

Increasing Cycling in a Safe Traffic System

Key messages from the OECD-ITF Working Group on Cycling Safety



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Outline



1. cycling benefits and disbenefits
2. policy design: safer cycling
3. bicycle safety measures

Fast, Flexible



Practical



Reliable



Crashes **relative** risk



Relative risk of death/km
bicycle vs. car

14	UK
11	Switzerland
6	Norway
6	Netherlands

Relative risk of death/hr
of travel:

UK:	4
Belgium:	1

Crashes car collisions



Crashes **truck** collisions



% fatal bicycle crashes
involving truck, bus, coach

33%	Ireland:
33%	Denmark
25%	Belgium
25%	UK
20%	Netherlands
20%	France
12%	Germany
11%	Spain
4%	Italy

Crashes self-crash



Single bicycle crashes –
e.g. with no crash opponent
are significant and under-
reported

Single bicycle crash
involvement as % of all
bicycle crash victims

Flanders/Brussels: 87%

Belgium: 73%

Netherlands: ~75%

Crashes elderly cyclists



The elderly are especially
vulnerable

% of all bicycle crash deaths
60yrs and older:

Japan: 70%

Korea: 65%

Italy: 57%

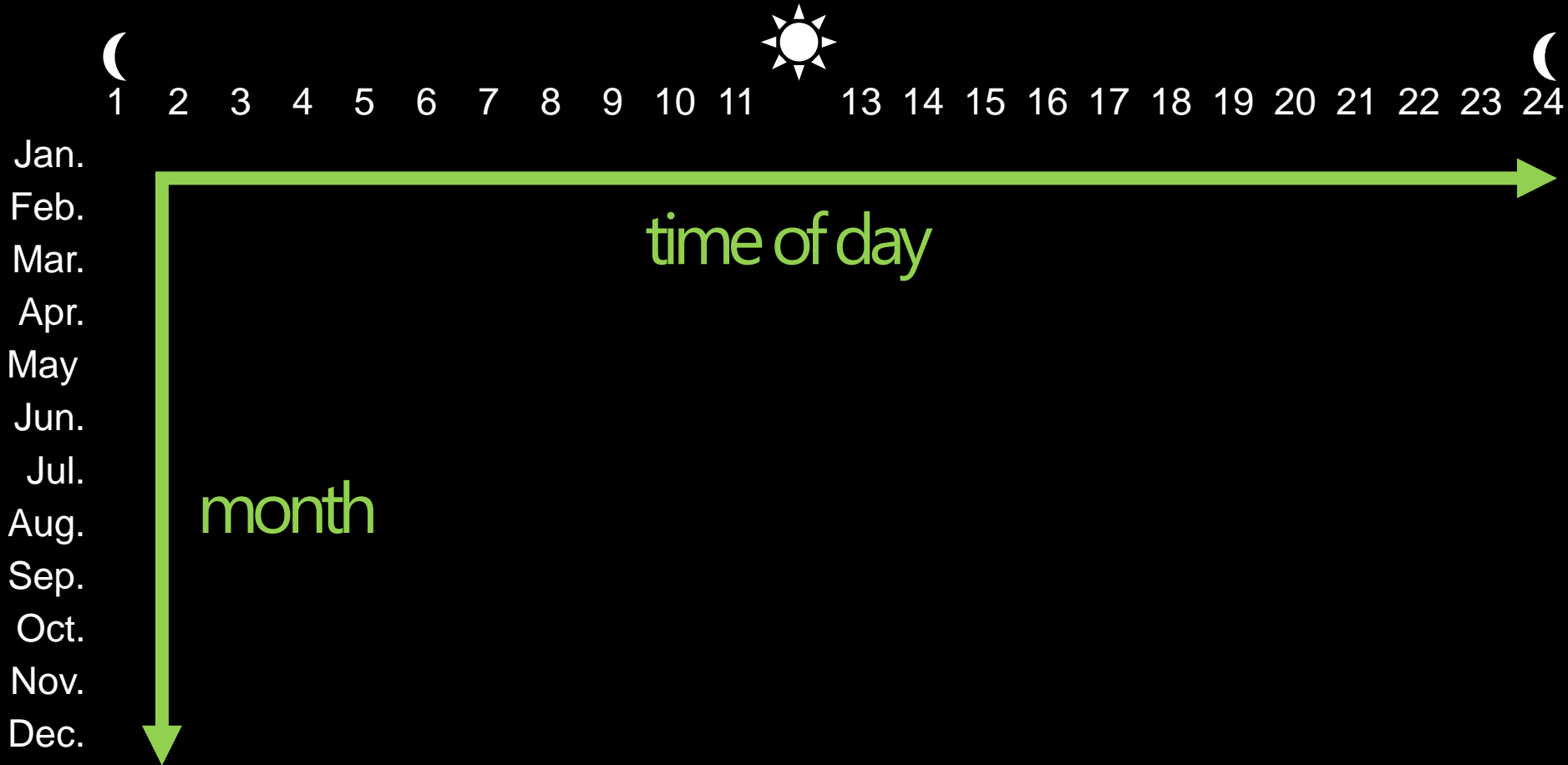
Netherlands: 55%

Denmark: 49%

France: 45%

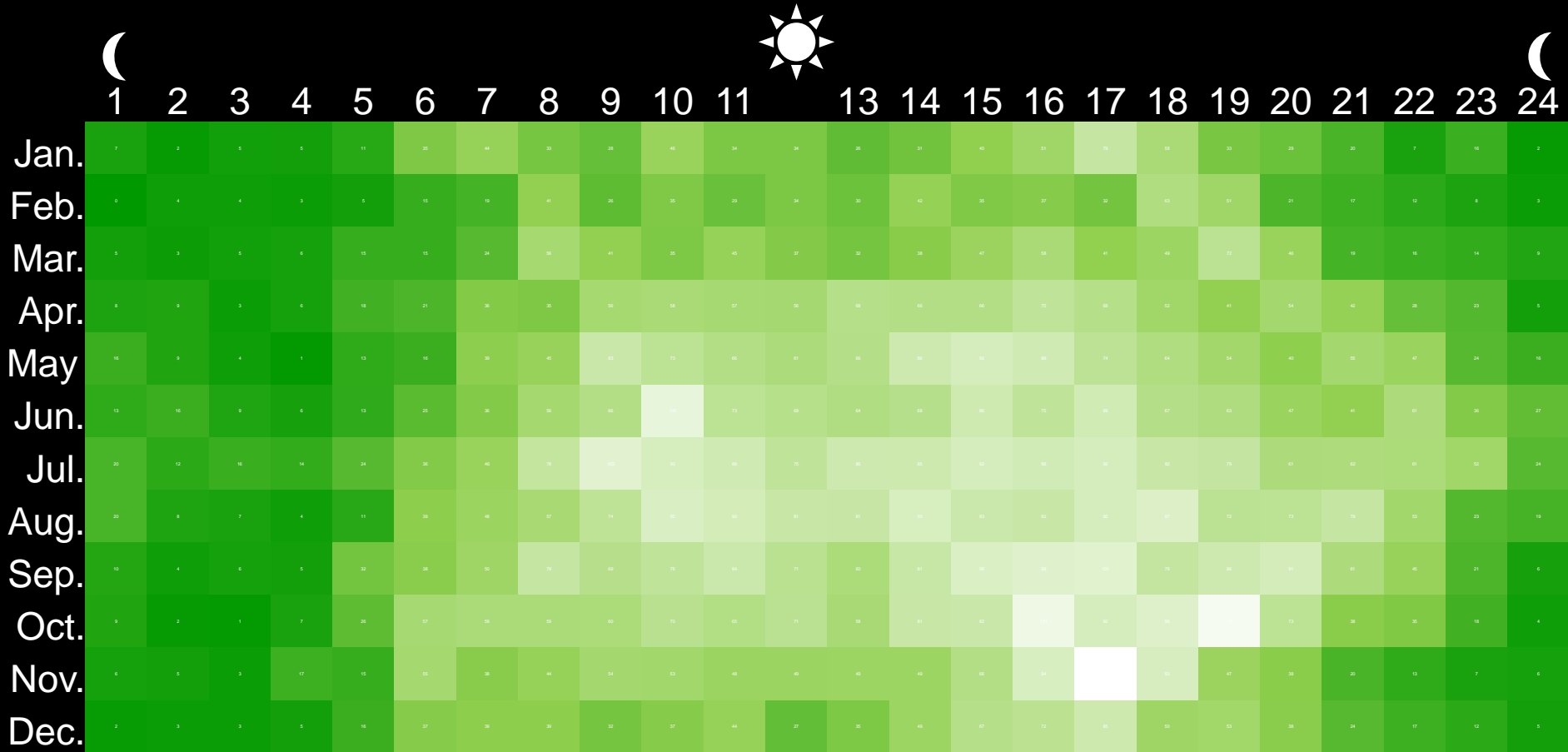
UK: 21%

Crashes fatal (EU) hour and month



Crashes fatal (EU)

hour and month



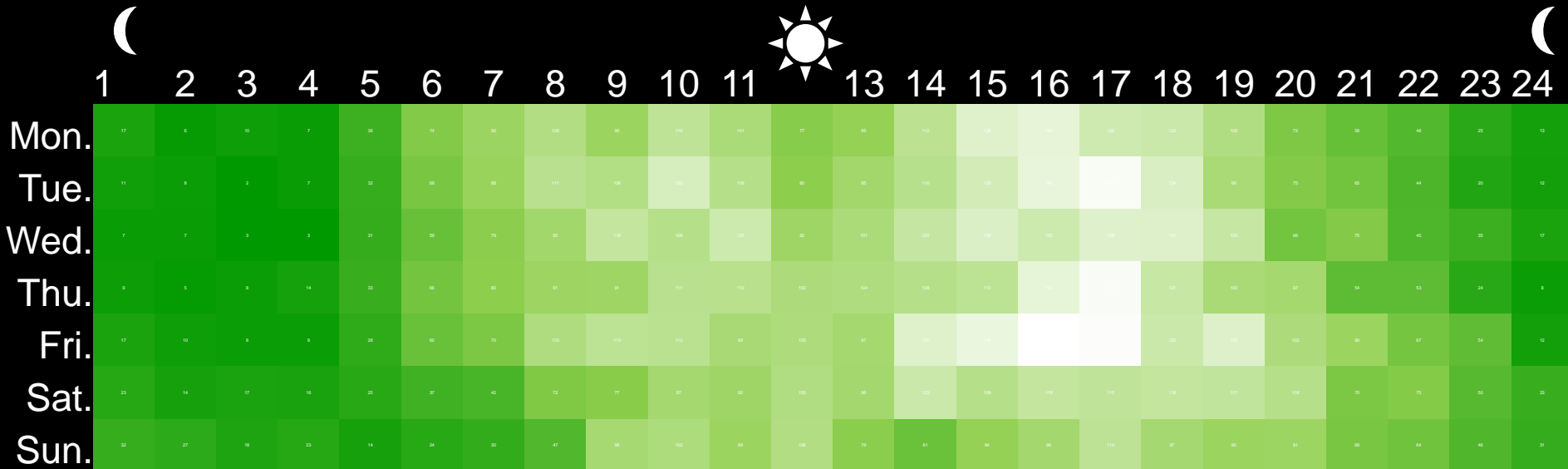
