The logo features the text 'HFES' in white, '64' in large green with a white outline, and 'TH INTERNATIONAL ANNUAL MEETING' in white. Below this is the date and format 'OCTOBER 5-9, 2020 | VIRTUAL CONFERENCE' in white. The background is dark blue with abstract orange and purple shapes on the left and a wireframe figure on the right.

HFES

64

TH

INTERNATIONAL
ANNUAL MEETING

OCTOBER 5-9, 2020 | VIRTUAL CONFERENCE



How Signs, Markings, and Hazards Impact Motorist Assessment of Cyclist Lane Placement

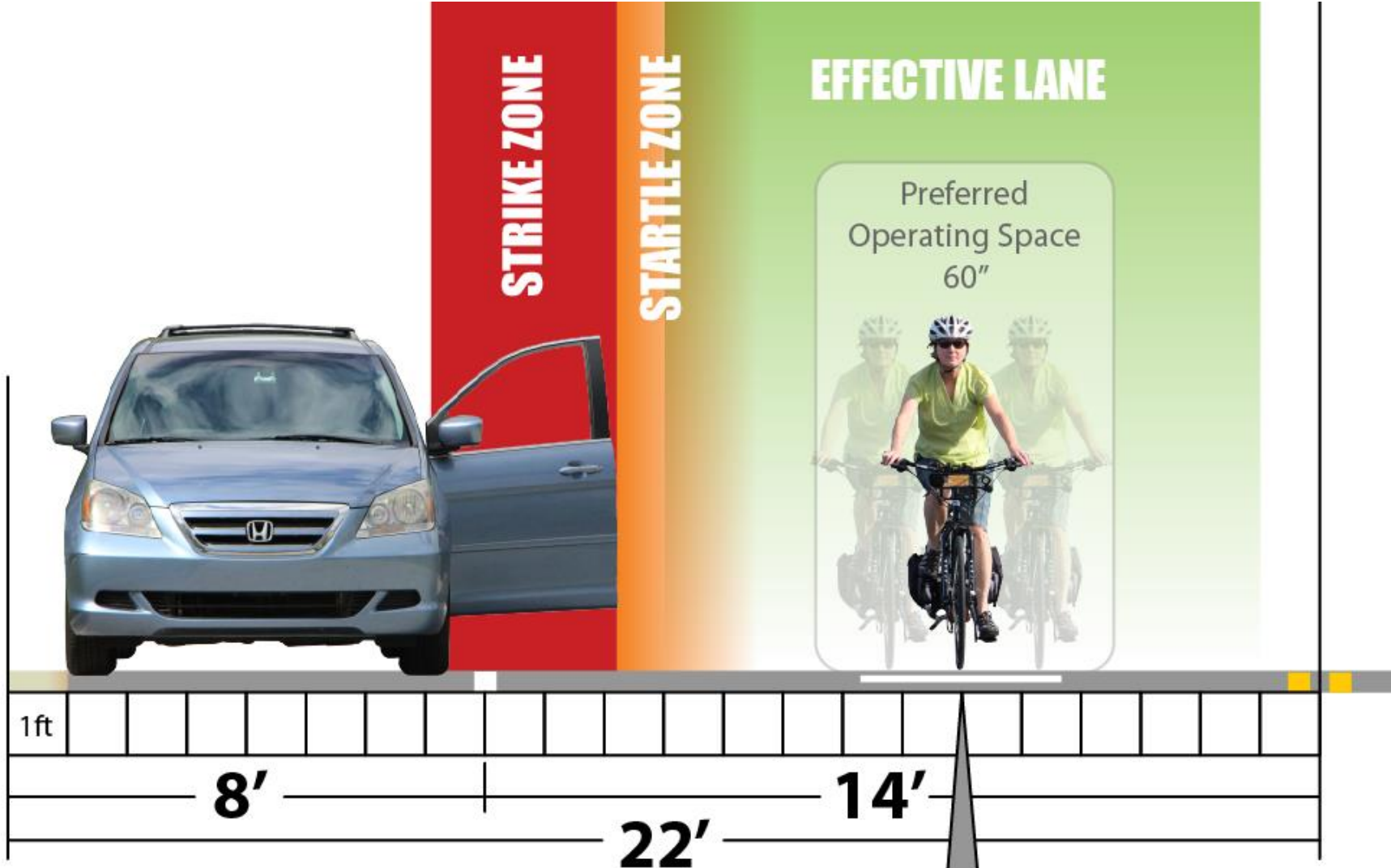
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Sharing the Road

- Fatality rates relatively unchanged for vulnerable road users since 1995 (NHTSA)
 - 5% increase from 2006-2015
 - 95% of U.S. cyclist traffic fatalities involve a motor vehicle
- Motorists report regular annoyance (Haworth, Heesch, & Schramm, 2018)
- Cyclists report regular “close calls” (Aldred & Crosweller, 2015)



Ethical Use of 22ft:
Best Practice



Effective Communication

Hess and Peterson (2015)

- *Share the Road* is ambiguous and “provides no additional comprehension compared to an unsigned road”
- *Bicycles May Use Full Lane* more effective than sharrow



Present Study

Survey of 73 young motorists (90% 18-23 years old)

- Respond to static images depicting scenarios
 - Select best position for cyclist
 - Rate difficulty in selecting position
 - Rate feeling of safety at that position
- Signage - Share the Road vs. Bicycles Take the Lane
- Lane Markings - Hazard Strip vs. No Marking

Share the Road vs. Bicycles Take the Lane



Share the Road

vs.

