the TOOL

- Excell TOOL
- Version 2.0 at second CH Academy in LONDON
- Low-barrier tool: only video/phot-sources are enough to use tool (PREDICTOR)
- For Detailed analysis - ECHO can be used

CYCLING HIGHWAY ASSESSMENT TOOL										Version			
										Edited by Bert Celis, Flanders' Bike Valley			
ASSESSORS: <i>people doing the joint assessment; Full Name (Organisation),</i>													
DATE													
BASIC INFO													
CYCLE HIGHWAY NAME / IDENTIFICATION:										FROM:		TO:	
ASSESSED SITUAT <i>as is</i> <i>to be</i> <i>DATE (only for future CH)</i>													
TOTAL CH DISTANCE: km													
COUNTRY:													
ROUTE-MAP*: <i>link to picture or route on internet or to central CH site?</i>													
VIDEO-SOURCE*: <i>footage of CH f.e. on CH youtube channel, f.e. made by GoPro or Drone</i>													
VR-SOURCE: <i>Virtual Reality (open) source, f.e. on HTC Vive, Oculus Rift...</i>													
* required for this high-level assessment; **also future highways can be assessed													

PICTURE EXERCISE

EXERCISE – 30 min

- SPLIT UP IN 4 or 5 GROUPS
 - Each 4 criteria – discussion by pictures:
 - Is the description per level clear and OK?
 - What level do you see on the picture?
 - Do you have other examples to describe the levels?
 - What is LEVEL 4 or LEVEL 1 (minimum) ?
 - Do you have ideas for “echo”-tools instead of the quick scan on each criterium?

Cycle Highway Assessment

Criterion 1

AWARENESS

Eén logo, één identiteit f.e. F5 = Antwerpen - Hasselt

Als je dit logo ziet, dan weet je dat je op een fietssnelweg - of fietsstrade - bent. Of in de buurt ervan. Het is meer dan louter signalisatie. Het logo geeft de fietssnelwegen een eigen identiteit. Met uitgekende bouwstenen in dezelfde huisstijl kunnen wegbeheerders aan de slag om fietssnelwegen heel herkenbaar te maken, met meer veiligheid en meer comfort. Zo kan de fietser de route intuïtief volgen, begrijpen en gebruiken. Zoals een autosnelweg.

Het logo is een initiatief van de vijf Vlaamse provincies en is een ontwerp van designer Stefan Schilling.

De letter F van fietssnelweg of fietsstrade. Na de F kan de unieke code van een fietssnelweg worden vermeld. De combinatie van een letter met een getal laat de mogelijkheid open om in een ander land of taalgebied een andere letter te gebruiken. De C van cycle, bijvoorbeeld.

Een unieke code van 1, 2 of 3 cijfers. Iedere Vlaamse fietssnelweg kreeg een eigen nummer. Een nummer maakt communiceren over een route gemakkelijk. Ook voor routeplanners zijn codes erg handig.

De driehoek symboliseert een fietszadel. Een handige vorm die ook kan dienen om een richting aan te geven.

Het logo heeft een hemelsblauwe kleur. Lichter dan de standaard blauwe kleur uit de wegcode om duidelijk het verschil te maken. Maar ook een logische variant: lichter in het verkeer, dus sneller en vlotter, onder de blote hemel.



Cycle Highway Assessment

Criterion 1

AWARENESS

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Cycle Highway Assessment

Criterion 1

AWARENESS

(also awareness for other vehicles)



