

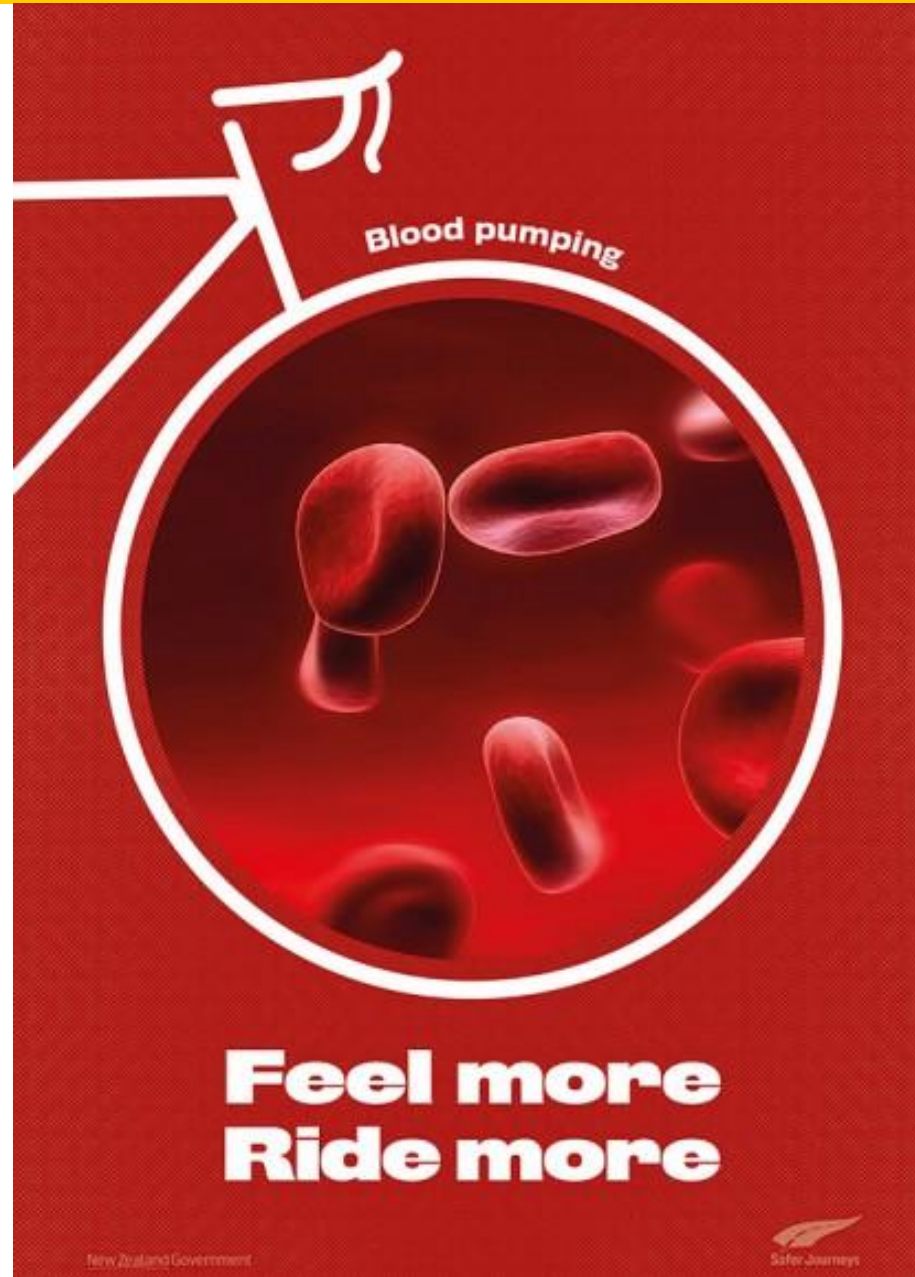
Bikes 'n' Lights in North America: Findings from a Study Tour

Megan Fowler

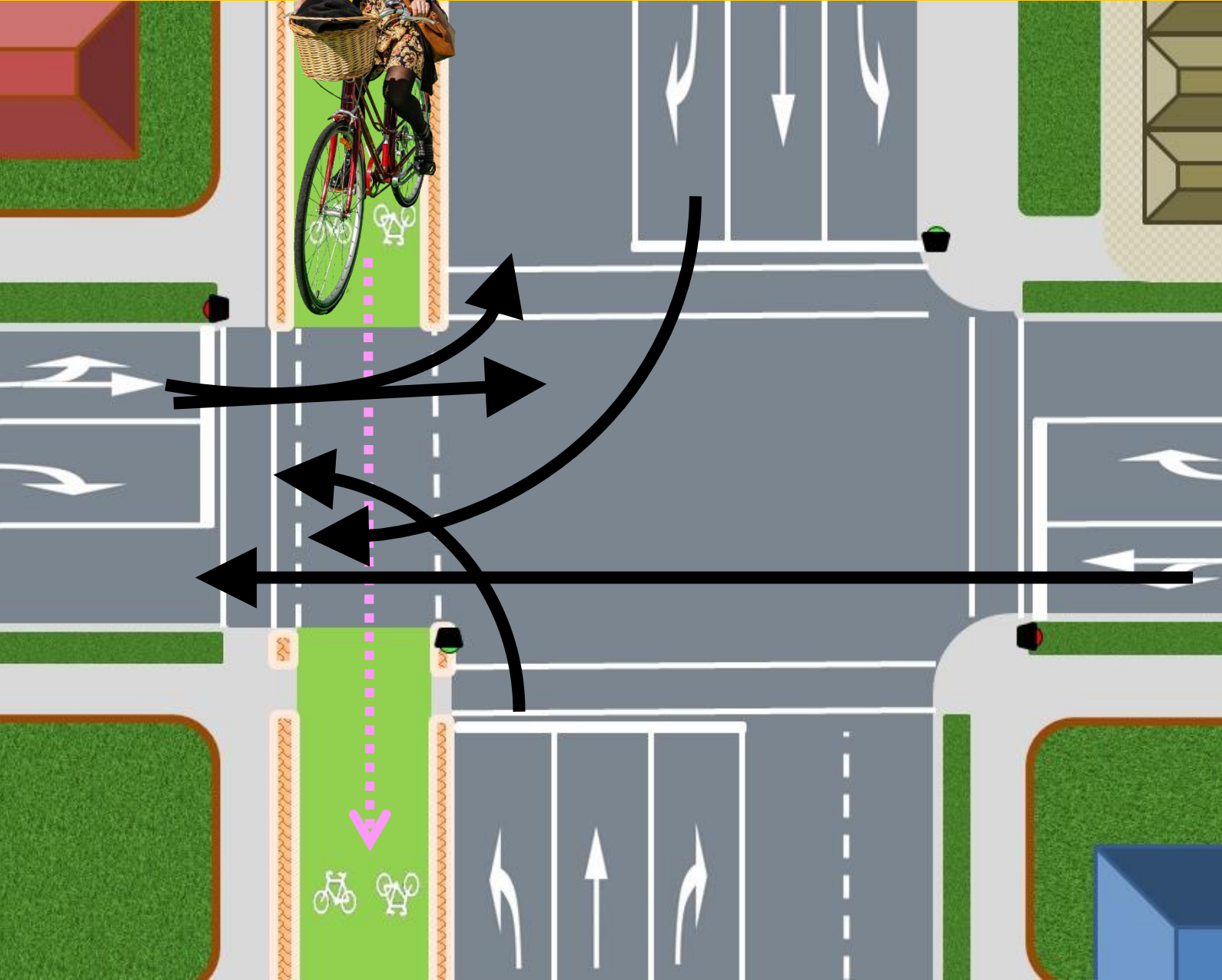
2016 IPENZ Transportation Group study award recipient
megan@viastrada.nz

IPENZ Transportation Group Conference
29-31 March 2017
Hamilton, NZ

Setting the scene

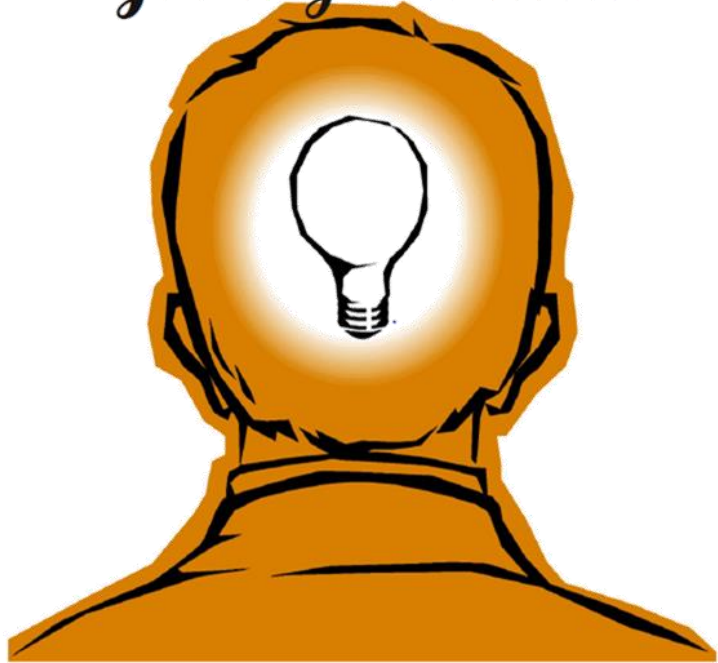


But...



Study focus

Got a good idea?



Ways of addressing the conflict between cyclists and motorists at **signalised intersections** where **separated cycleways** are involved

**IPENZ Transportation Group
Study Award 2016**

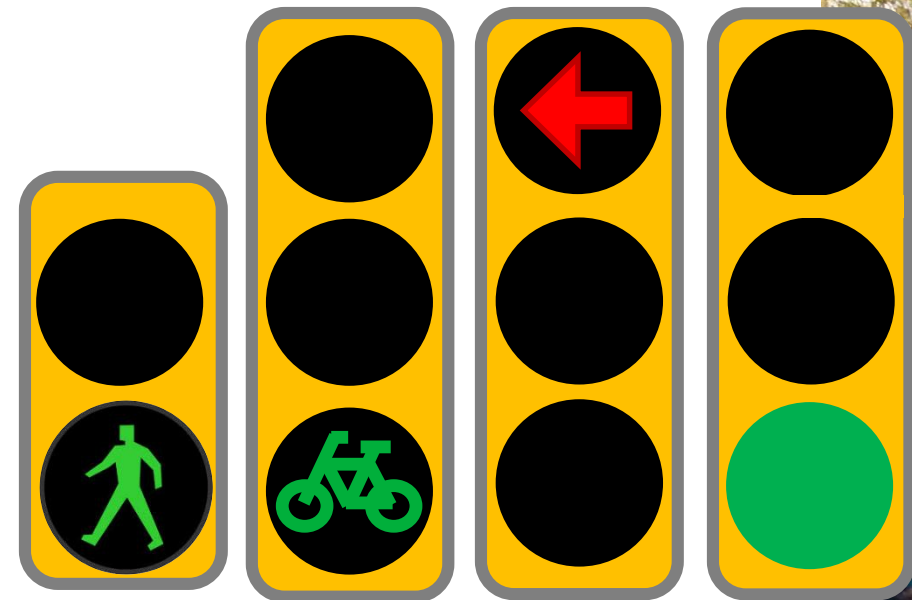
Study focus

Ways of addressing the conflict between cyclists and motorists at **signalised intersections** where **separated cycleways** are involved