**Bicycles Take
the Lane**



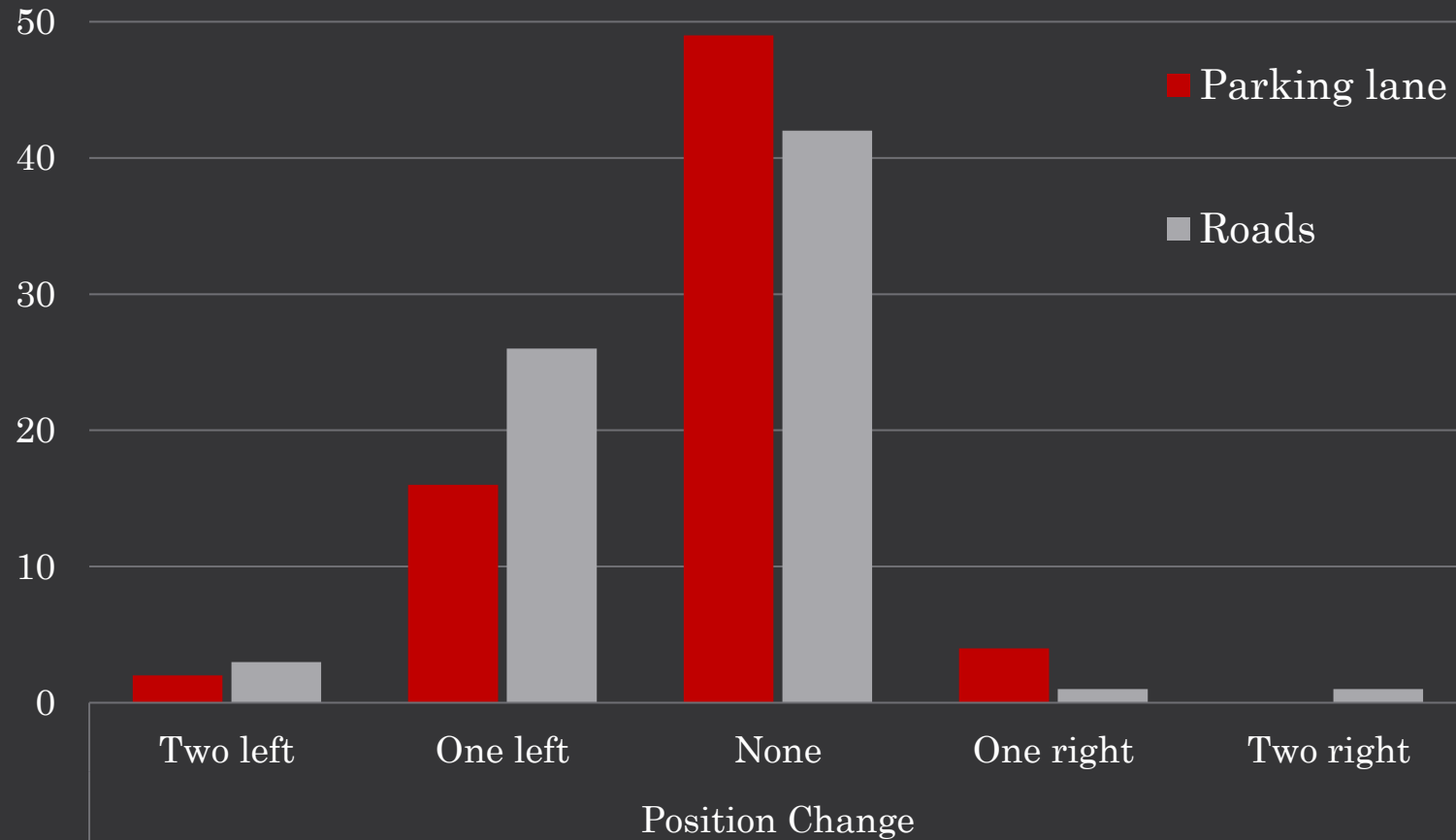


- What is the best bike position in this lane?

Rate how much you agree:
1 (strongly disagree) –
4 (strongly agree)

- It was difficult to determine the best bike position
- I feel safe at this location