Cycle Highway Assessment

Criterion 1

AWARENESS



Cycle Highway Assessment

Criterion 1

AWARENESS



Cycle Highway Assessment

Criterion 1

AWARENESS



Cycle Highway Assessment

Criterion 1

AWARENESS



Cycle Highway Assessment

Criterion 1

AWARENESS



Cycle Highway Assessment

Criterion 1

AWARENESS



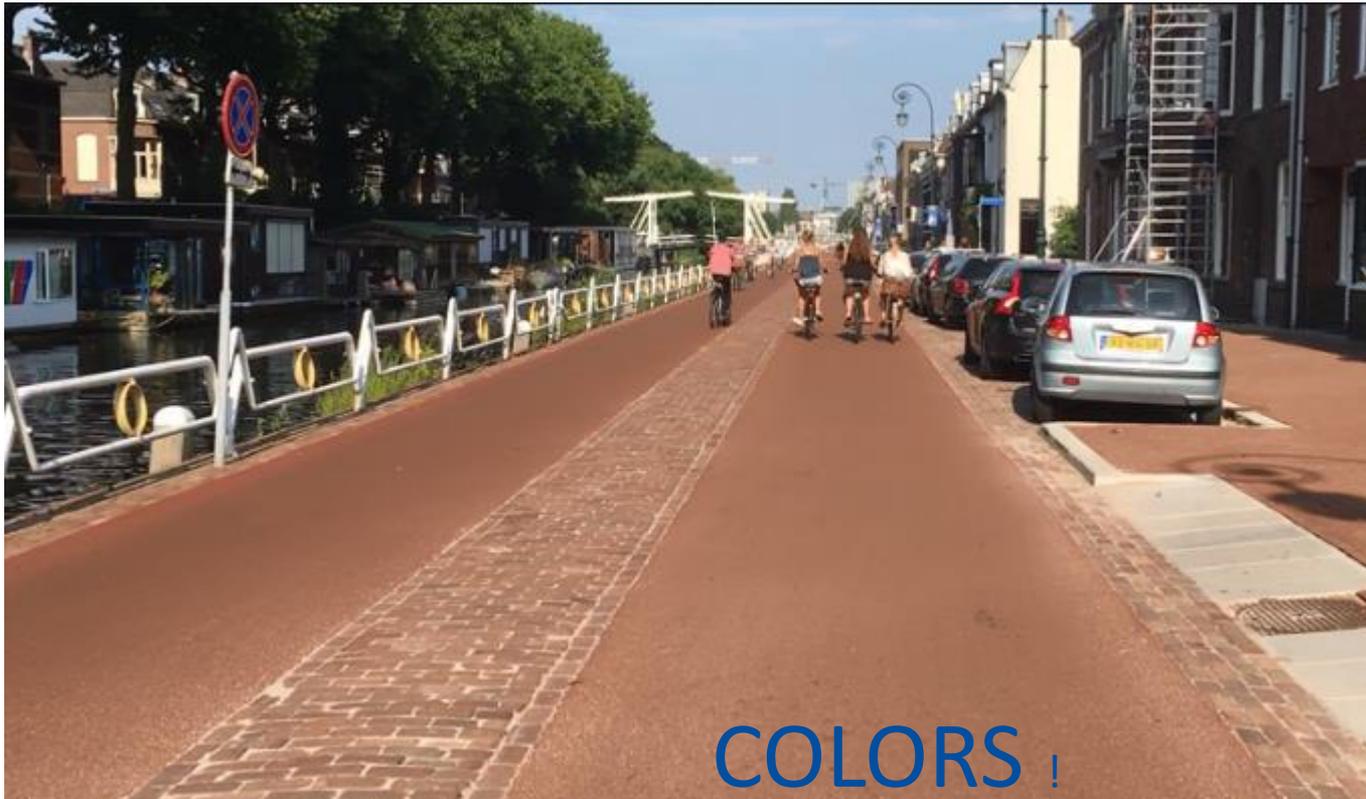
Cycle Highway Assessment

Criterion 2

COHERENCE – INFRASTRUCTURE

READABILITY

(no signs)



Cycle Highway Assessment

Criterion 2

COHERENCE – INFRASTRUCTURE

READABILITY

(no signs)



Cycle Highway Assessment

Criterion 2

COHERENCE – INFRASTRUCTURE

READABILITY

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Cycle Highway Assessment

Criterion 2

COHERENCE – INFRASTRUCTURE

READABILITY

(including signs)