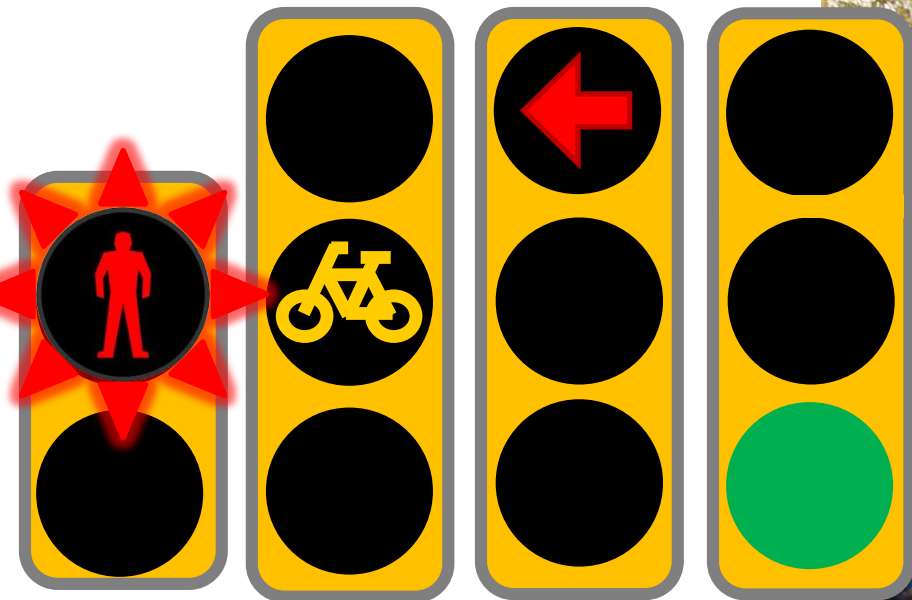
- United States of America and Canada
 - 7 cities
- Variety of treatments:
 - Full protection of all cycle movements
 - Filter turning of motor vehicles through cyclists
 - Addressing the conflict on the approach
 - Mixing zones
 - Lateral shift / transition
 - 'Protected intersections'



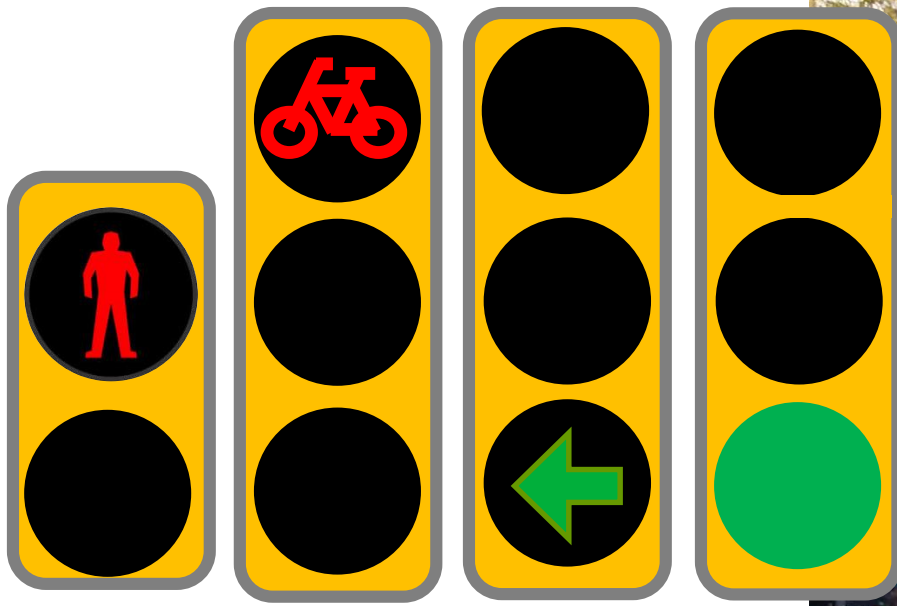
Protected (yet concurrent) phasing



Protected (yet concurrent) phasing

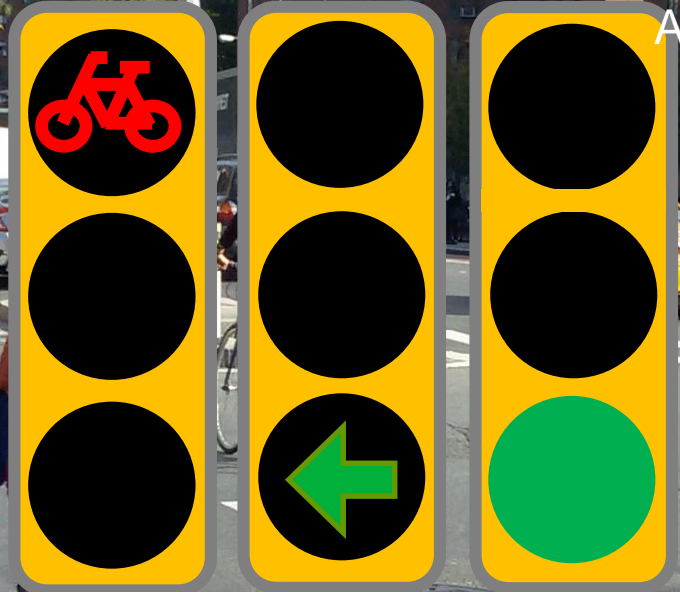
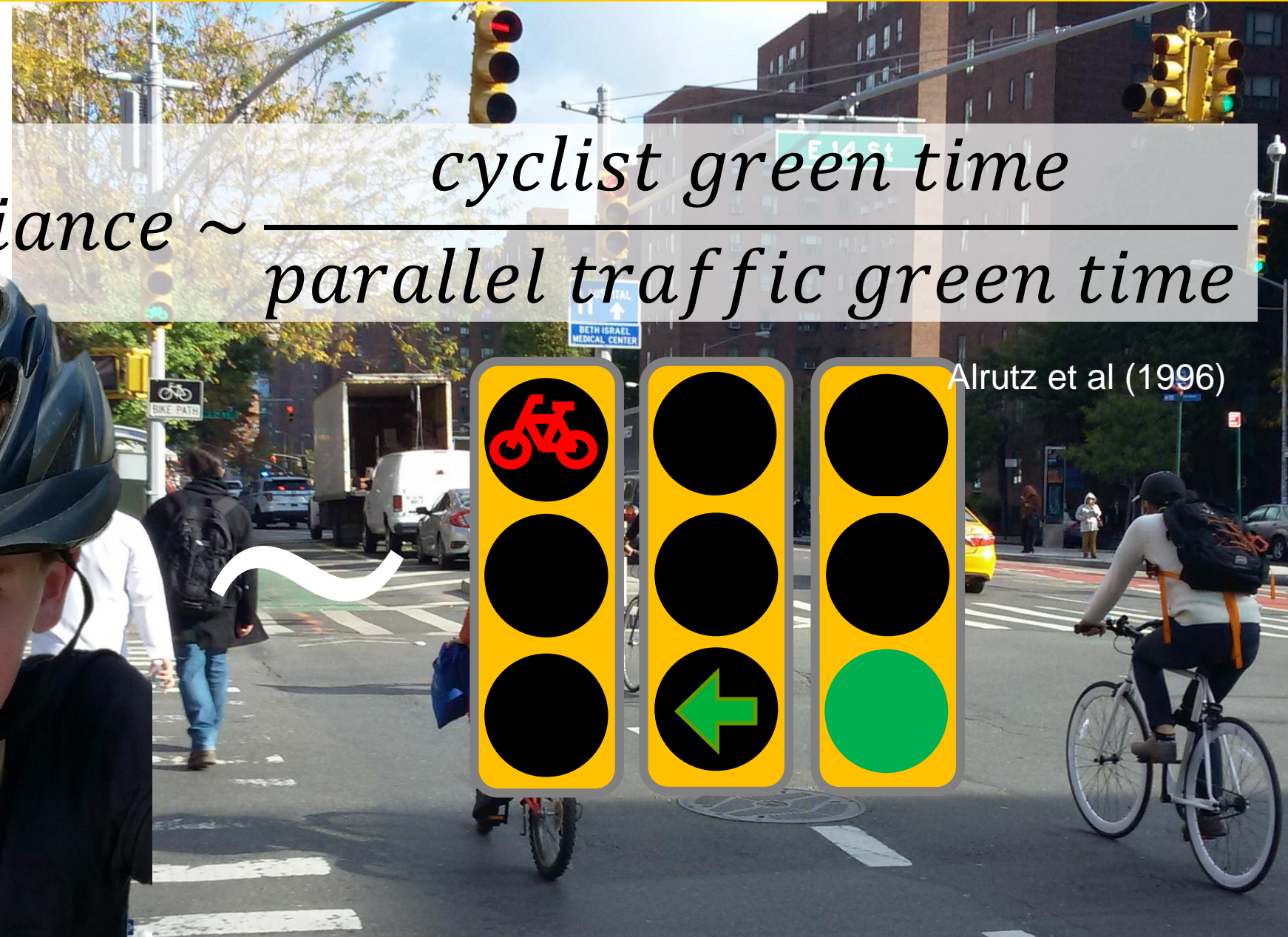


Protected (yet concurrent) phasing



Protected (yet concurrent) phasing

Cyclist compliance ~ $\frac{\text{cyclist green time}}{\text{parallel traffic green time}}$



Alrutz et al (1996)

Filter turning



New York City

Filter turning - signs



Cambridge



Toronto



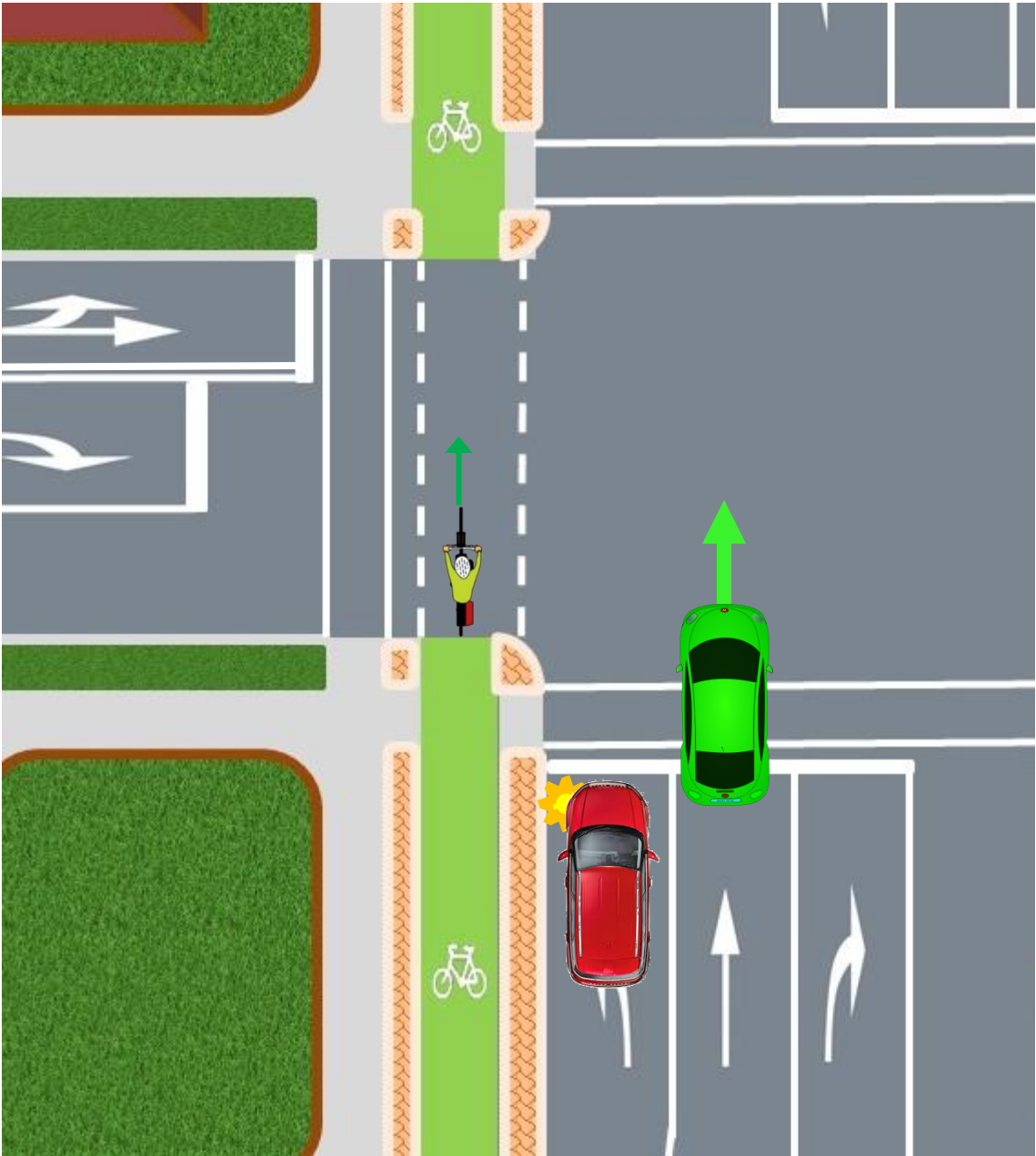
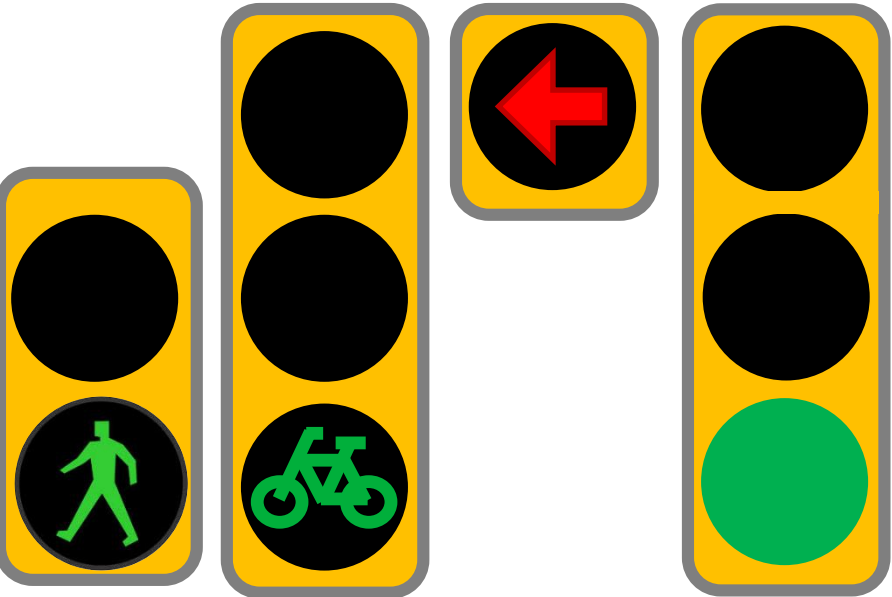
Seattle