Share the Road Bicycles Take the Lane

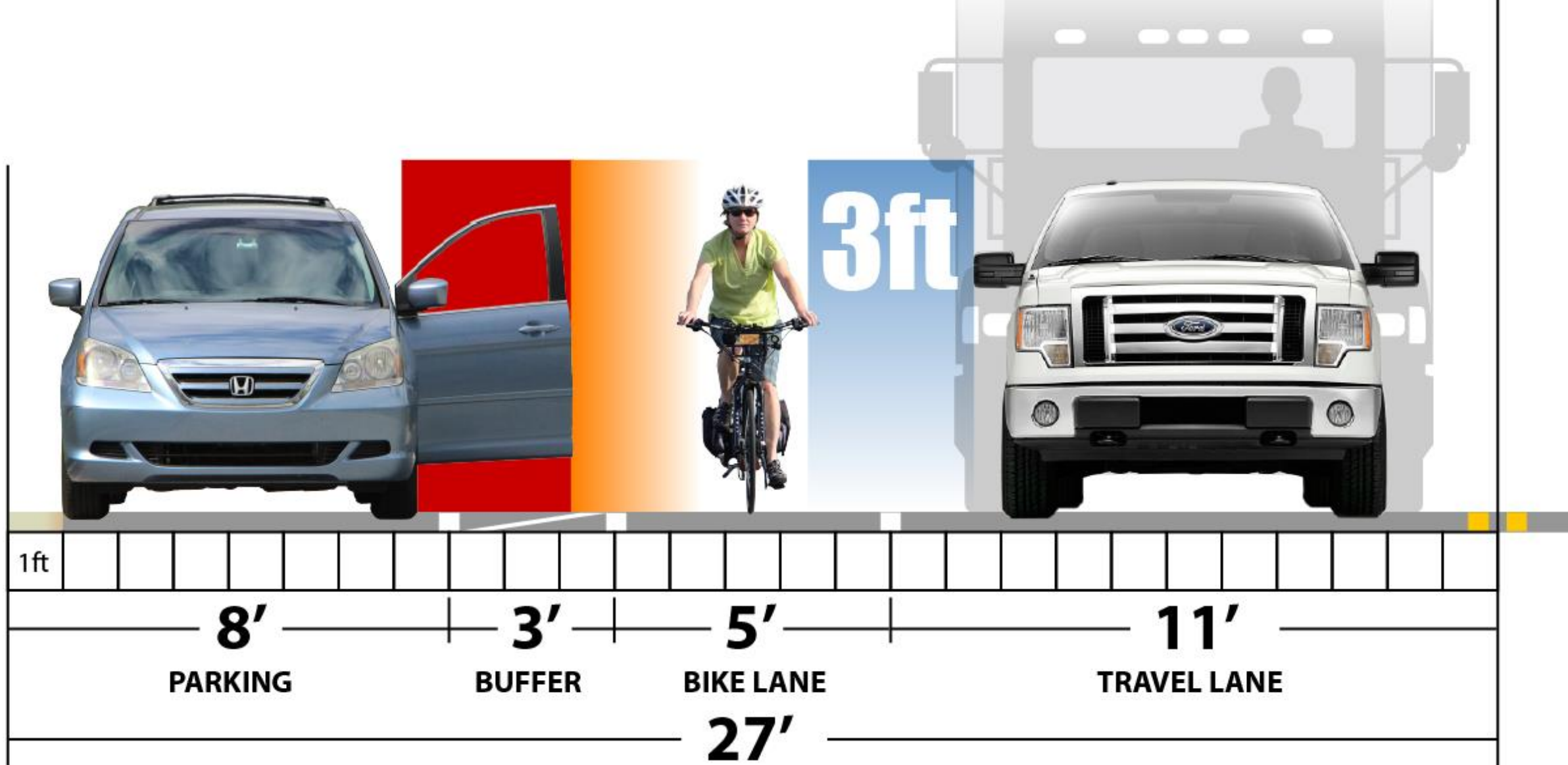


$\chi^2 (3) = 12.275, p = .006$ and $\chi^2 (2) = 24.148, p < .001$, respectively

Share the Road Bicycles Take the Lane

Difficulty of placing the bicycle and predicted safety ratings not impacted by change in signage