Cycle Highway Assessment

Criterion 2

COHERENCE – INFRASTRUCTURE

READABILITY



Cycle Highway Assessment Criterium 3

COHERENCE – CONNECTIONS

e.g. Park&Bike HUB, Mobility HUB

Will the “Mobility Hub” Replace Freeways



By Allon Schoener on February 28, 2015 in Lifestyle



Park & Bike HUBS

Switch MODUS,
f.e. CAR to BIKE, 1-10km from city center



Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS

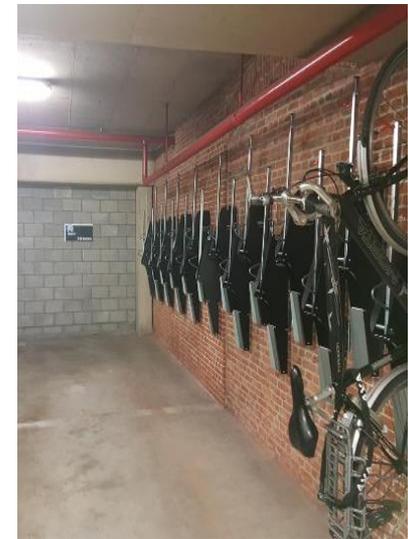
e.g. Park&Bike HUBS: smart storage



Gridbox



Veloboxx , also in e-Veloboxx



VeloWup

Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS

e.g. public transport



Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS

e.g. park & bike & public transport hub



Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS



Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS

e.g. public transport



Future site for secure cycle parking

Cycle Highway Assessment

Criterion 3

COHERENCE – CONNECTIONS

e.g. Park&Bike HUB, Mobility HUB

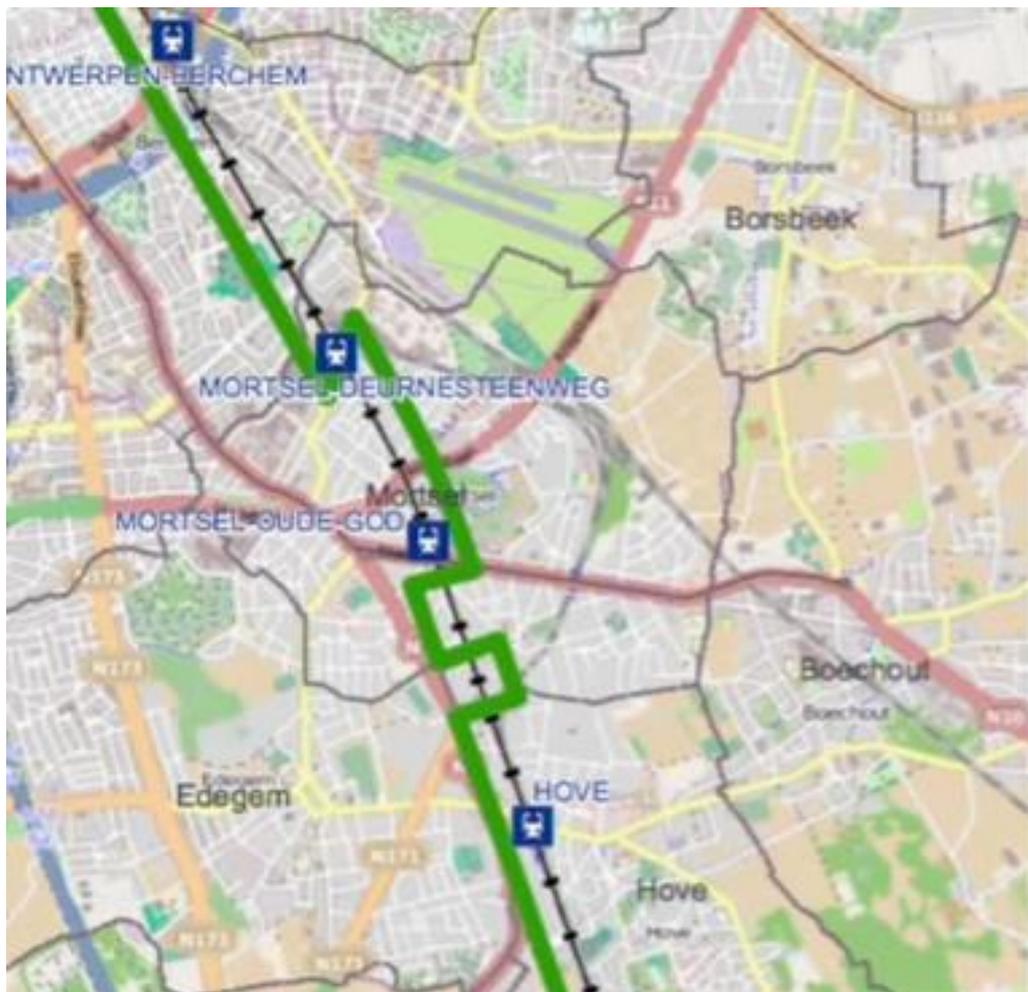


Cycle Highway Assessment

Criterion 4

DIRECTNESS in DISTANCE

Assessment by google maps or routemap vs bird flight distance



Cycle Highway Assessment

Criterion 4

DIRECTNESS in DISTANCE

	From	To	Distance as the crow flies	Cycle Highway	Shortest cycling route	Car route
RijnWaalpad	Nijmegen Stationsplein	Arnhem Stationsplein	15.8 km	18.3 km (+16%)	18.3 km (+16%) via Elst	18.8 km (+19%)
Brussels - Leuven	Zaventem Station	Leuven Station	17.1 km	21.2 km (+24%)	18.8 km (+10%) via N2	19.6 km (+15%)
Antwerp – Mechelen	Antwerpen Centraal	Mechelen Nekkerspoel	21.3 km	23.0 km (+8%)	22.7 km (+6.6%)	24.3 km (+14%)
Comber Greenway	High Street/Castle Street	Titanic Quarter Station	7.35 miles	8.3 miles (+13%)	8.2 miles (+12%)	8.8 miles (+20%)

Cycle Highway Assessment

Criterion 5

DIRECTNESS in TRAVEL TIME

Assessment by DESIGN SPEED EVALUATION; can you really cycle 40km/u?