Filter turning - cycle head starts

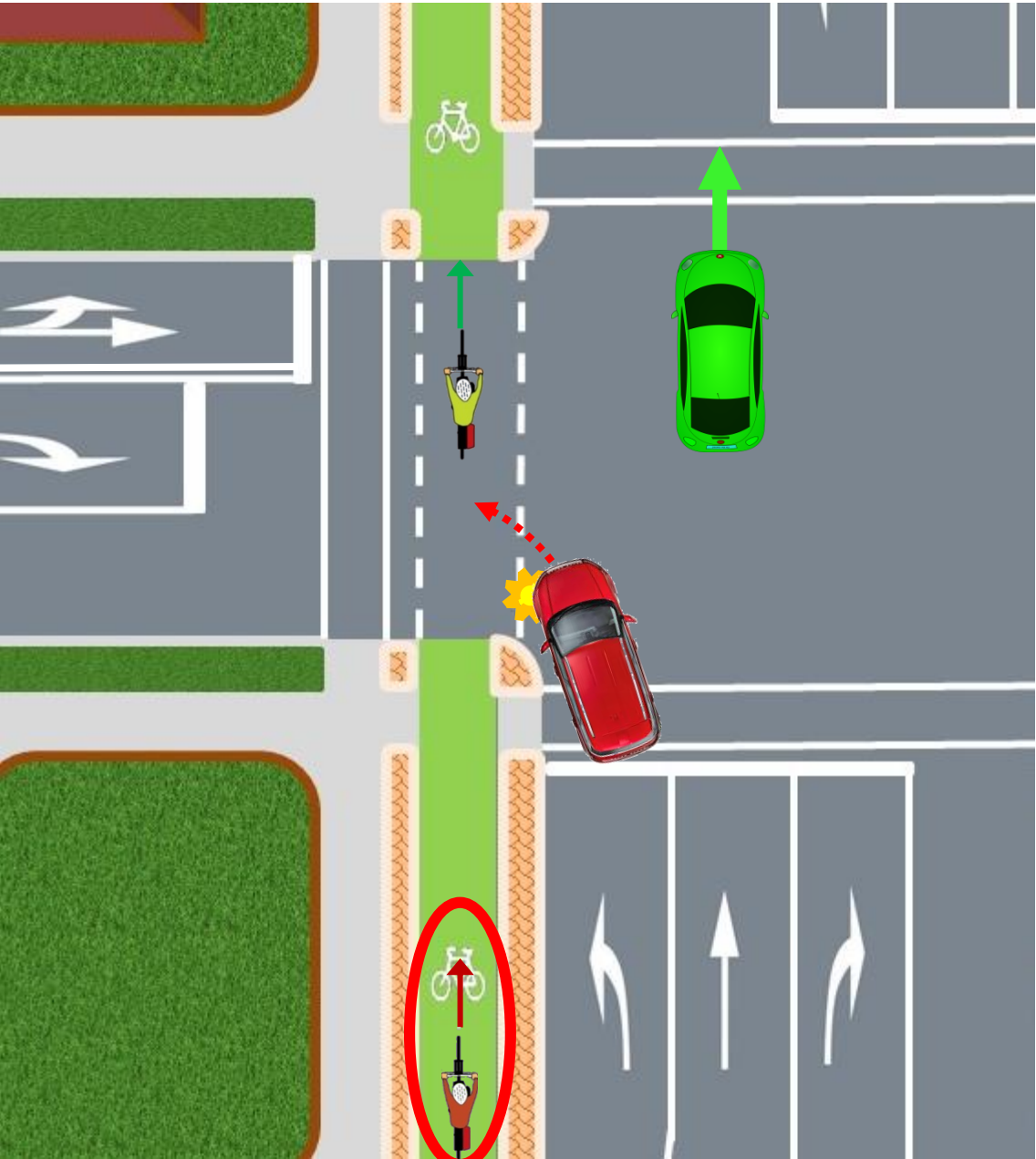
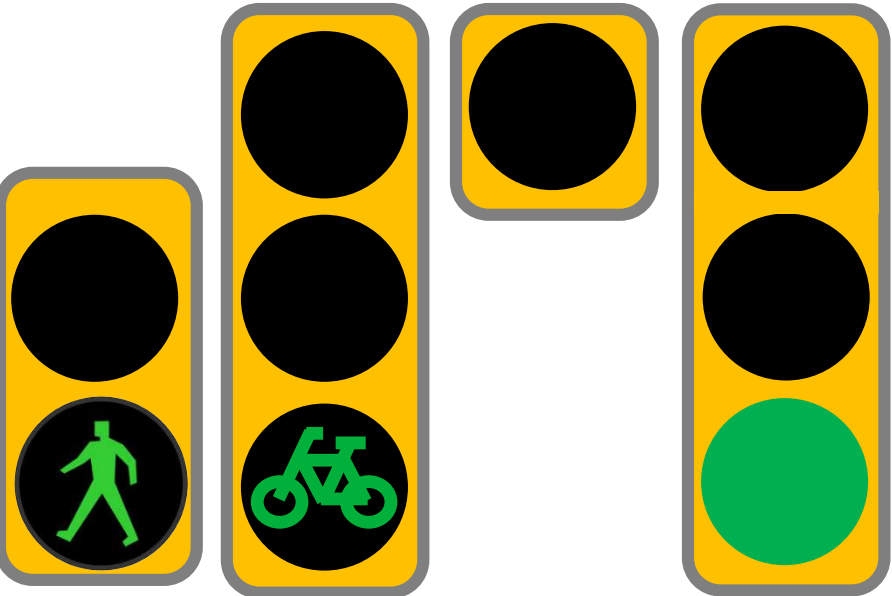