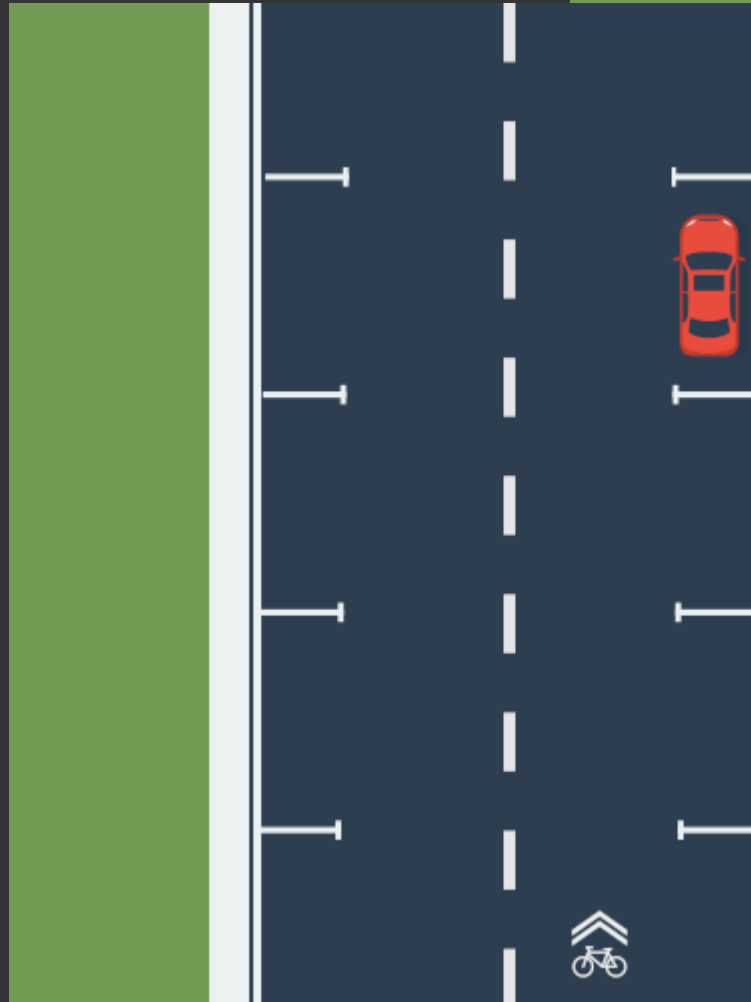
Best Practice Buffered Bike Lane

Lane Marking Scenarios

Parked vehicle

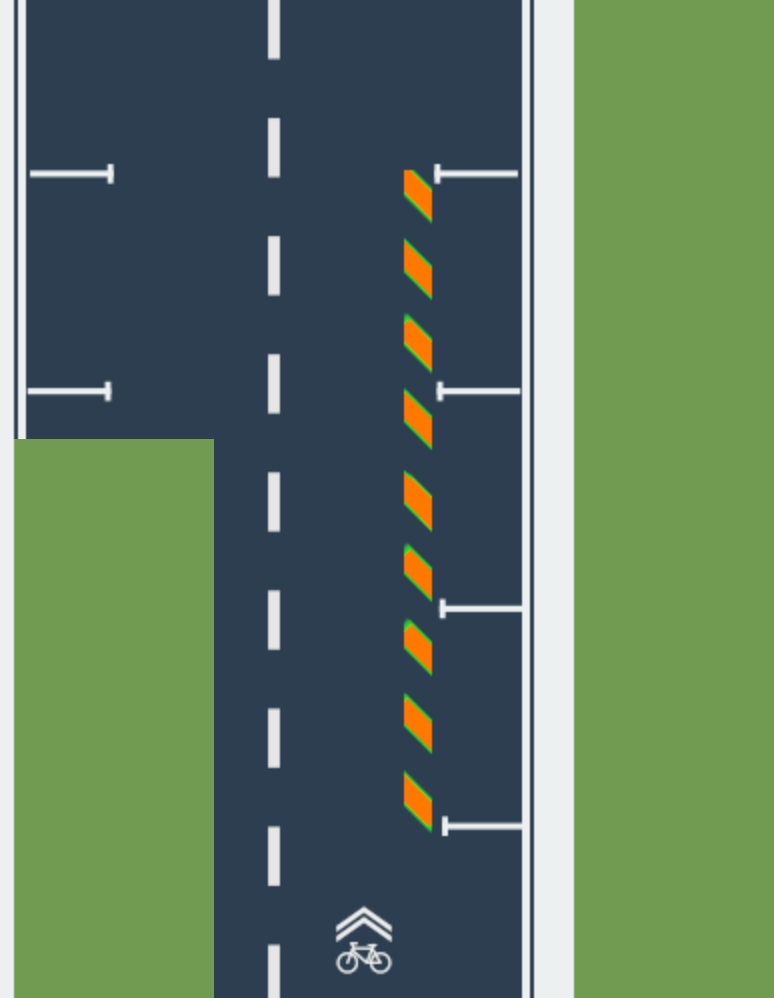
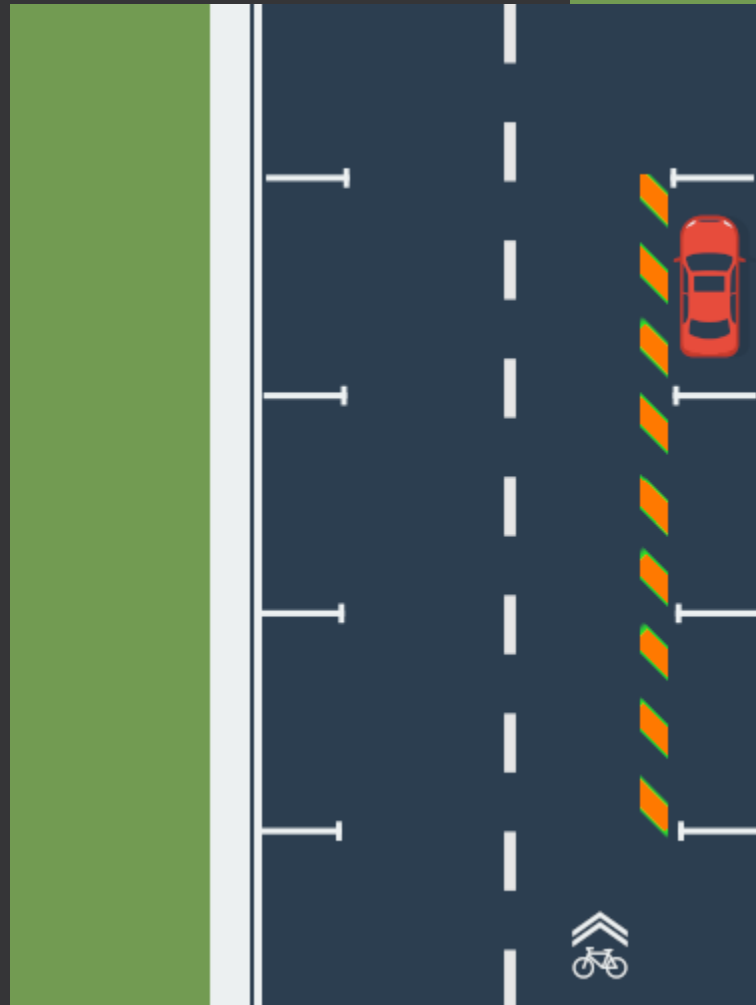
vs.