DESIGN SPEED < 20 km/u



Cycle Highway Assessment

Criterion 6

DIRECTNESS in INTERRUPTIONS

Assessment on the amount of stops per 10km



Cycle Highway Assessment

Criterion 6

DIRECTNESS in INTERRUPTIONS



Cycle Highway Assessment

Criterion 6

DIRECTNESS in INTERRUPTIONS



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections

f.e. BIKESCOUT, Heijmans



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections



Cycle Highway Assessment

Criterion 7

ROAD SAFETY - intersections

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Criterion 7

ROAD SAFETY - intersections



Cycle Highway Assessment

Criterion 8

ROAD SAFETY - width

Optimized in function of throughput, separation FAST vs SLOW



<http://www.fietsroute.org/fietsnelwegen>

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Criterion 8 & 9

ROAD SAFETY – width & separation

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Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 9

ROAD SAFETY – separation & parallel traffic



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles

Bike lane Borgerhout, Belgium



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles

Bike lane Asse, Belgium



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles



Cycle Highway Assessment

Criterion 10

ROAD SAFETY - obstacles



Cycle Highway Assessment

Criterion 10

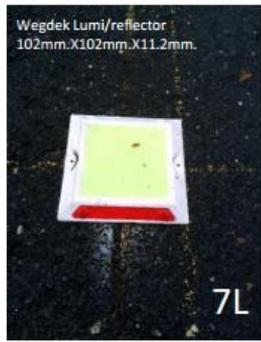
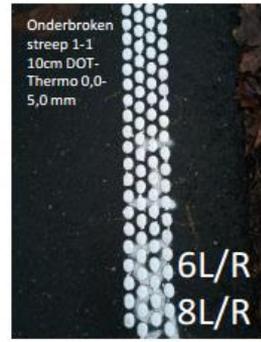
ROAD SAFETY - obstacles



Cycle Highway Assessment

Criterion 11

ROAD SAFETY – reflection&lighting



De verschillende soorten aangebrachte markering (gerangschikt naar wegvak)

Cycle Highway Assessment

Criterion 11

ROAD SAFETY – reflection&lighting



Traditional Dutch horizontal marking: 30 cm median line per 3 m; very economic, but maybe not sufficient in the ageing society. New manual recommends also edge markings outside built-up areas and on bends in built-up areas.

Cycle Highway Assessment

Criterion 11

ROAD SAFETY – reflection&lighting



Median line (DK).

Cycle Highway Assessment Criterium 11

ROAD SAFETY – lighting and reflection and visibility



E.g. RETROFLEX light reflecting surface
by Stradus Infra



Smart Lighting by SmartNodes (BE)

Cycle Highway Assessment

Criterion 11

ROAD SAFETY – lighting and reflection and visibility



Reflective bike lanes by Signco (BE)

Cycle Highway Assessment Criterion 11 ROAD SAFETY – lighting and reflection and visibility