Cambridge

Filter turning - partial protection



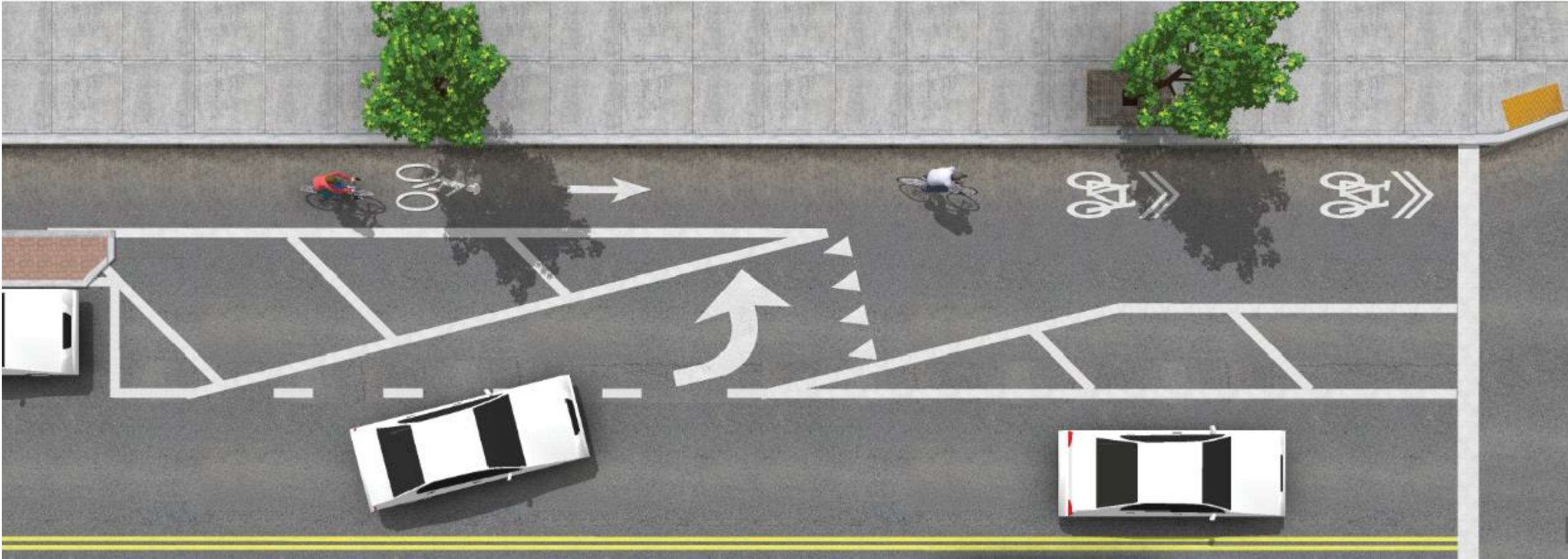
Filter turning - partial protection



Filter turning – flashing yellow arrows

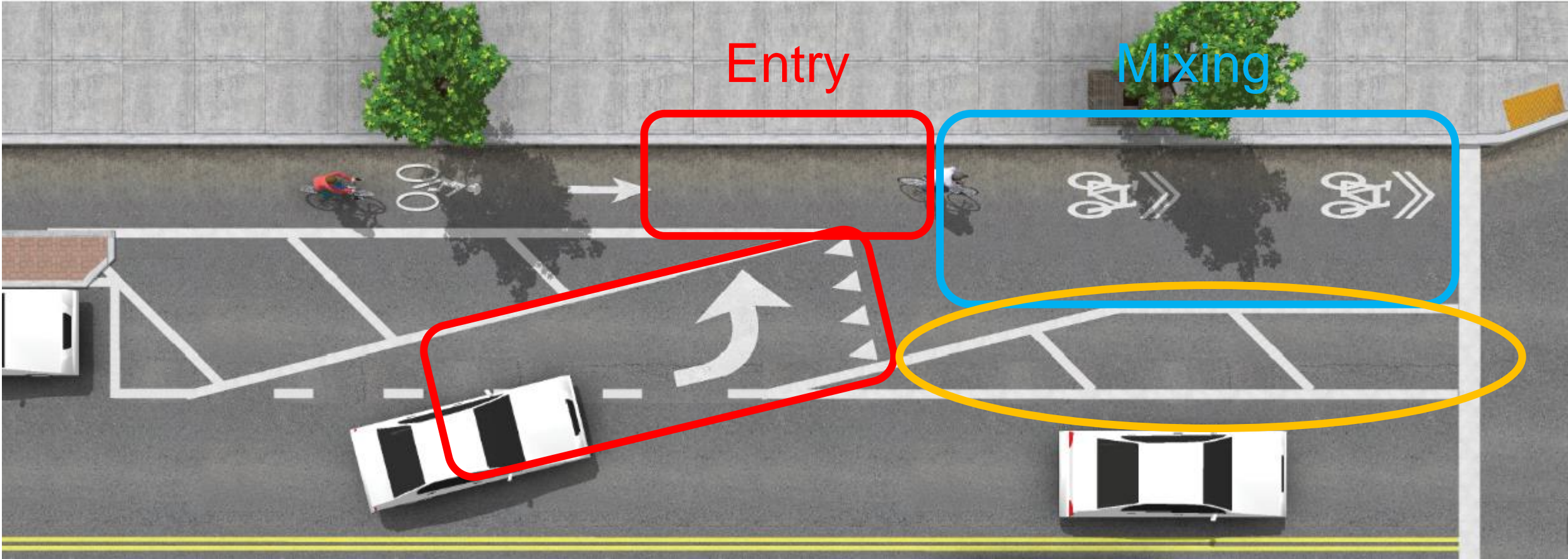


Addressing conflict on approach: **Mixing zones**



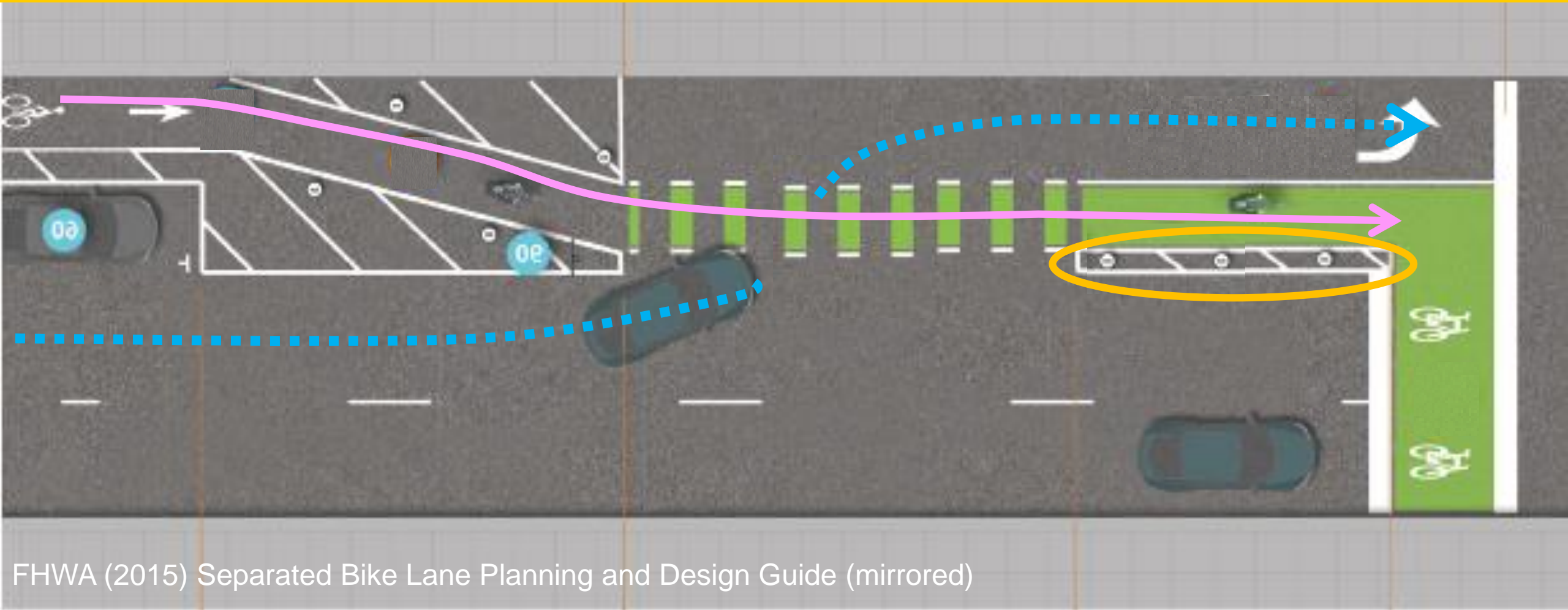
NACTO Urban Bikeway Design Guide (mirrored)

Addressing conflict on approach: **Mixing zones**



NACTO Urban Bikeway Design Guide (mirrored)

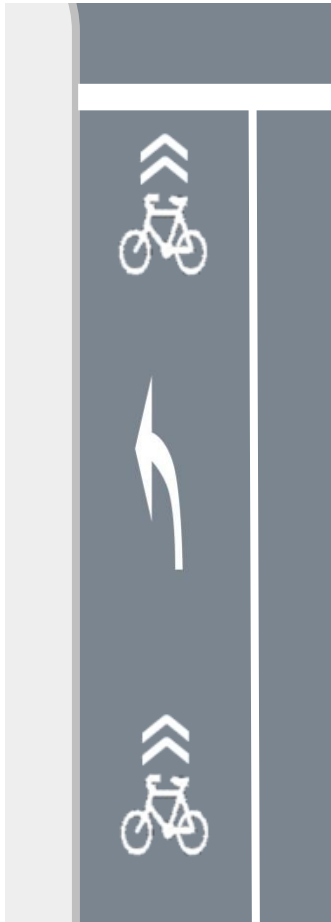
Addressing conflict on approach: Lateral shift / transition



FHWA (2015) Separated Bike Lane Planning and Design Guide (mirrored)

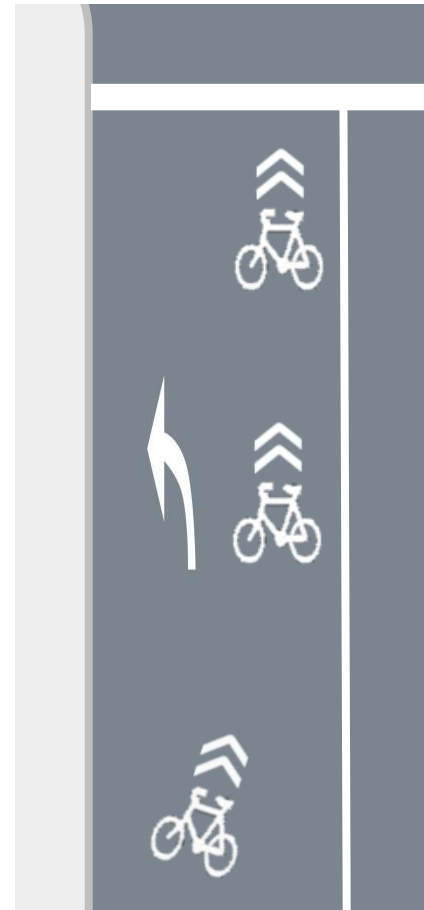
Lateral shift vs mixing zone

Narrow lane



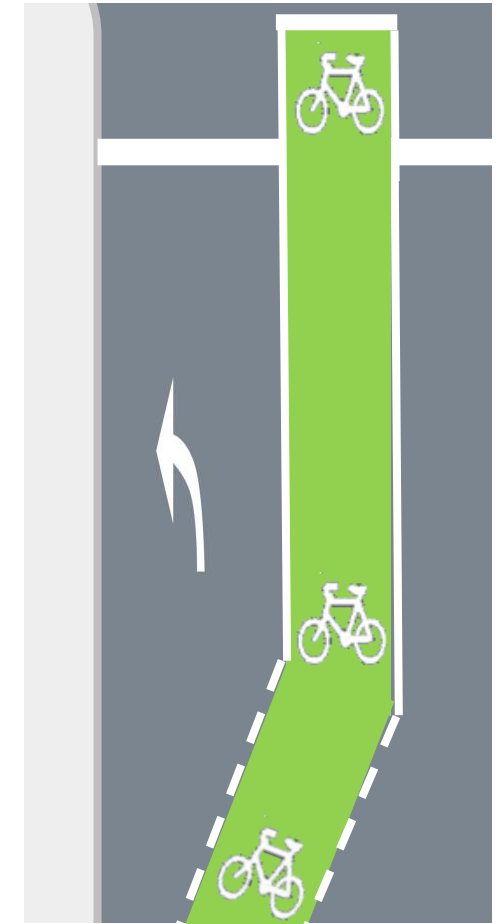
Single-file
mixing

Wide(r) lane



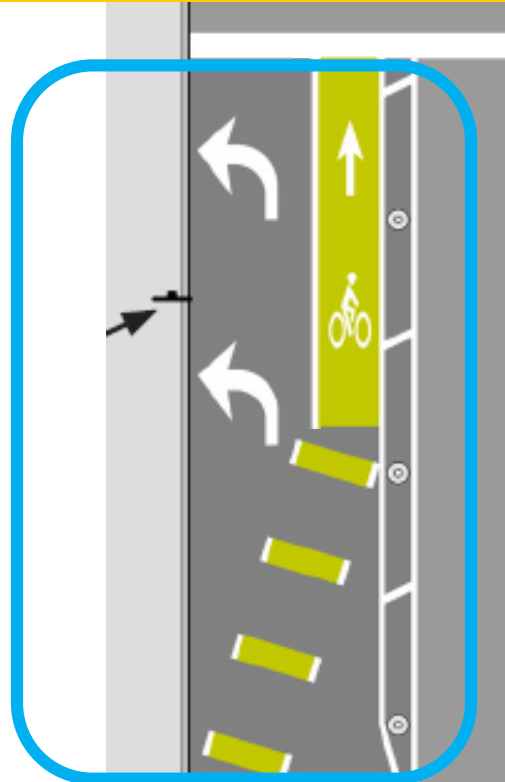
Side-by-side
mixing

— Wide enough lane

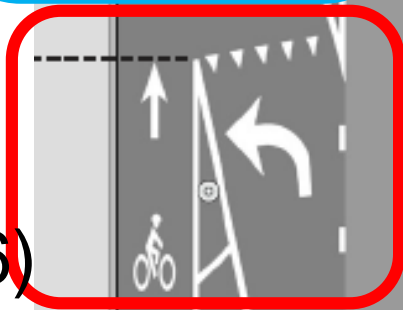


Dedicated cycle lane
(i.e. lateral shift)