absolute numbers

2005-2010, n=12 554



Fatal crashes (EU)

hour and day



absolute numbers

2005-2010, n=12 554



Air pollution

Accounting for ventilatory effort, cyclists register 2 to 8 times more pollutant intake than car occupants



Health

Cycling, as a moderate physical activity can significantly reduce mortality and morbidity due to:

- Cardiovascular disease
- Type-2 diabetes
- Cancer (Colon, breast)
- Osteoporosis
- Depression

Impact greatest when 1st becoming active



Benefits

on balance, the monetised benefits
from **improved health** are up to
20x
greater than the combined health
impacts of **crashes** and exposure to
air pollution

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3. bicycle safety measures

Safety

Many authorities **cannot adequately assess** whether or not policies improve safety

$$\text{safety (crash rate)} = \frac{\text{crashes (\#) ?}}{\text{exposure (km, trips) ?}}$$

(mis)reporting



Police (official) records and hospital records do not concur.

Under-reporting is significant and widespread, especially for less severe injury crashes.

Austria bicycle injury crashes

2009:

5 495 (police)

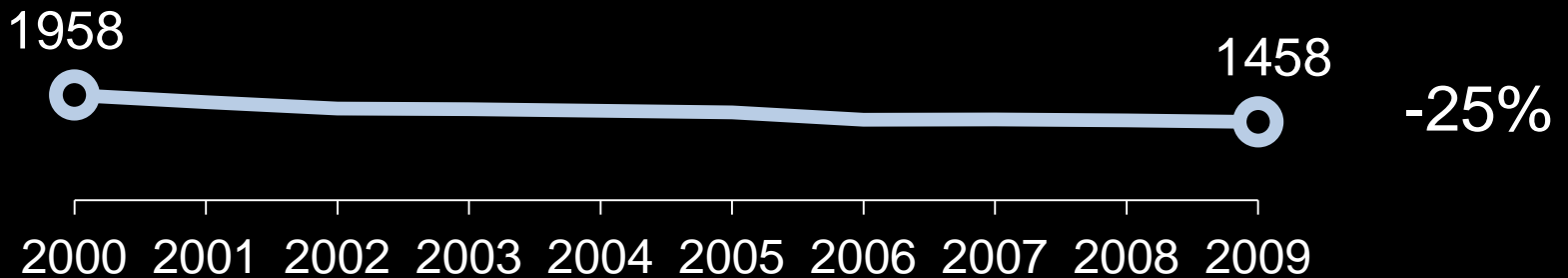
28 200 (hospital)

37 000 (total, adjusted)

Casualties registered vs. real

Netherlands: Cyclist **serious injuries*** (3 yr. avg.)