Cycle Highway Assessment

Criterion 12

COMFORT – surface rideability

Oude Kwaremont



Cycle Highway Assessment

Criterion 12

COMFORT – surface rideability



Cycle Highway Assessment

Criterion 12

COMFORT – surface rideability



Cycle Highway Assessment

Criterion 12

COMFORT – surface rideability

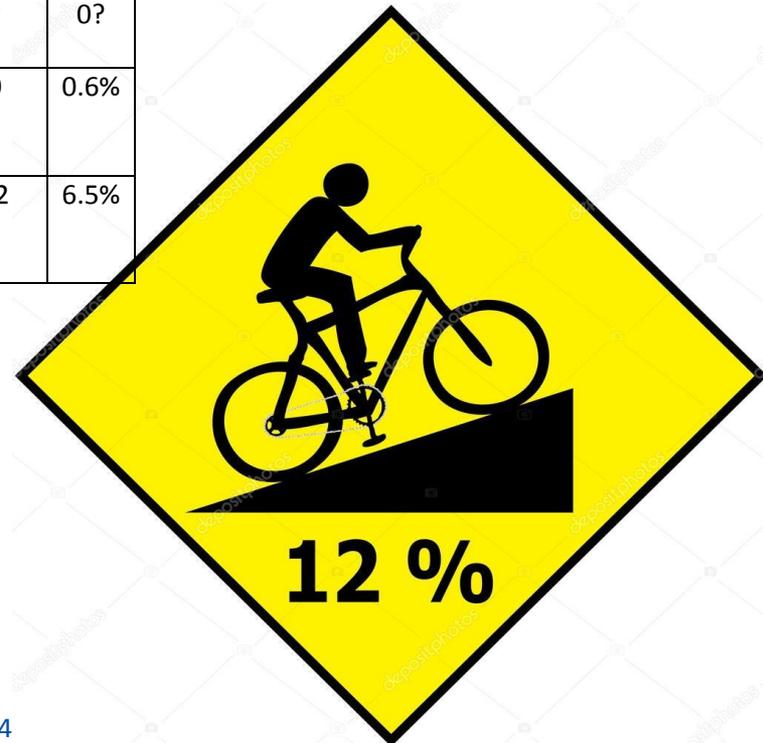


Cycle Highway Assessment

Criterion 13

COMFORT - gradient

	From	To	Distance [km]	Up [m]	Down [m]	Up + down [m]	%
RijnWaalpad	Nijmegen Stationsplein	Arnhem Stationsplein	18.5	0	0	0	0
Brussels - Leuven	Zaventem Station	Leuven Station	21.2	46	60	106	0.5%
Antwerp – Mechelen	Antwerpen Centraal	Mechelen Nekkerspoel	23.0	0?	0?	0?	0?
Comber Greenway	High Street/Castle Street	Titanic Quarter Station	14.0	38	42	80	0.6%
Crossing Alps / French-Italian border	Briancon	Claviere	15.1	786	196	982	6.5%



Cycle Highway Assessment

Criterion 13

COMFORT - gradient



Cycle Highway Assessment

Criterion 13

COMFORT - gradient



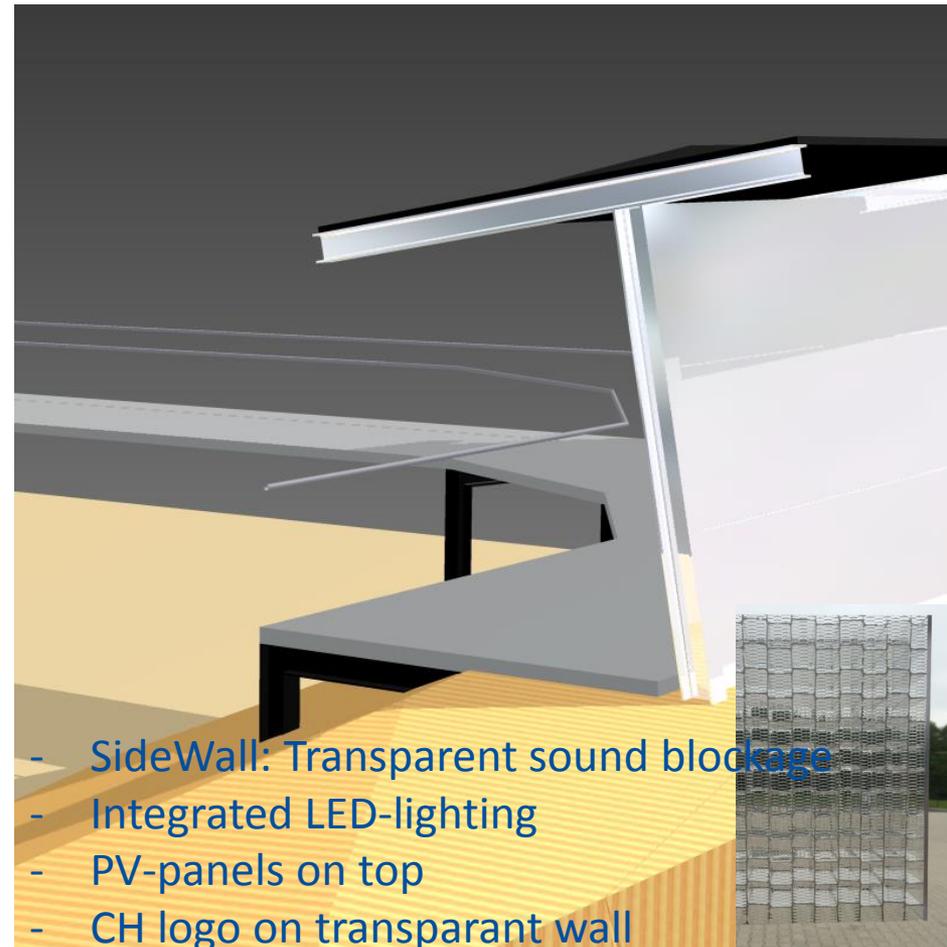
Cycle Highway Assessment Criterium 14 COMFORT - sheltering

f.e. sheltering by PV-panels & sound barriers – joining Business Cases

CURRENT SOLAR PARK INVESTMENTS



PPS-construction for PV-panels & cycle roads in backyards?