Lateral shift vs mixing zone



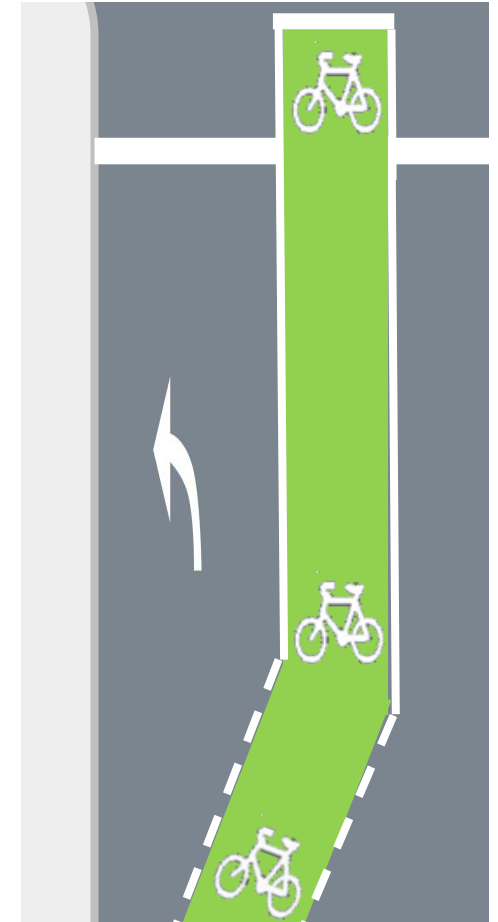
Lateral shift



Entry

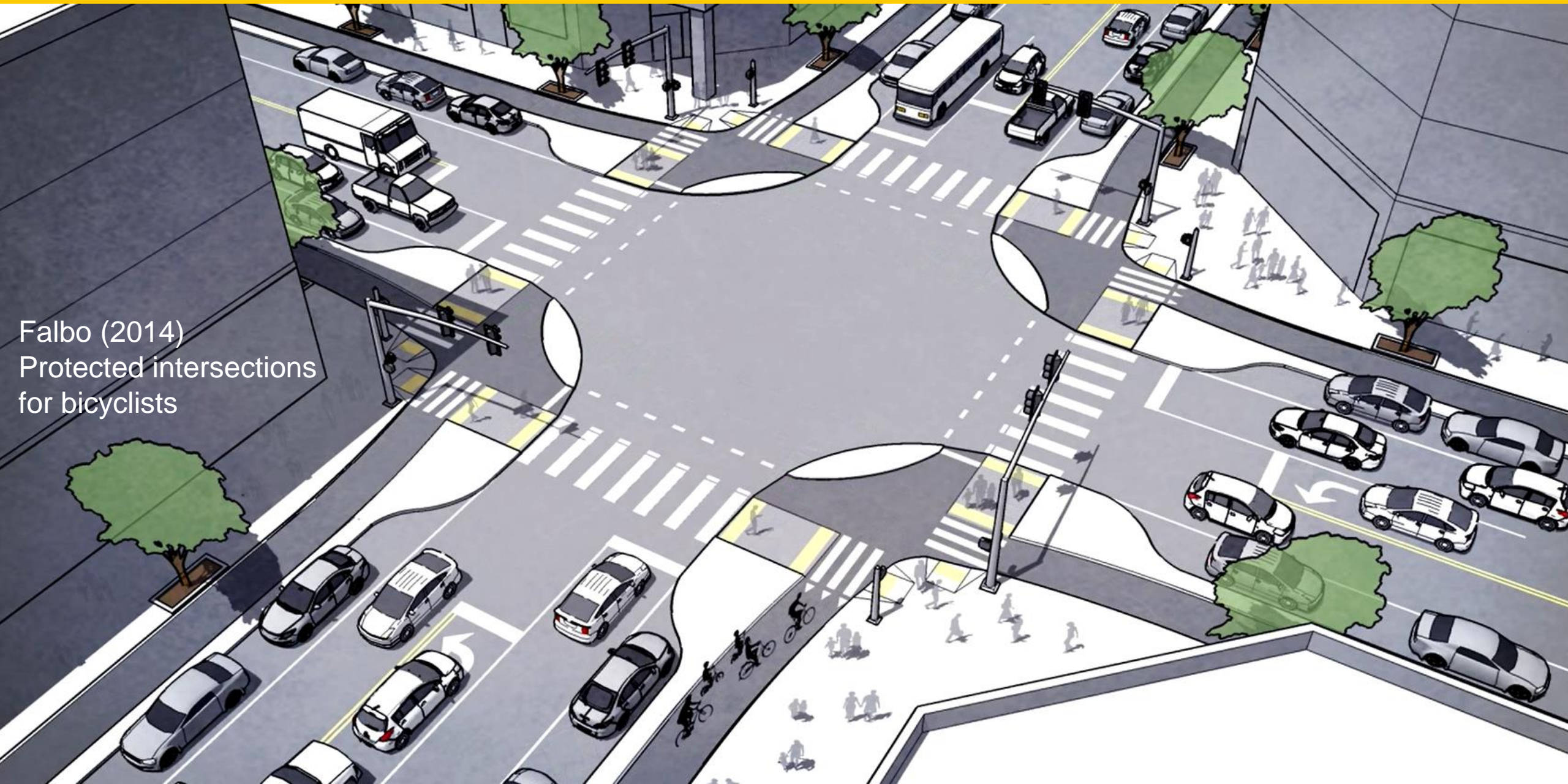
MassDOT (2016)
– mirrored and adapted

— Wide enough lane



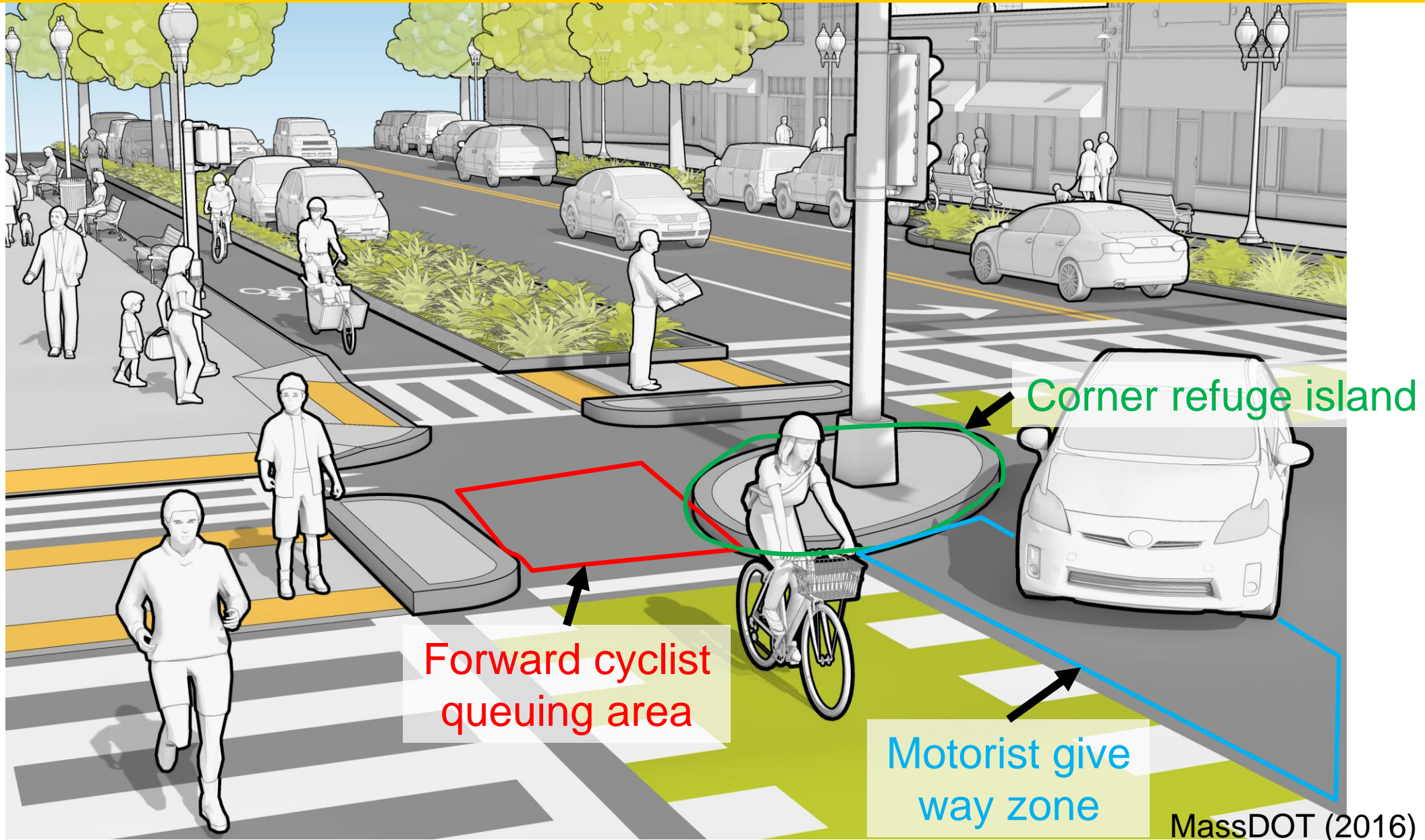
Dedicated cycle lane
(i.e. lateral shift)

Protected intersections



Falbo (2014)
Protected intersections
for bicyclists

Protected intersections – layout



Protected intersections – phasing

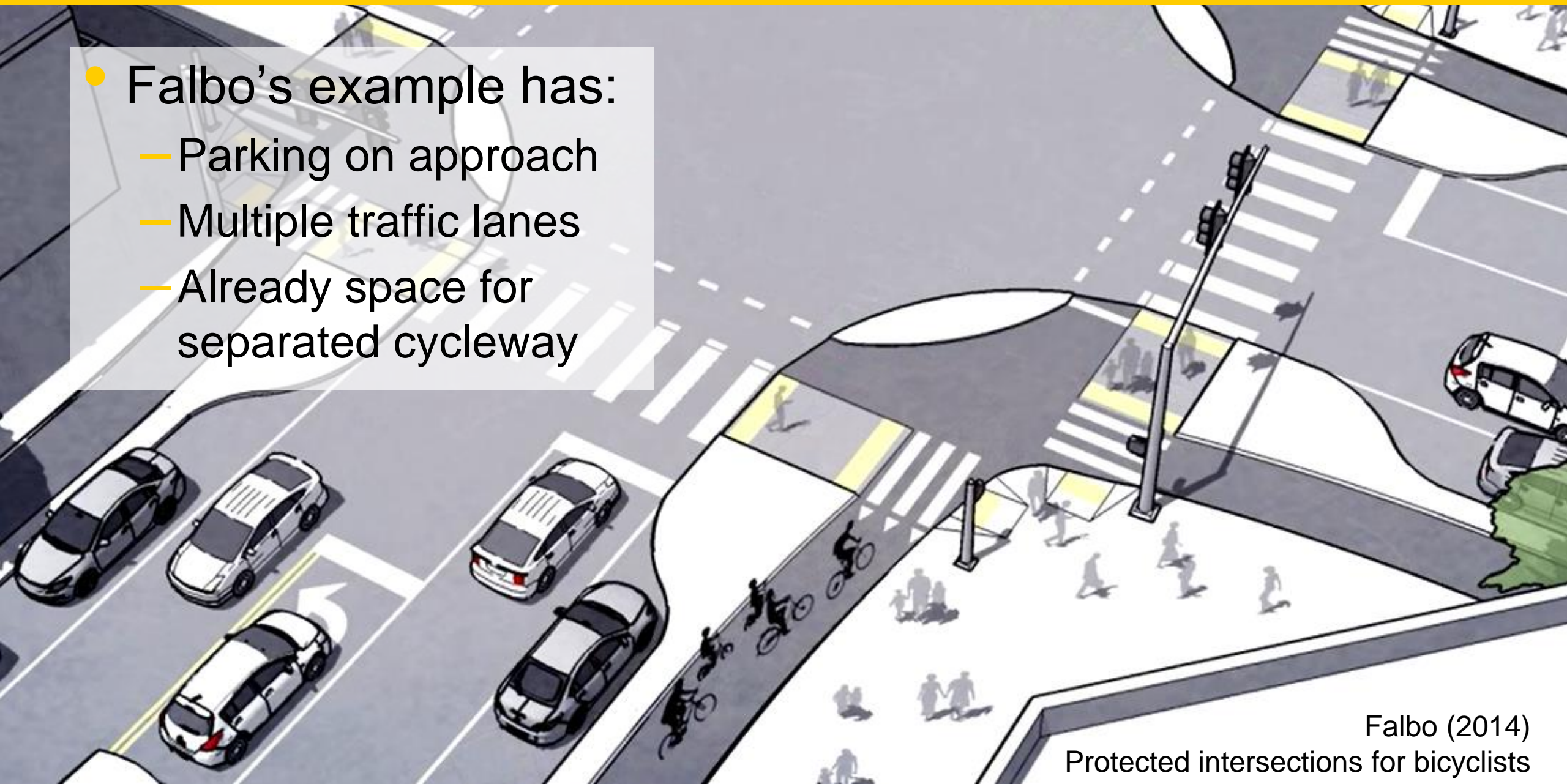
- Falbo (2014):
 - Fully protected / bicycle Barnes' dance
 - Cycle head start

- Chicago:



Protected intersections in New Zealand?