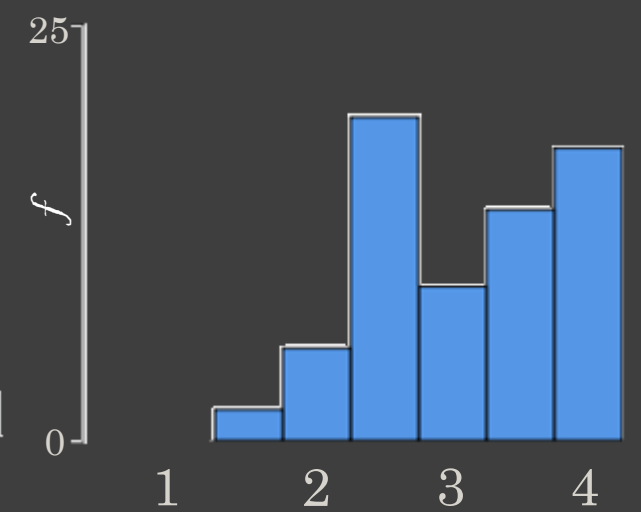
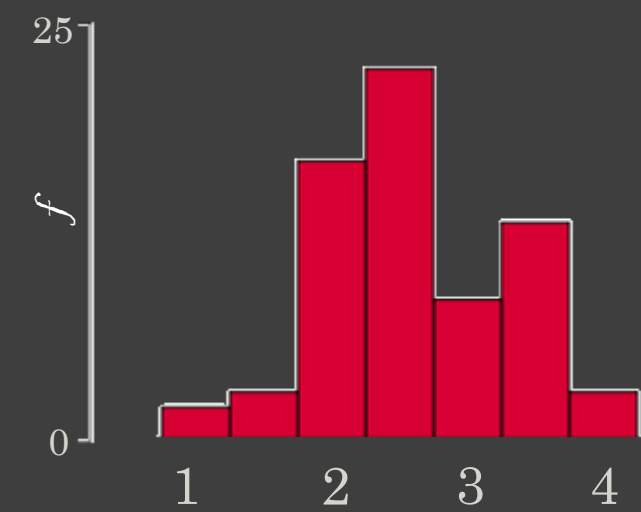
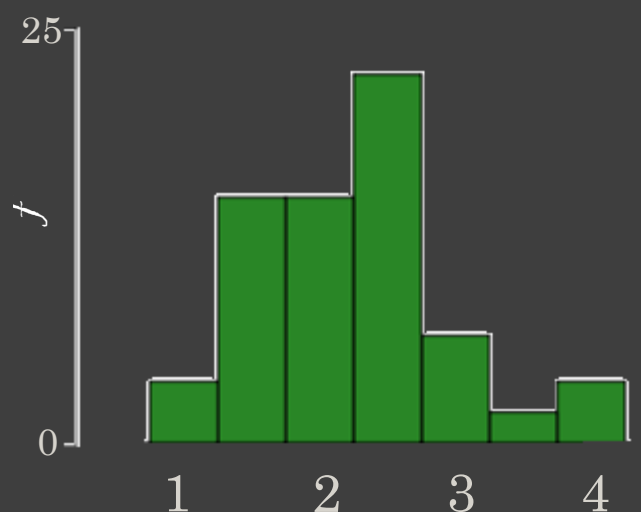
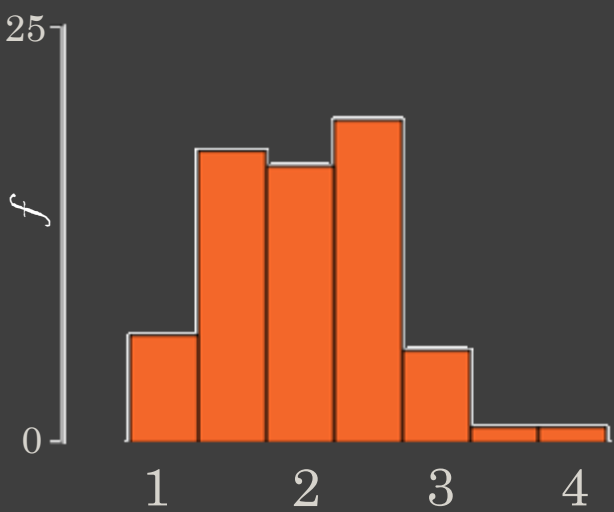
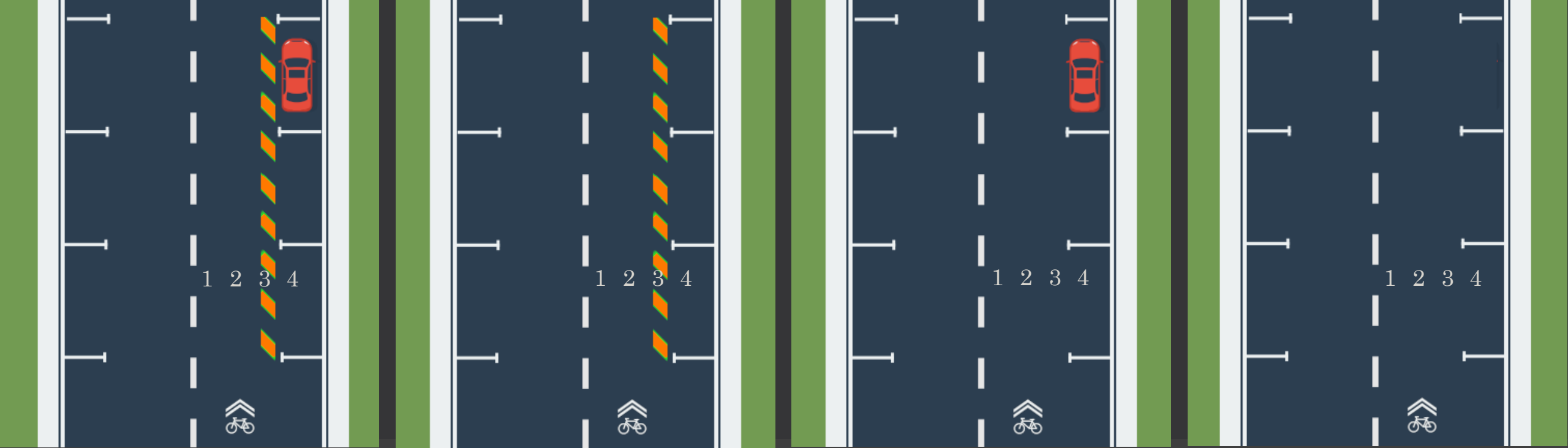
No parked vehicle