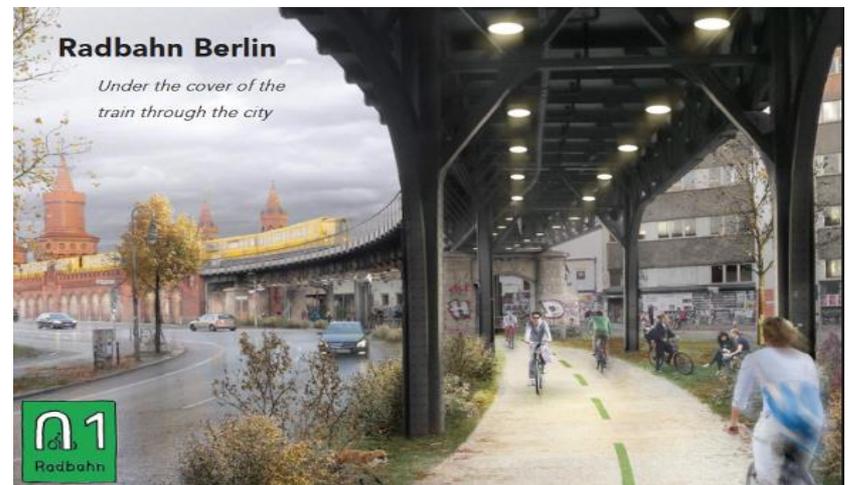


Cycle Highway Assessment

Criterion 14

COMFORT - sheltering

Examples: South Korea – 28kms; city connection Daejeon - Sejong



I am conflicted. I love the idea of inter-city bike infrastructure being provided, the shading and protection from the solar canopy is a big help, and of course the bonus of the clean solar power. But it seems like a terrible place to ride a bike. What do you think?



Cycle Highway Assessment

Criterion 14

COMFORT - sheltering



Cycle Highway Assessment

Criterion 14

COMFORT - sheltering



Cycle Highway Assessment

Criterion 15

COMFORT - services

Toilet, pub, reparation, logistic services, bike sharing, emergency service, etc.



Cycle Highway Assessment

Criterion 15

COMFORT - services

Comber Greenway



Cycle Highway Assessment

Criterion 15

COMFORT - services



Cycle Highway Assessment Criterium 16

ATTRACTIVENESS in spatial context/environment

Cycling along Winchester's landmarks, UK



Cycle Highway Assessment Criterion 16 ATTRACTIVENESS in spatial context/environment