- Falbo's example has:
 - Parking on approach
 - Multiple traffic lanes
 - Already space for separated cycleway



Protected intersections in New Zealand?

- NZ generally has:
 - ~~Parking on approach~~
 - ~~Multiple traffic lanes~~
 - *Hardly even space for separated cycleway?*

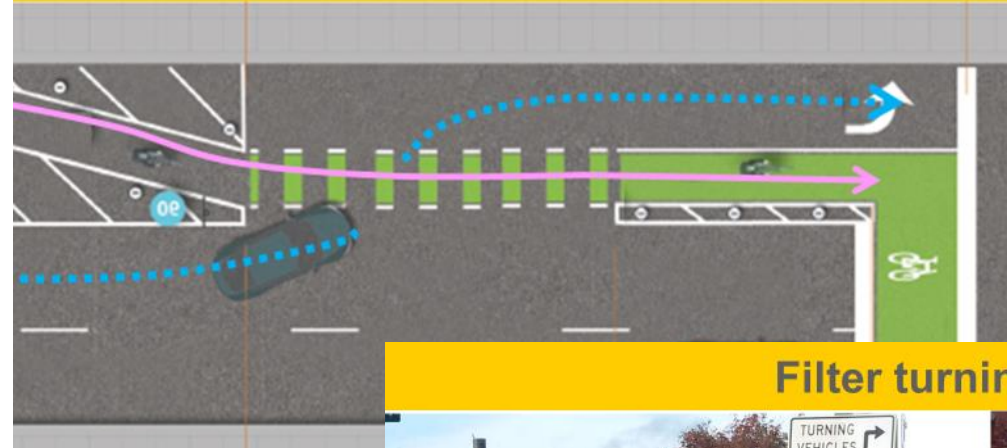
It'll be tricky -
let's not try

Yeah right.

Protected (yet concurrent) phasing



Lateral shift / transition



Filter turning

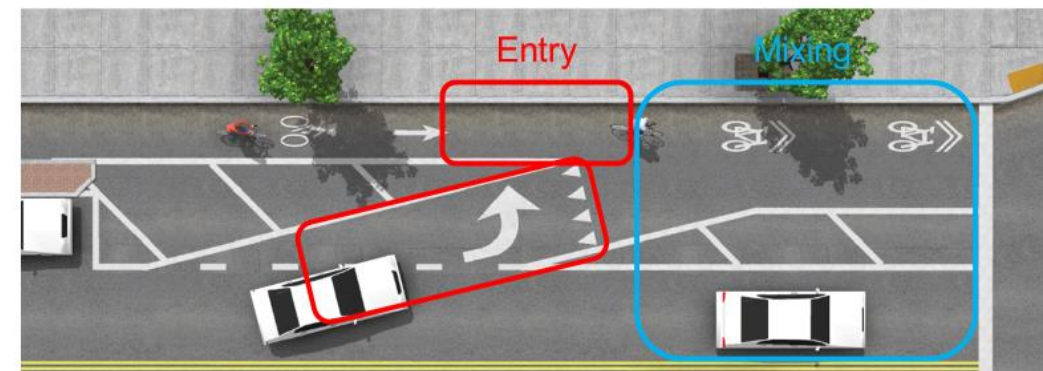


Which ones, where???

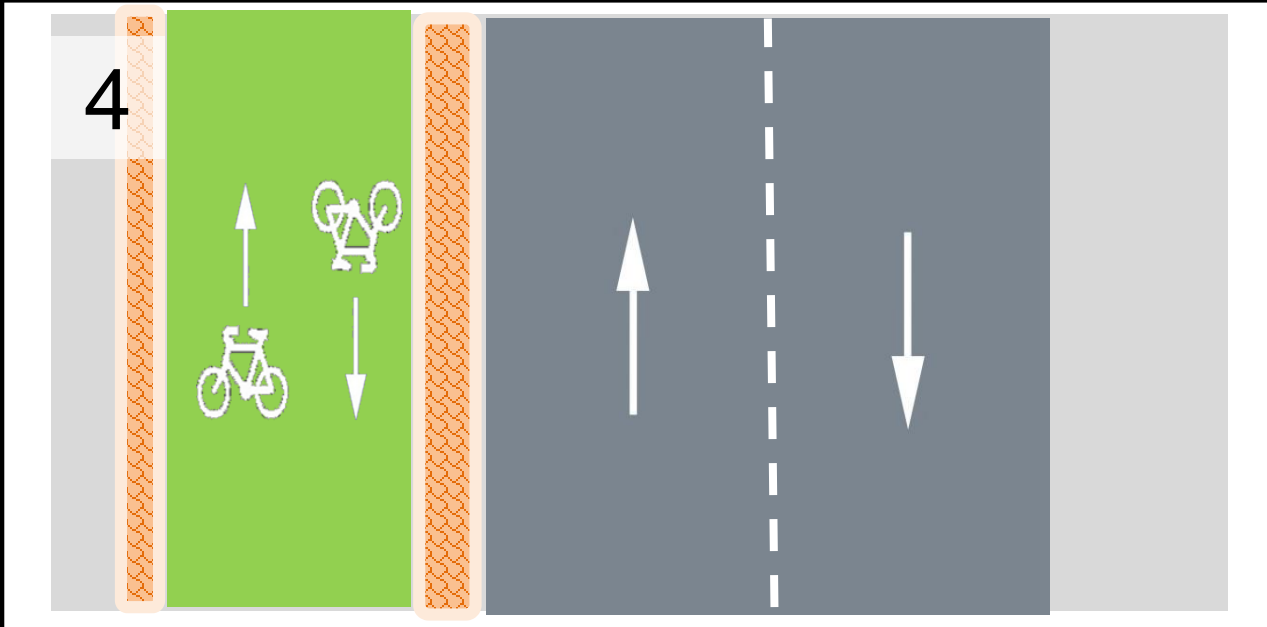
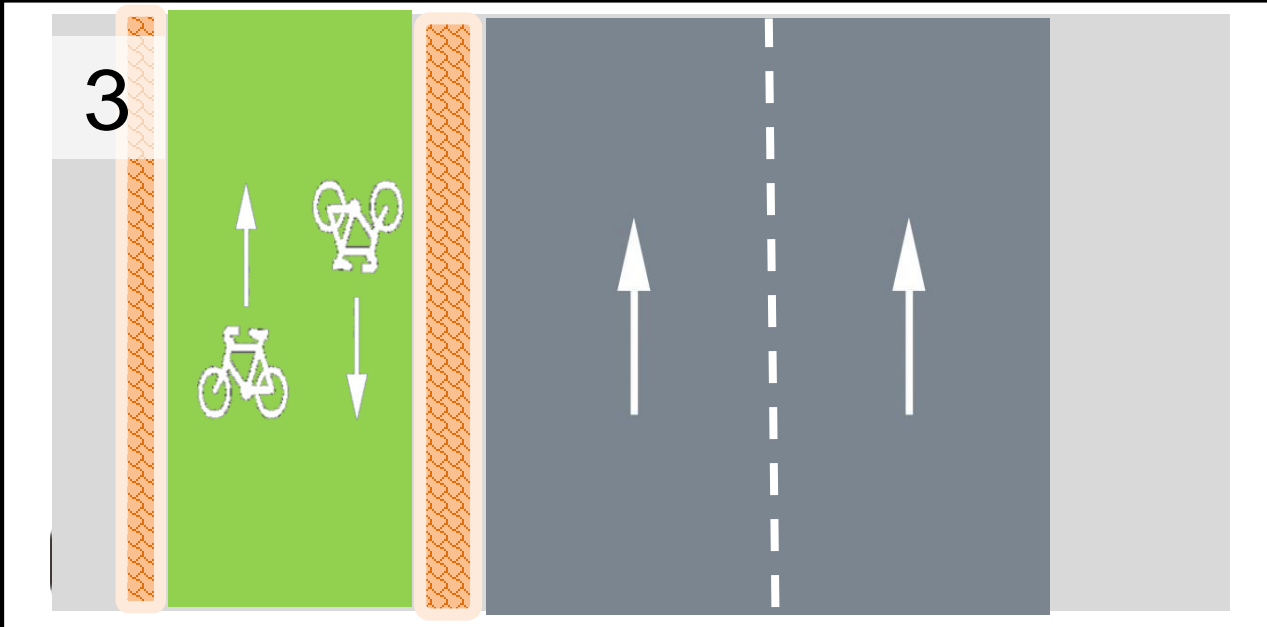
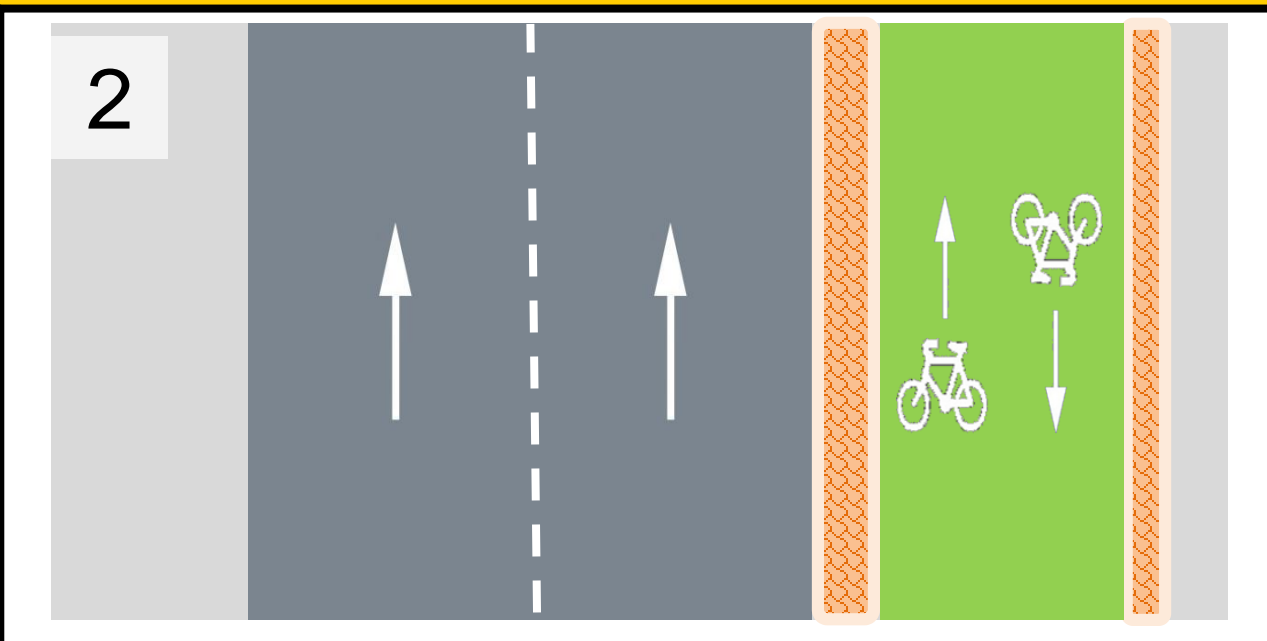
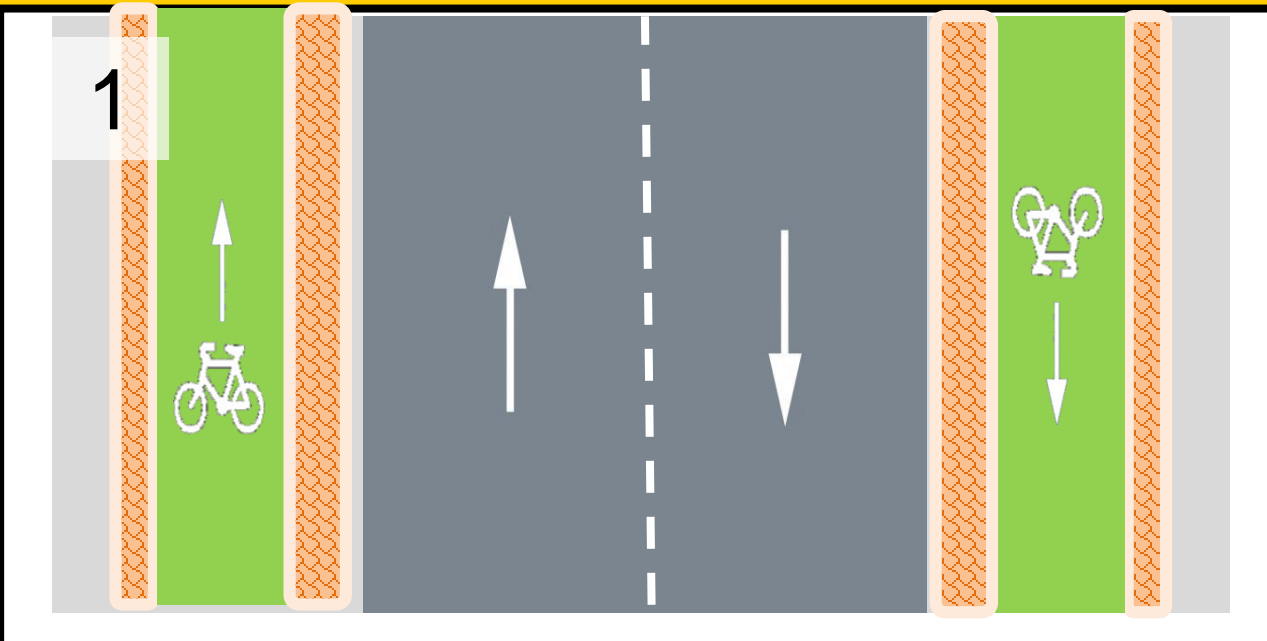
Protected intersections