Registered number (Police)



Casualties registered vs. real

Cyclist **serious injuries*** (3 yr. avg.)

Actual number (Police and hospital)

7276

9824

+35%

Registered number (Police)

1958

1458

-25%

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009

Making cyclists safe in the **current traffic** system?



Making the **system safe** for (new and existing) cyclists?



Safe System



Functionality: Road design matches desired usage

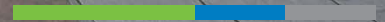
Homogeneity: Speed management, Separation

Predictability: Avoid unexpected situations

Forgivingness: Minimise crash outcomes


Safe System

Functionality: Road design
matches desired usage



Safe System

Homogeneity: Speed
management



30

20

Safe System

Homogeneity: Separation:
essential to manage crash
risks at intersections or high
traffic situations.



Safe System

Predictability: Avoid
unexpected situations



Safe System

Forgivingness: Minimise
crash outcomes

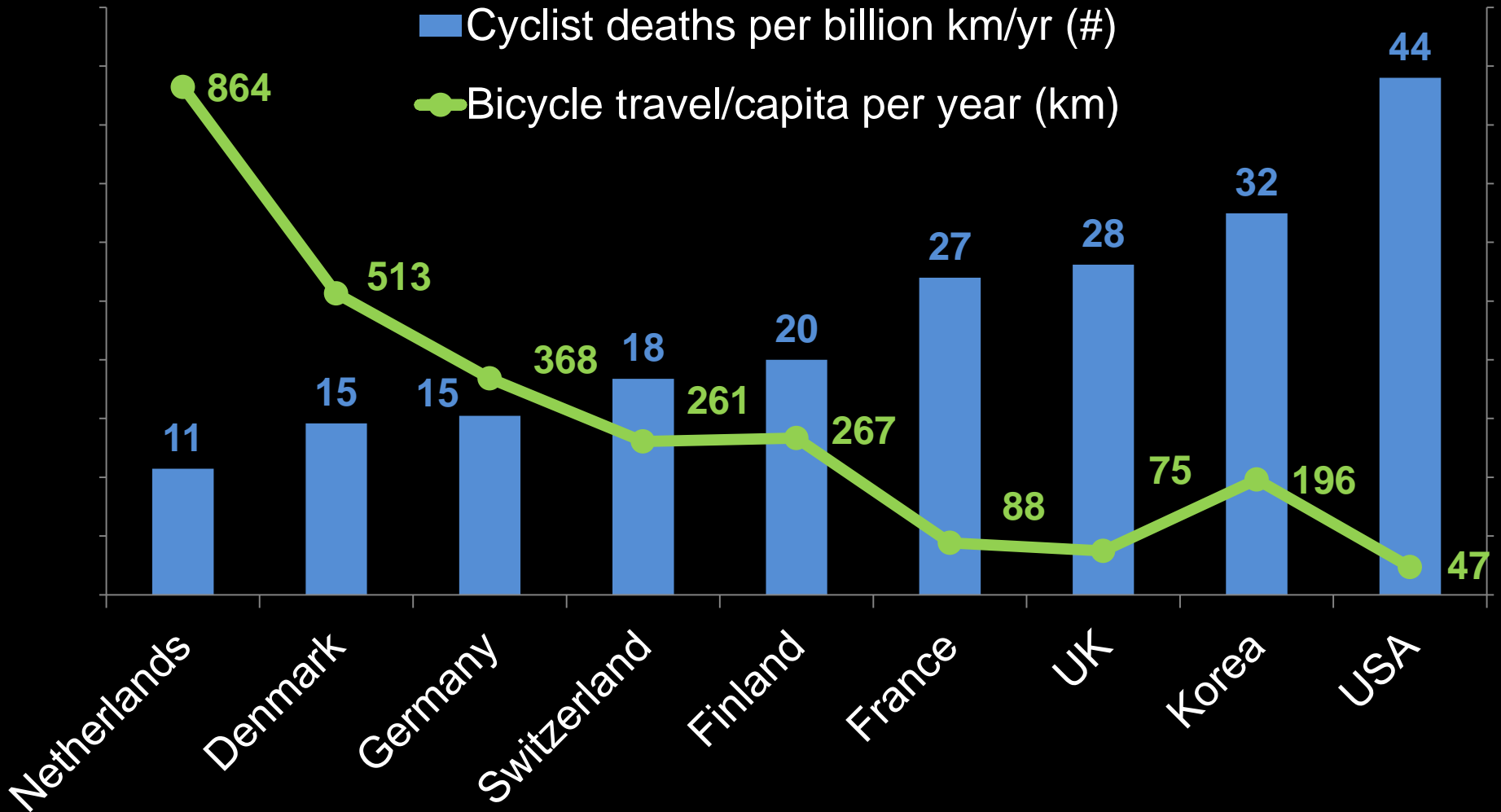


Safetyⁱⁿ numbers

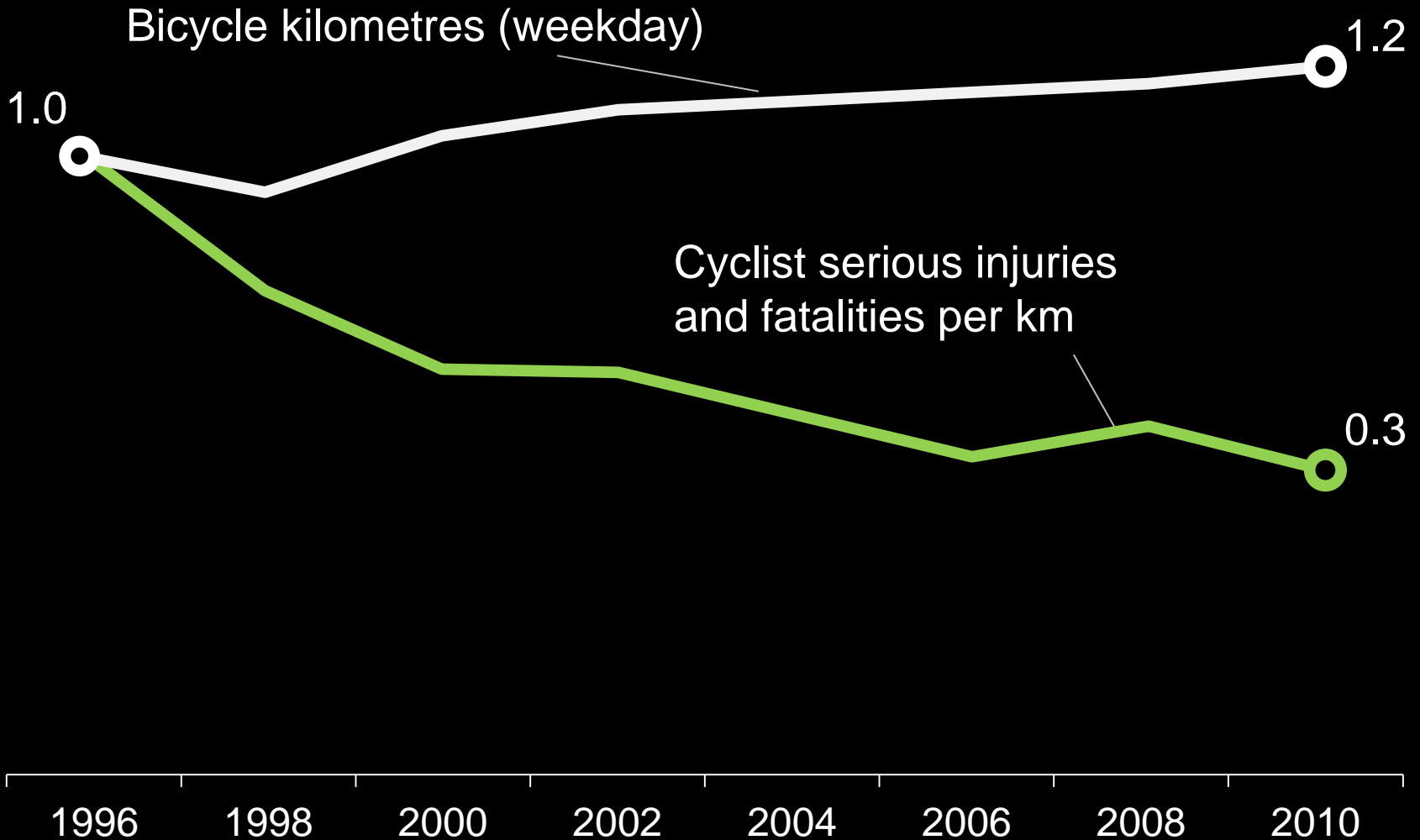


Do policies that **increase**
the number of cyclists lead to
more crashes?

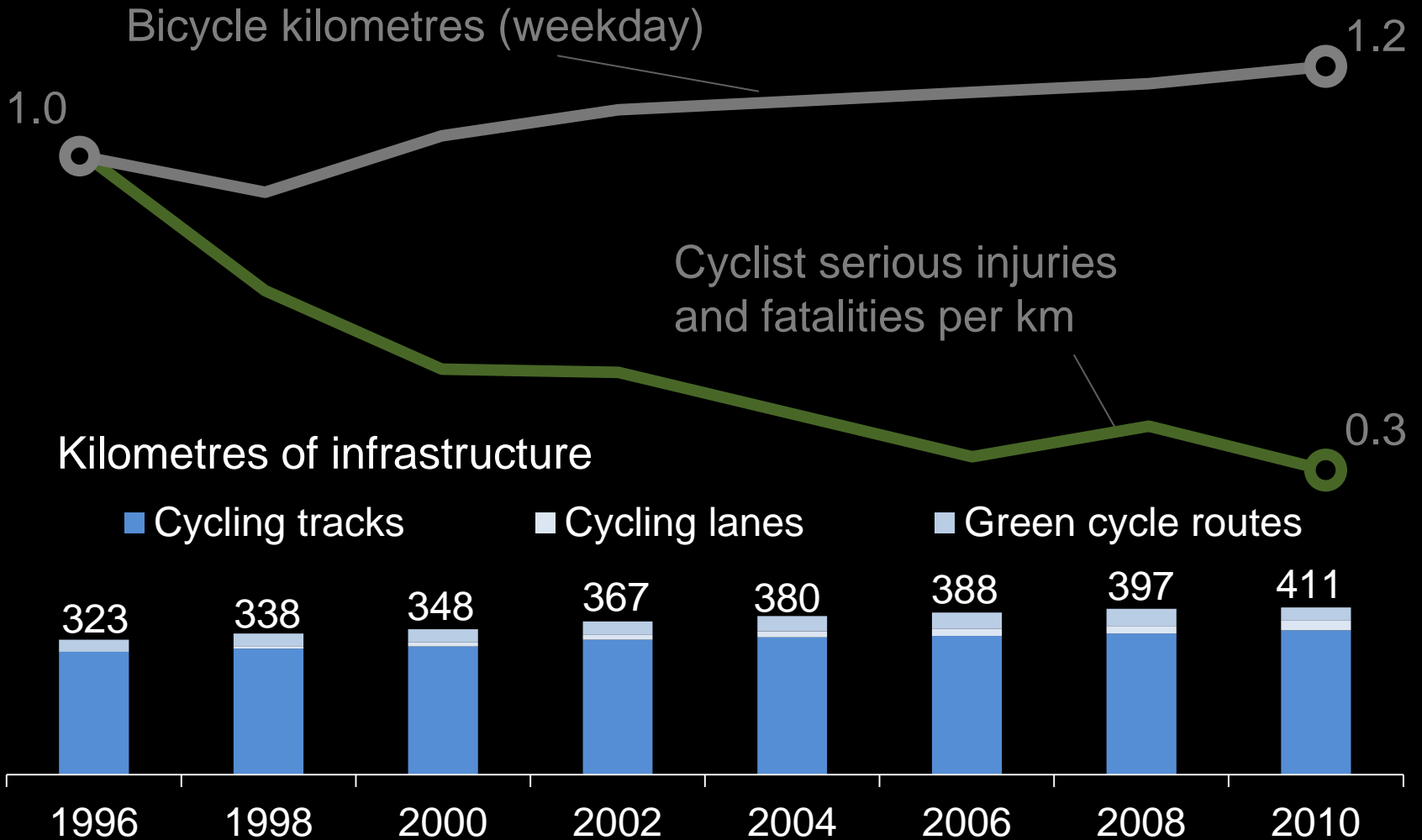
Safety in numbers



Safety per km, CPH, DK



Safety infrastructure CPH DK





Copenhagen, DK



Tracks &
Lanes

Outline



1. cycling benefits and disbenefits
2. policy design: safer cycling
3. Safety and perceived safety