Lane Marking Scenarios

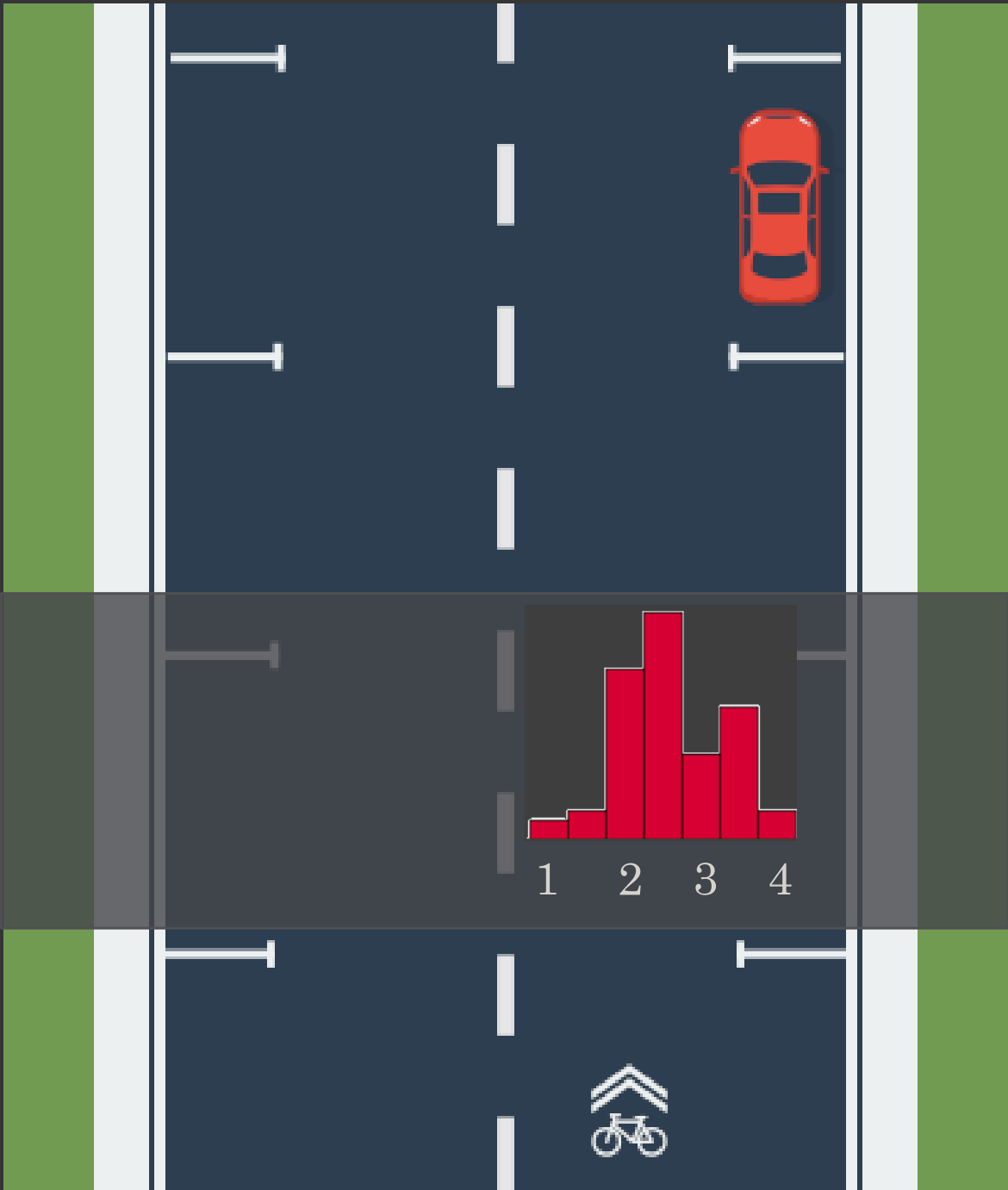
Hazard Strip with
Parked vehicle
vs.
No parked vehicle