Cycle Highway Assessment

Criterion 17

ATTRACTIVENESS in monotony



Cycle Highway Assessment

Criterion 17

ATTRACTIVENESS in monotony



Cycle Highway Assessment

Criterion 17

ATTRACTIVENESS in monotony



Cycle Highway Assessment

Criterion 17

ATTRACTIVENESS in monotony



Cycle Highway Assessment

Criterion 18

ATTRACTIVENESS – social safety



Cycle Highway Assessment

Criterion 18

ATTRACTIVENESS – social safety



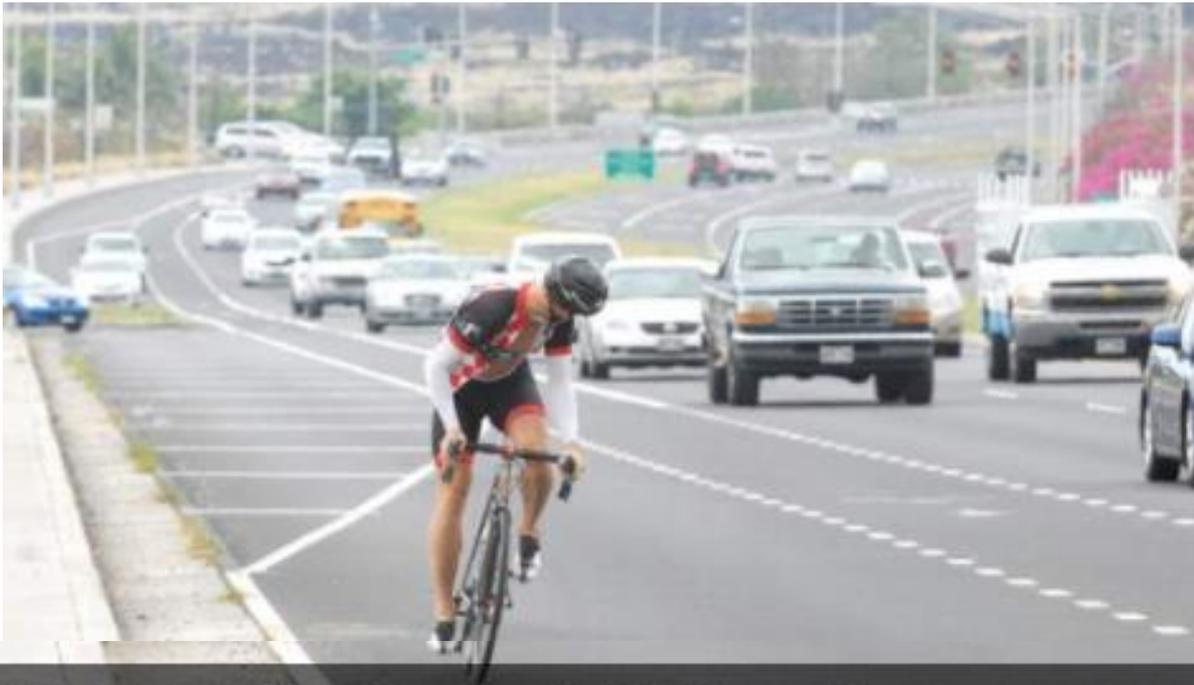
Cycle Highway Assessment

Criterion 18

ATTRACTIVENESS – social safety



Cycle Highway Assessment Criterium 19 ATTRACTIVENESS – health, pollution & hinderance



A cyclist looks for traffic as he enters the bike lane on Queen Kaahumanu Hwy on Thursday. Laura Shimabuku/West Hawaii Today

Cycle Highway Assessment Criterion 19 ATTRACTIVENESS – health, pollution & hinderance



Cycle Highway Assessment

Criterion 19

ATTRACTIVENESS – health,

pollution & hinderance



Cycle Highway Assessment Criterion 20

ATTRACTIVENESS – activation & stimulation



APPS: Strava, cyclemaps, map my ride,...



VR

Cycle Highway Assessment

Criterion 20

ATTRACTIVENESS – activation & stimulation

Comber Greenway cycle training



Cycle Highway Assessment

Criterion 20

ATTRACTIVENESS – activation & stimulation



Cycle Highway Assessment

Criterion 20

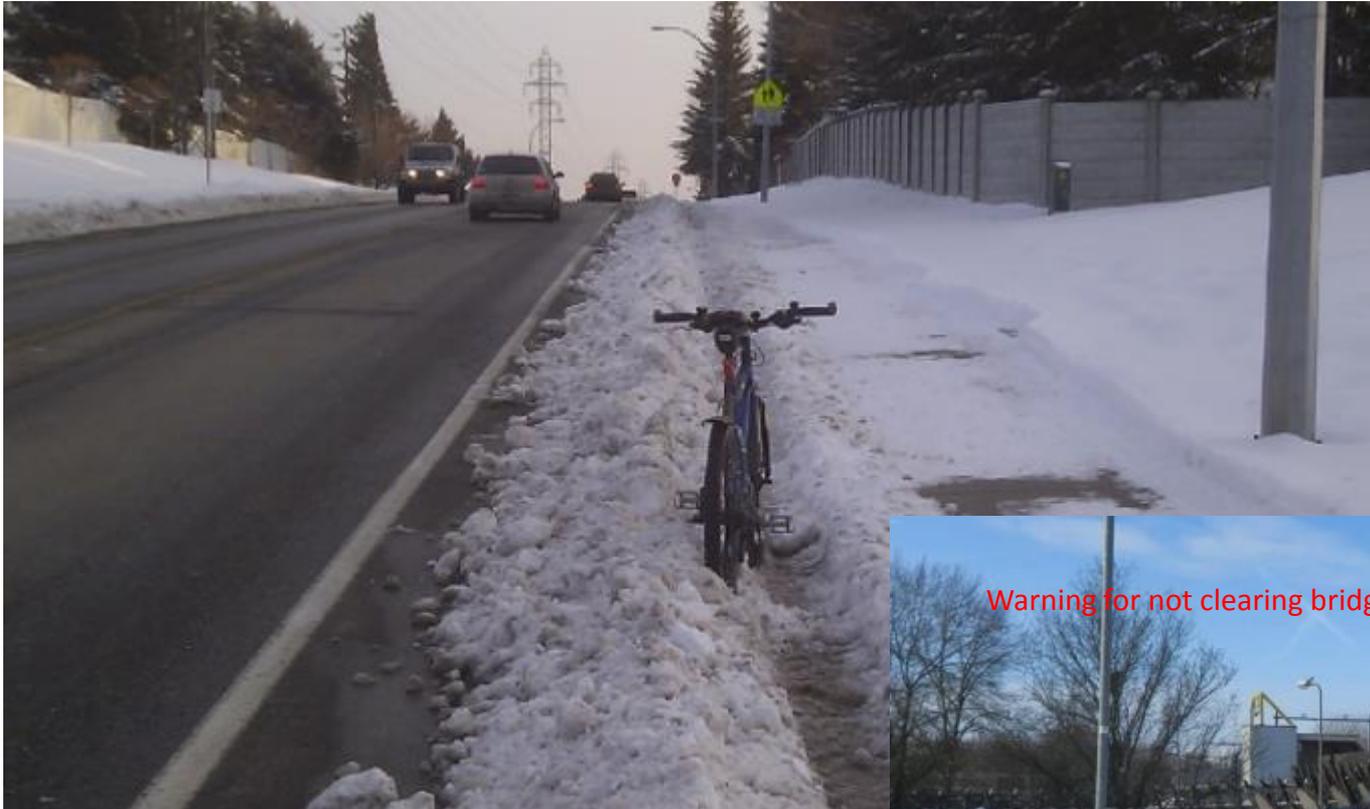
ATTRACTIVENESS – activation & stimulation