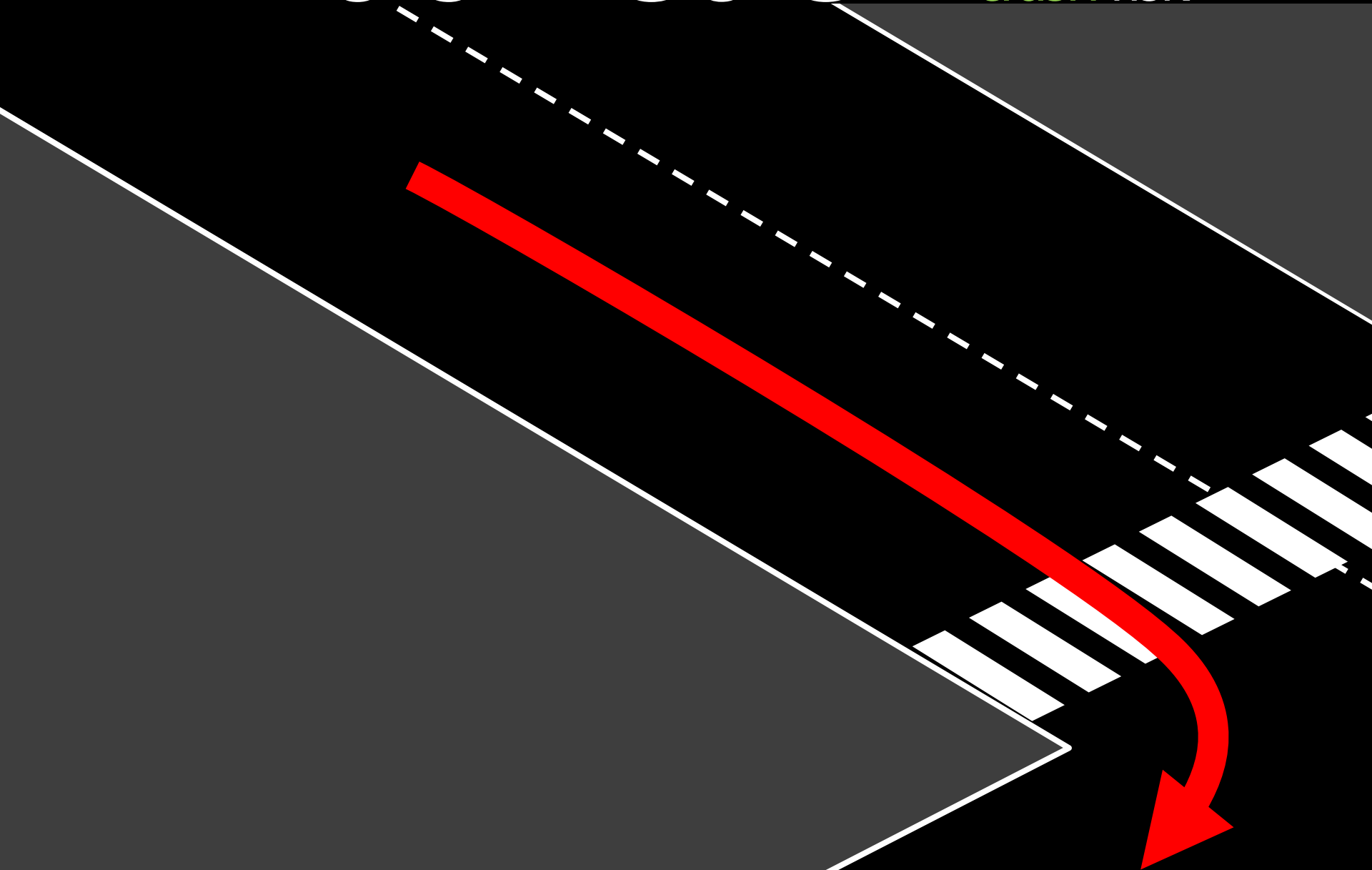
Perceived safety

Continuous cycle network of high standard on routes and at intersections, improve cyclist safety, security and accessibility, and is thus an important basis for increasing bicycle use.