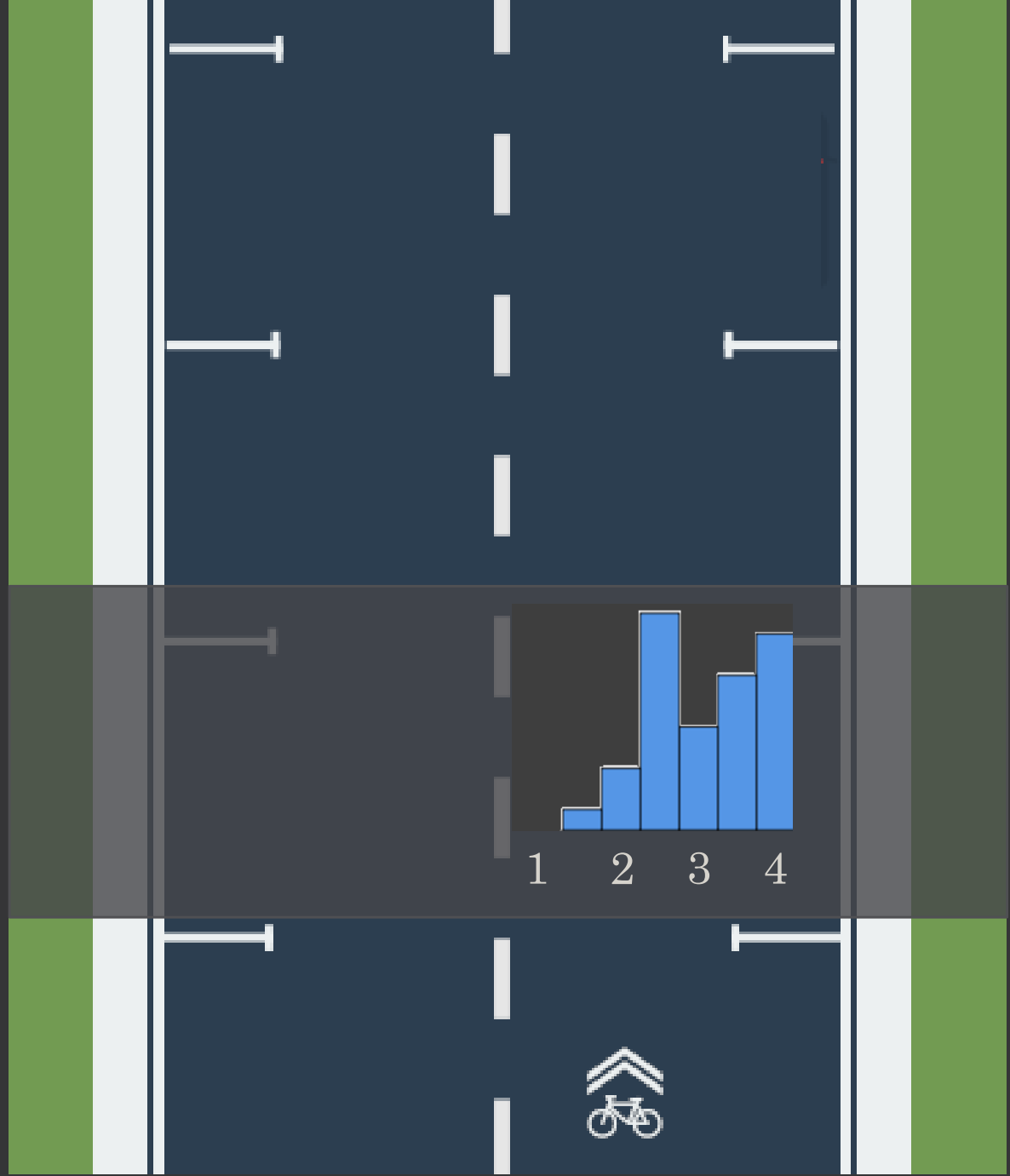


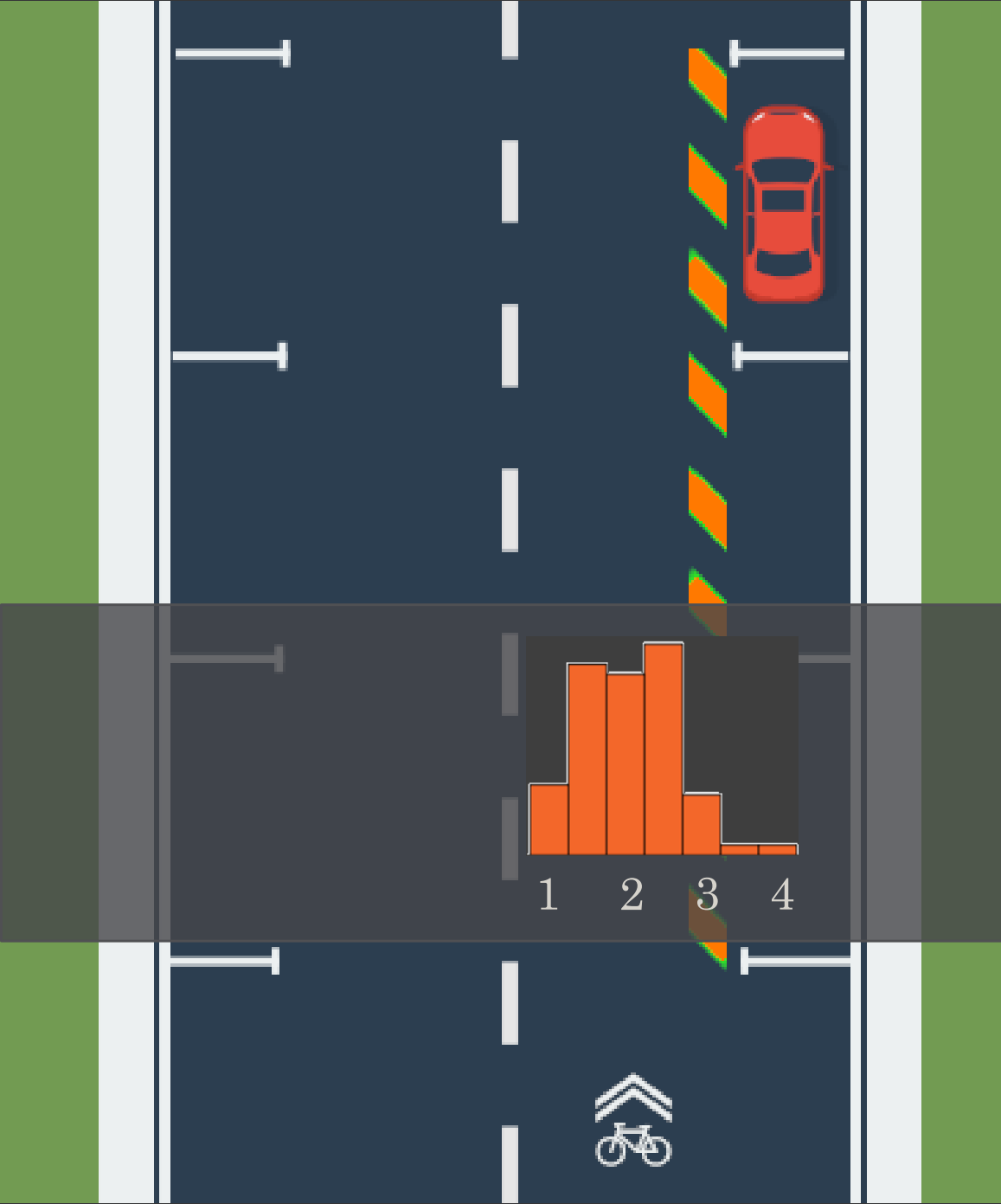
Bicycle Placement Ranking

Friedman's $Q(3) = 55.1, p < .001$