Cycle Highway Assessment

Criterion 21

ACCESSIBILITY 24/7 12/12



APP: Fill that Hole...

Cycle Highway Assessment

Criterion 22

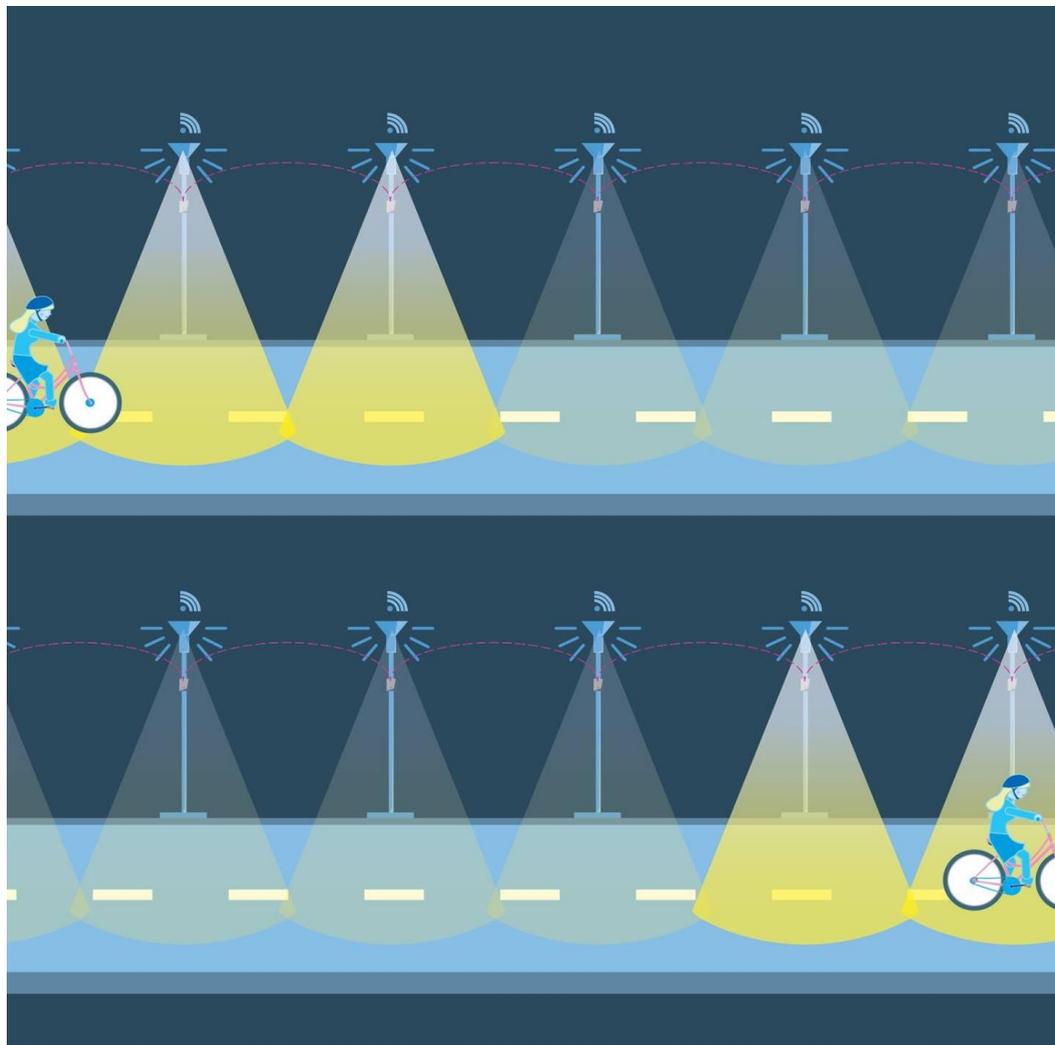
SUSTAINABILITY



Cycle Highway Assessment

Criterion 22

SUSTAINABILITY



Cycle Highway Assessment

Criterion 22

SUSTAINABILITY



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Thank you!