Mixing zones

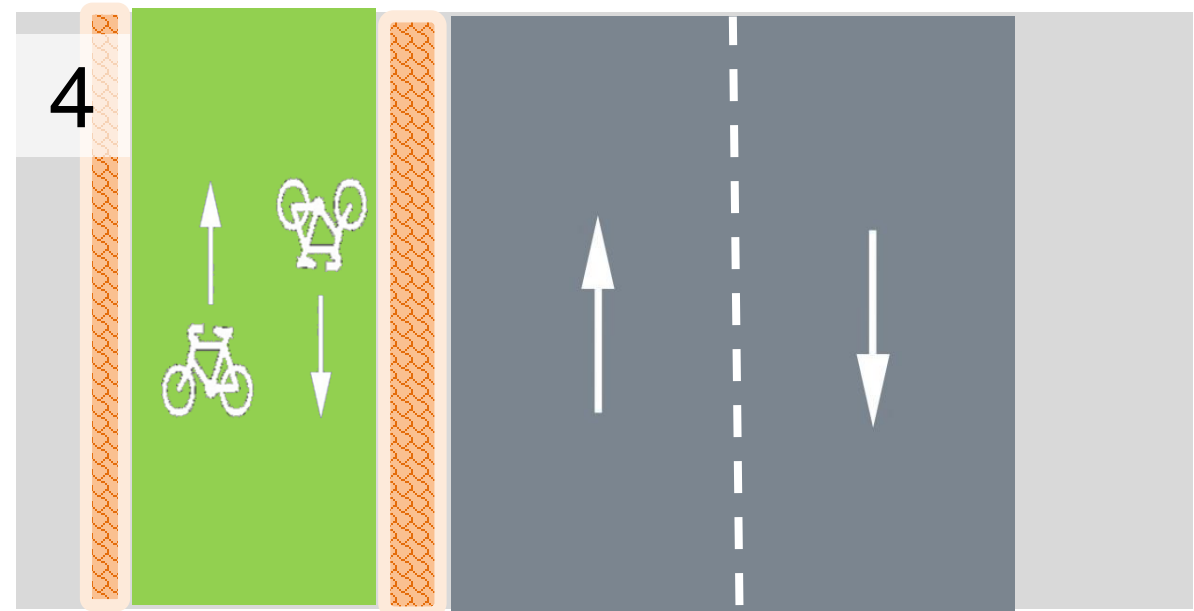
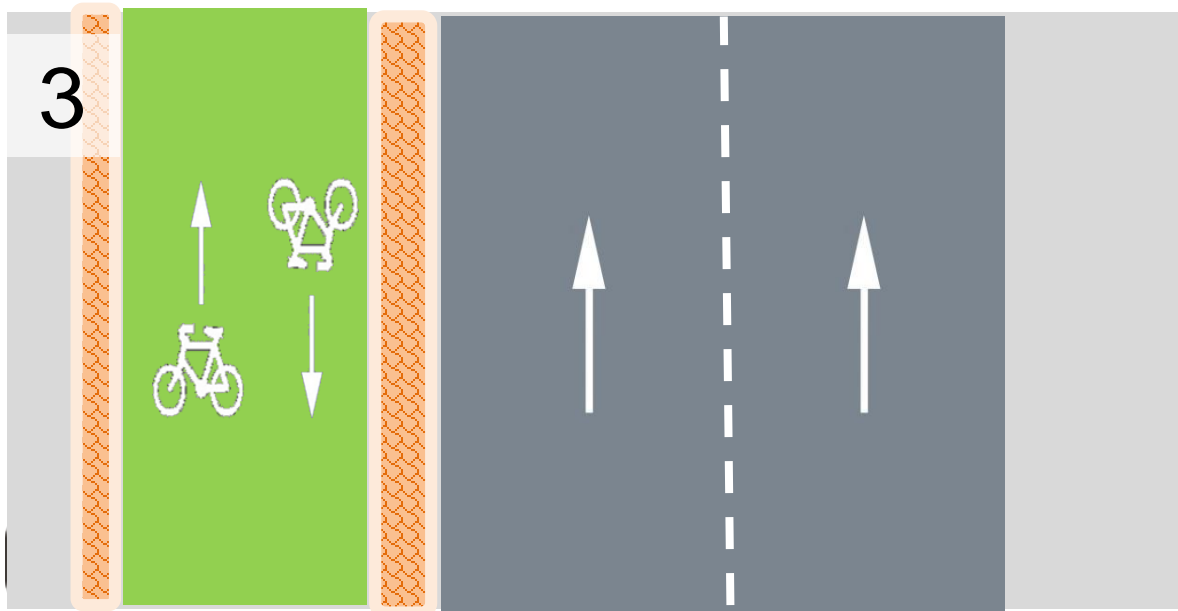
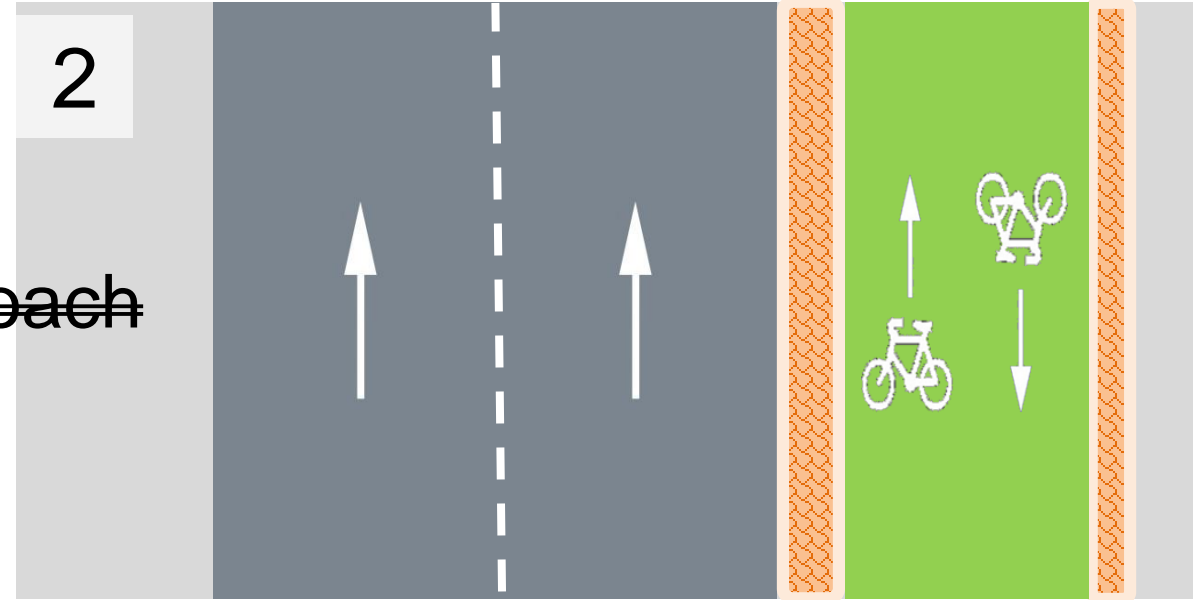


Hierarchy of provision (Vancouver, adapted for driving on left)