Junction

nearside turning
crash risk



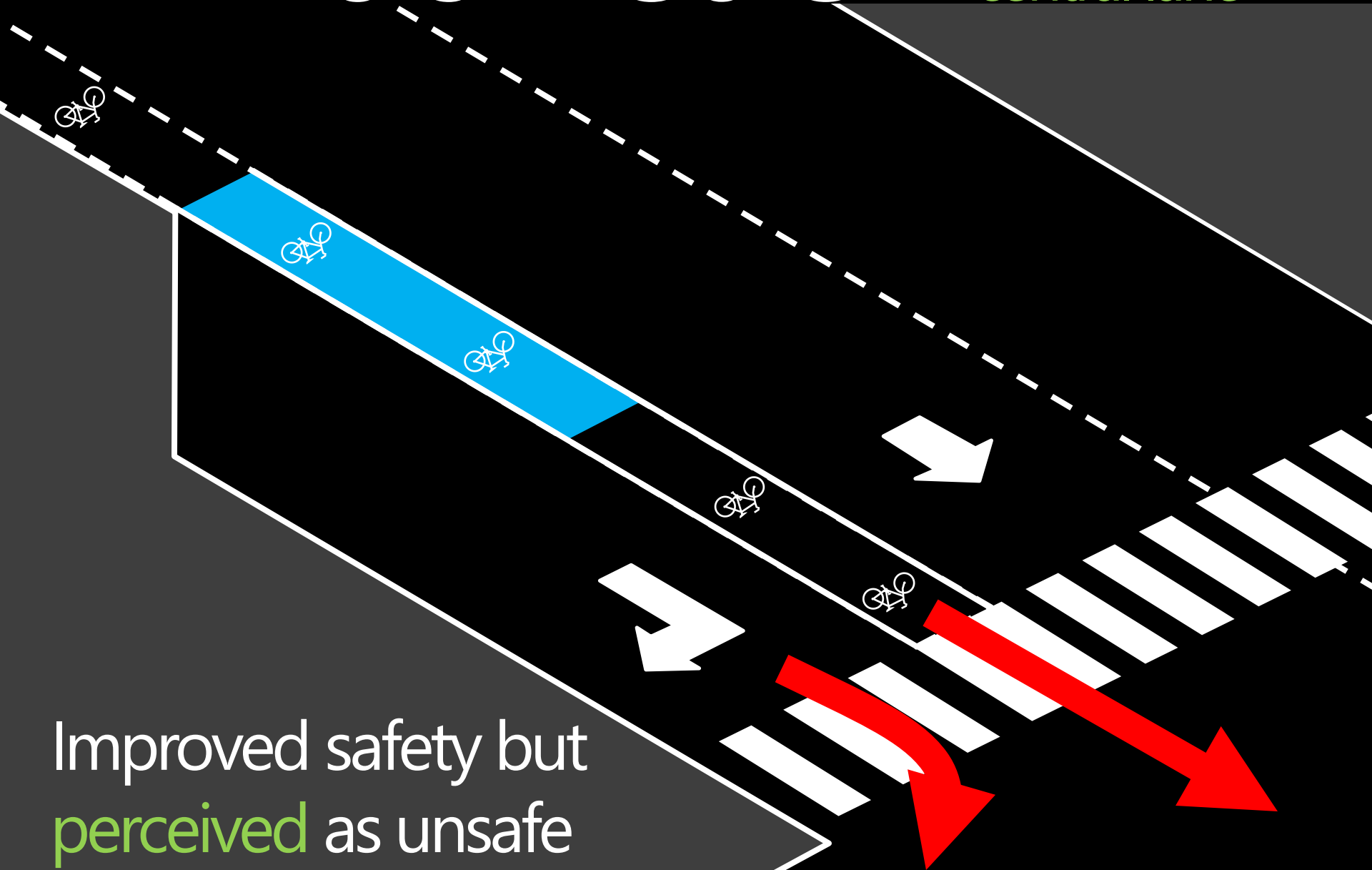
Junction

nearside turning
dropped track



Improved safety but
perceived as unsafe

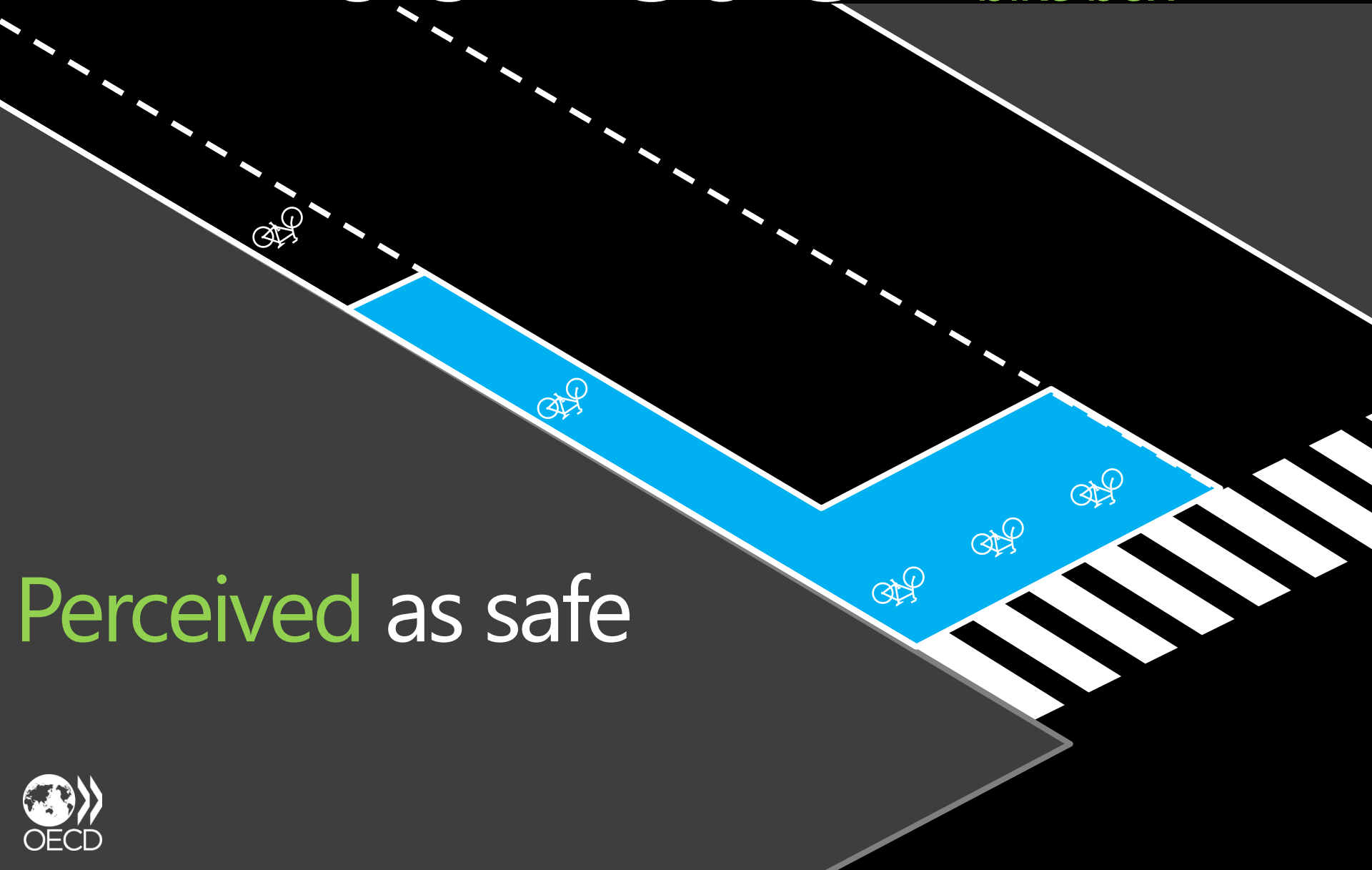
Junction nearside turning central lane



Improved safety but
perceived as unsafe

Junction

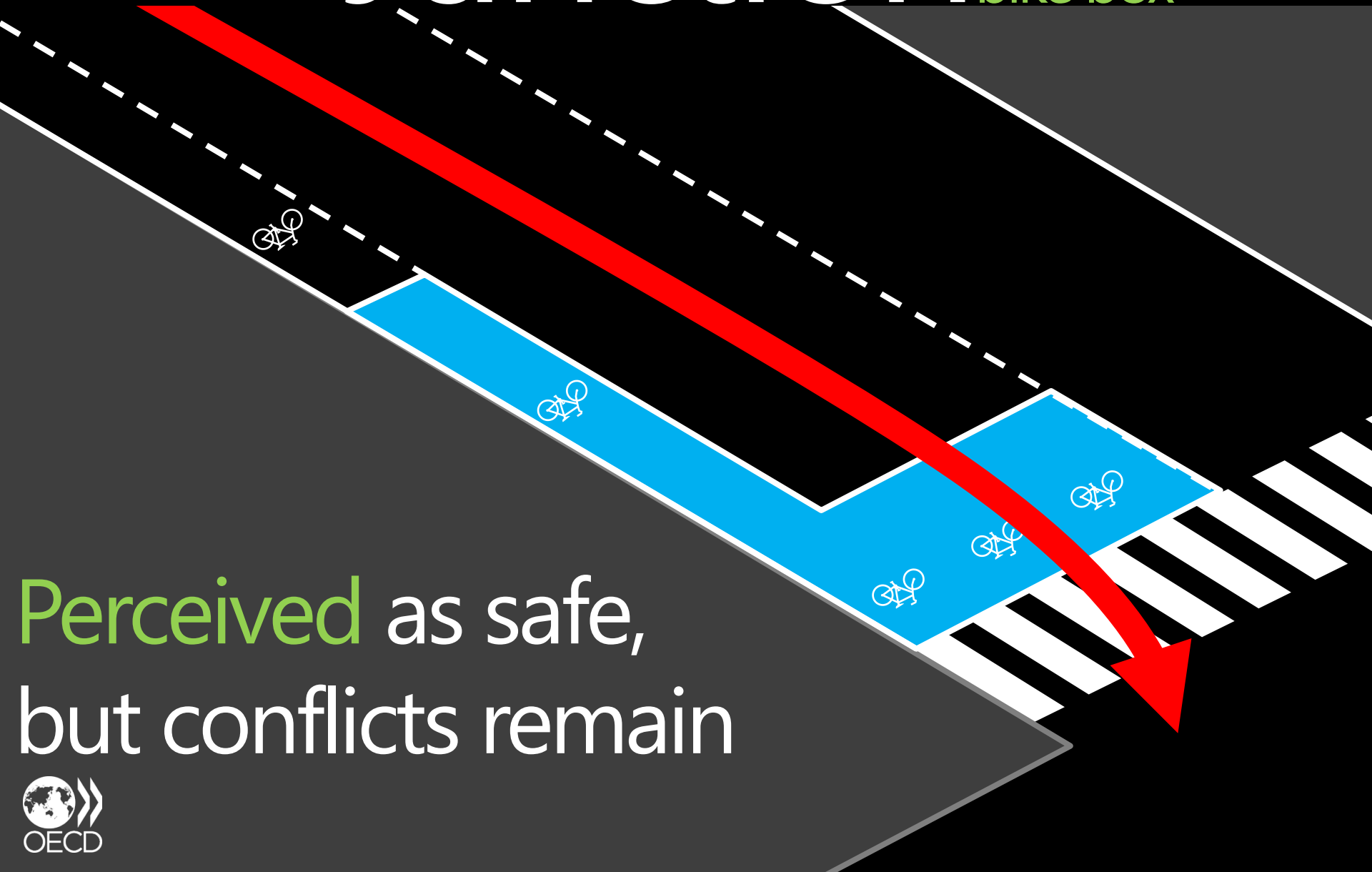
nearside turning
bike box



Perceived as safe

Junction

nearside turning
bike box



Perceived as safe,
but conflicts remain

Junction

nearside turning
advanced stop



Safe and
perceived as safe

Key messages



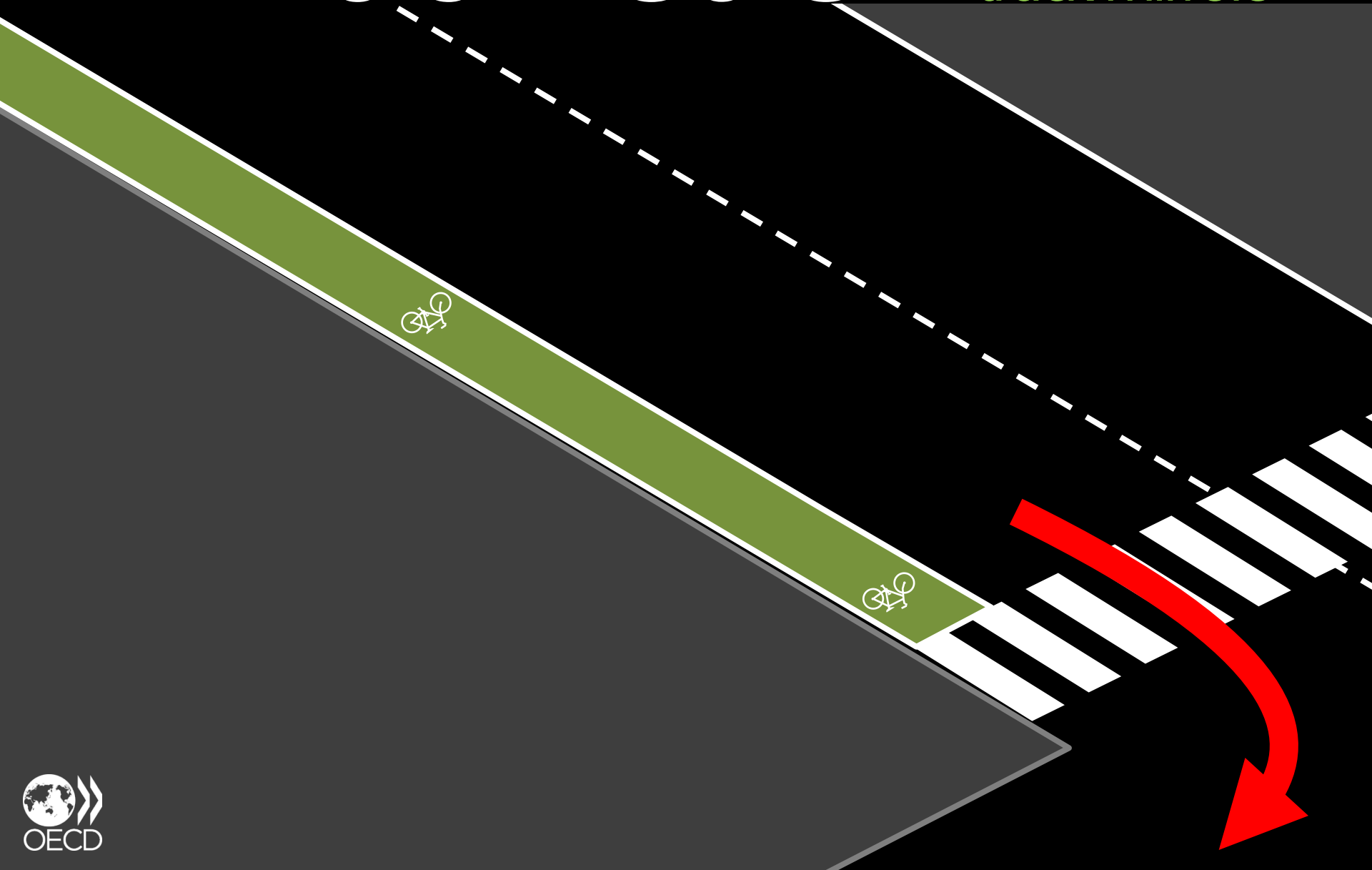
- **Health benefits** of cycling far outweigh negative health impacts.
- **Better data** on crashes and activity needed.
- Apply “**Safe system**” principles for cycle safety.
- **Speed management** essential, **separation** is critical in certain areas especially for increasing **perceived safety** for new cyclists.
- **Top-level support** and coordination between cycling and other policies helps deliver more cycling and better safety.