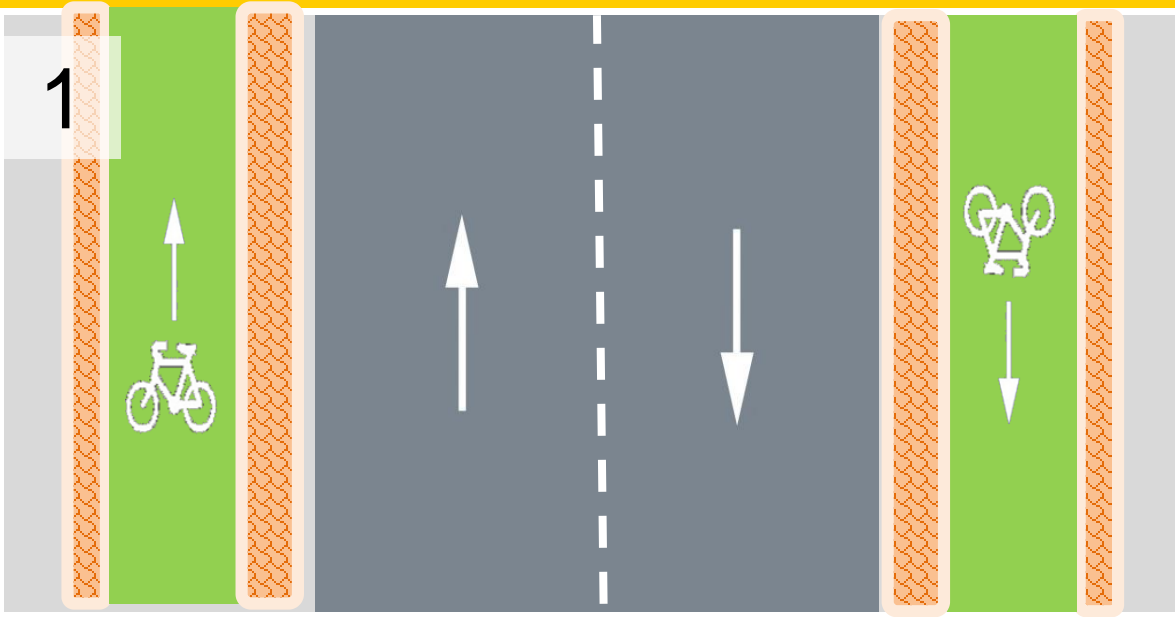


2-way cycleways – suitable treatments

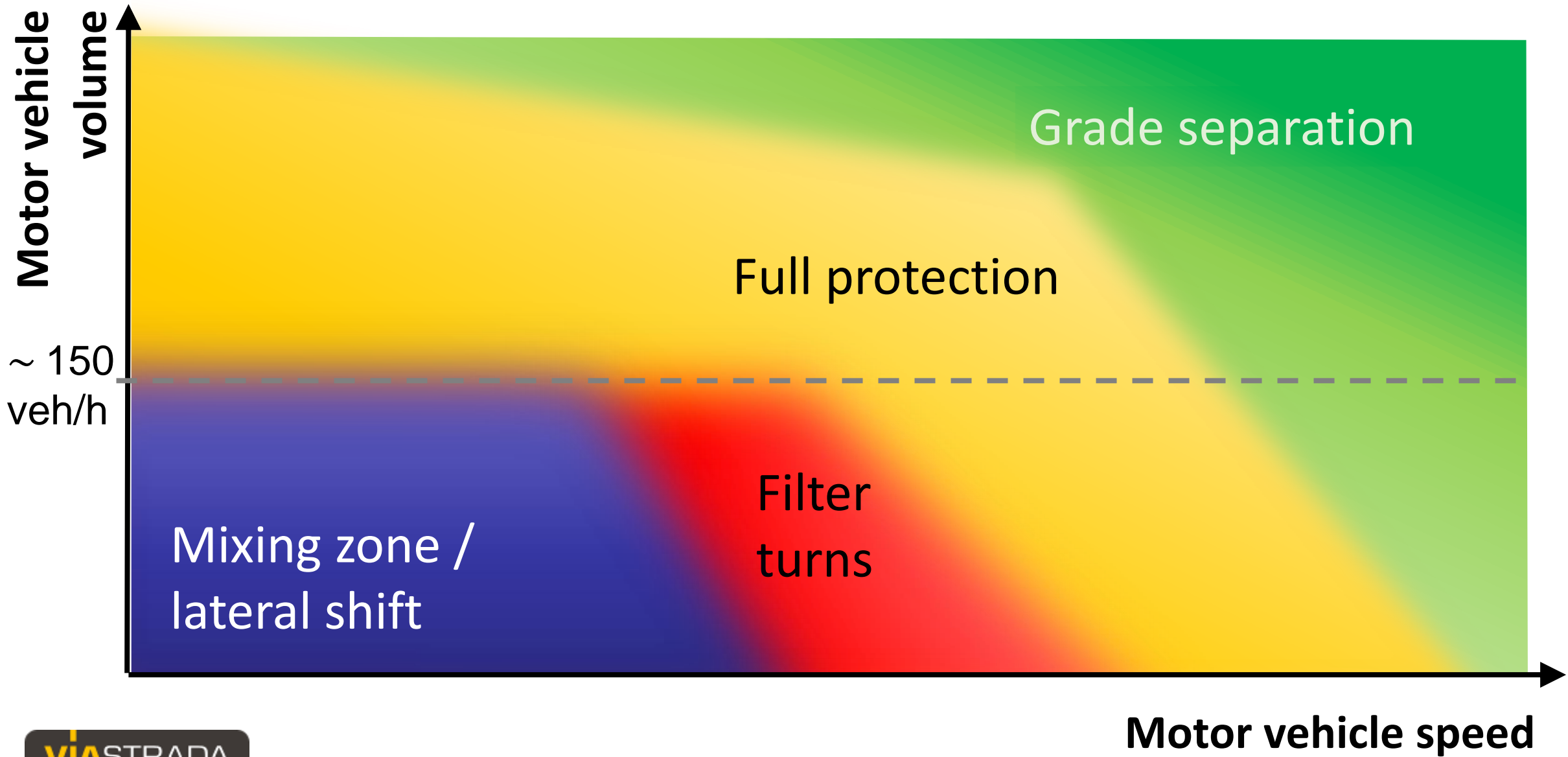
- Full protection
- ~~Filter turning~~
- ~~Addressing the conflict on the approach~~
 - ~~Mixing zones~~
 - ~~Lateral shift / transition~~
- *Protected intersections?*



1-way cycleways – treatment thresholds



1-way cycleways – treatment thresholds



Conclusions & Recommendations

- We're doing ok
 - Let's keep improving...



Conclusions & Recommendations

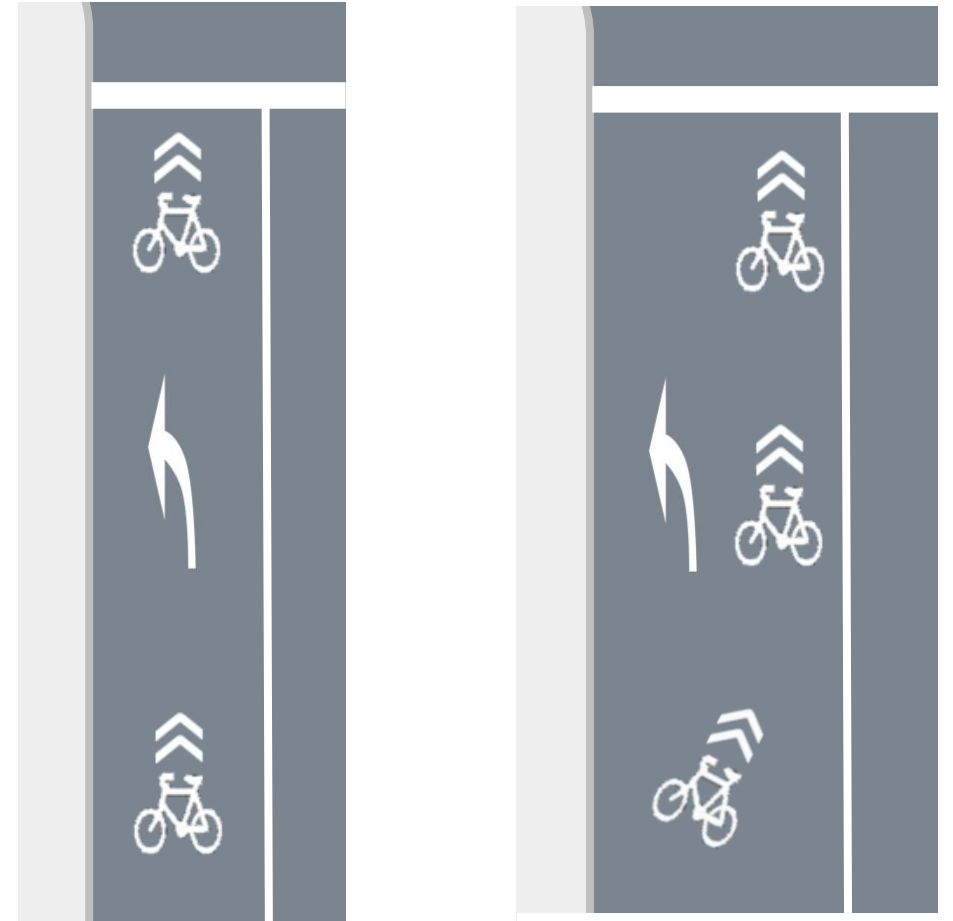
- We're doing ok
 - Let's keep improving...
- Need to consider filter turning
 - Not for 2-way / contraflow cycling
 - Flashing yellow arrows



New York

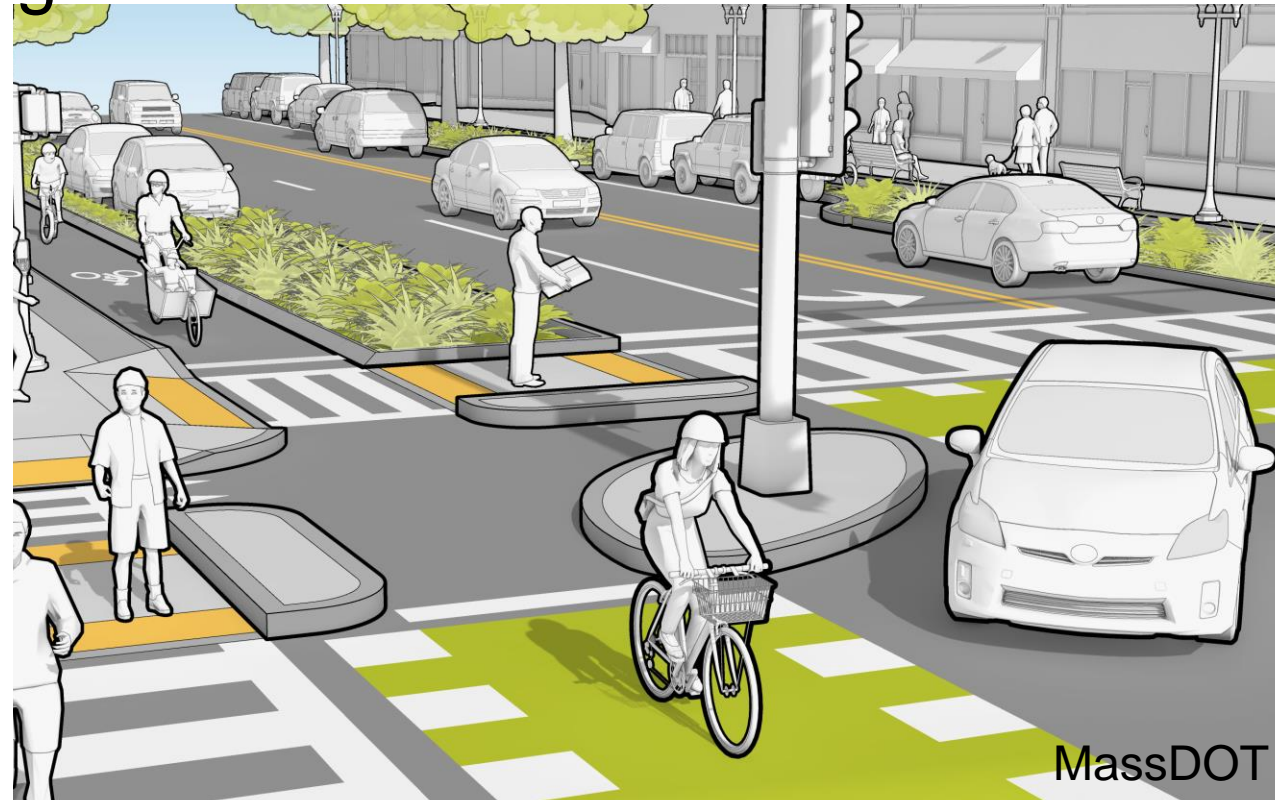
Conclusions & Recommendations

- We're doing ok
 - Let's keep improving...
- Need to consider filter turning
 - Not for 2-way / contraflow cycling
 - Flashing yellow arrows
- Place for good mixing zones
 - Widths & sharrow placement



Conclusions & Recommendations

- We're doing ok
 - Let's keep improving...
- Need to consider filter turning
 - Not for 2-way / contraflow cycling
 - Flashing yellow arrows
- Place for good mixing zones
 - Widths & sharrow placement
- Protected intersections
 - Where we can



Thank you to all who helped along the way!



Kate and James Oatway
Axel Wilke
Rich Carmona Mike Anderson
ViaStrada Glen Koorey
Kim Voros
Dongho Chang Chicago DoT
Saikat Basak
NZ Transport Agency



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Gavin Davidson *Andrea Cliniscales*
Rachael Bronson