Thank you



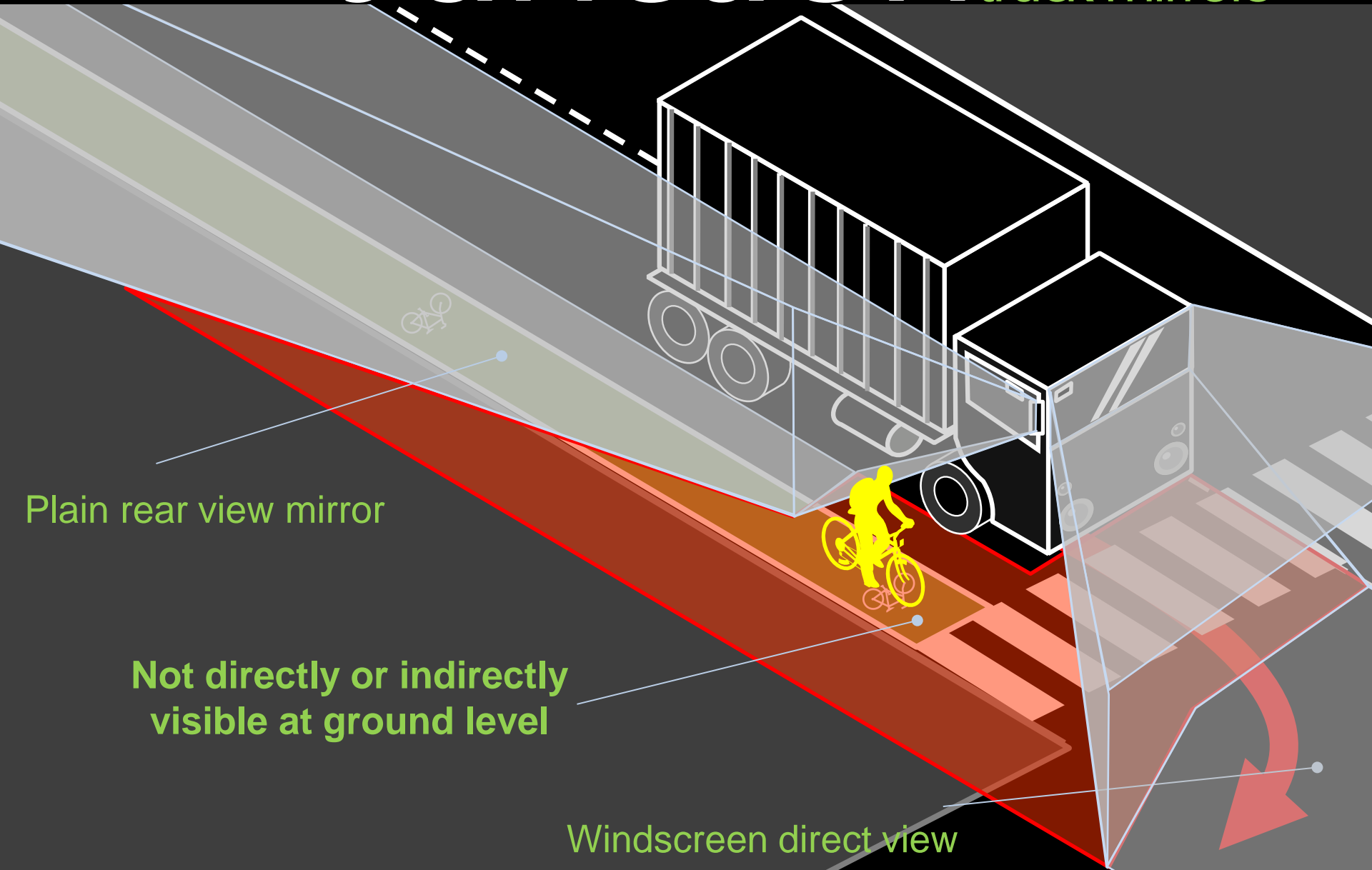
Junction

nearside turning
truck mirrors



Junction

nearside turning
truck mirrors



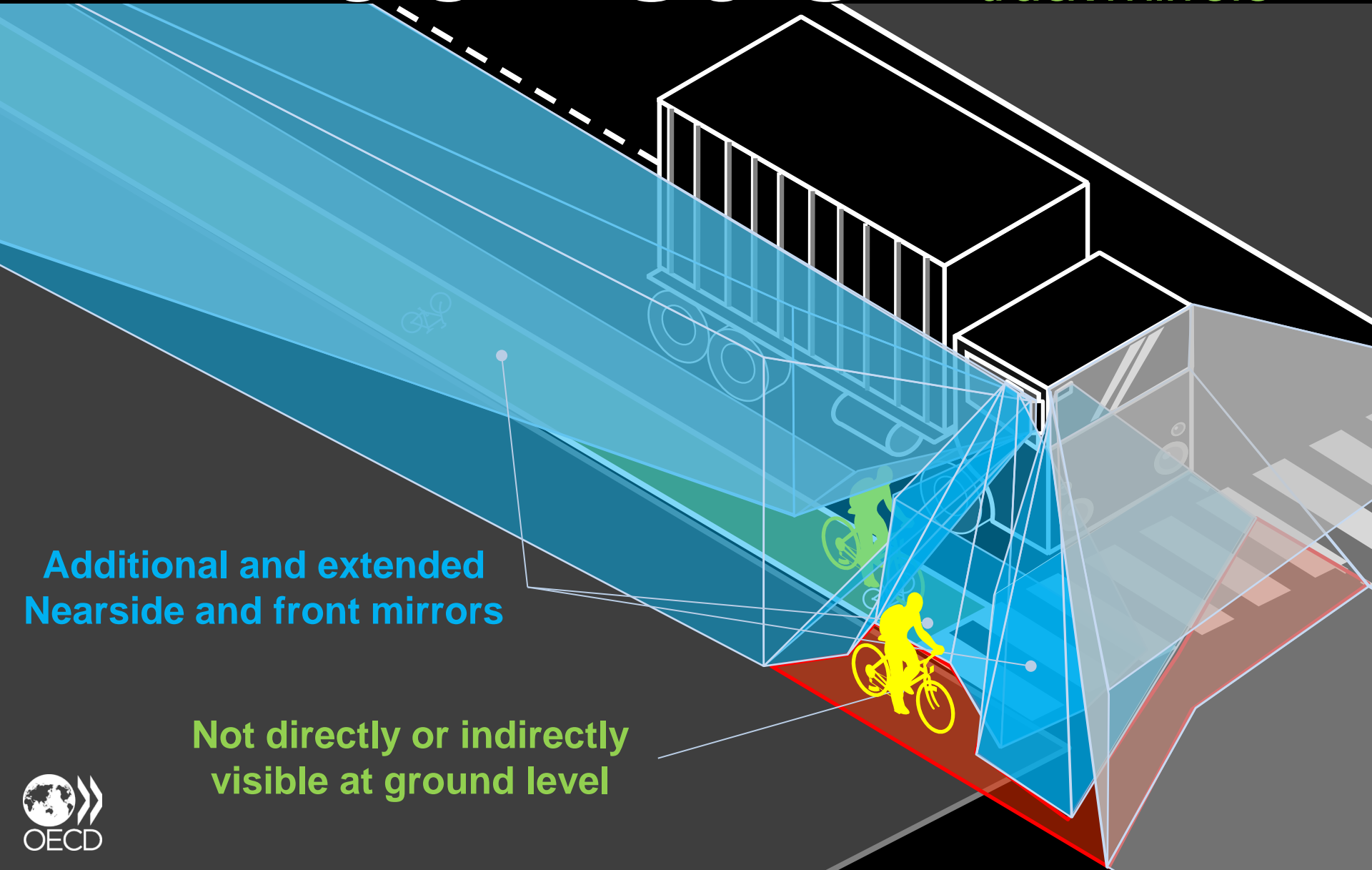
Plain rear view mirror

Not directly or indirectly
visible at ground level

Windscreen direct view

Junction

nearside turning
truck mirrors



Additional and extended
Nearside and front mirrors

Not directly or indirectly
visible at ground level