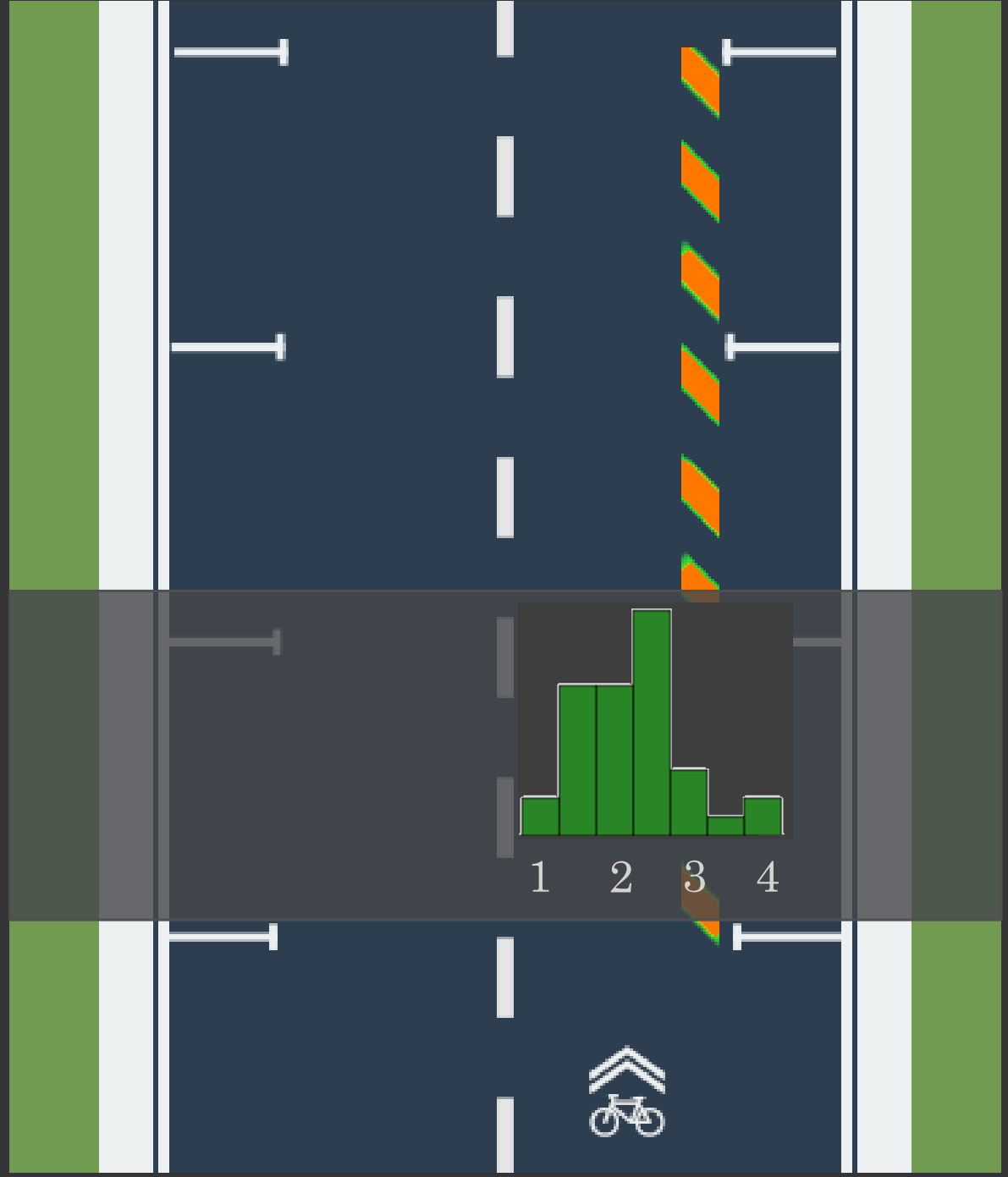


Bicycle Placement – Mean Ranking





Bicycle Placement – Mean Ranking



Difficulty Rating

Rated as being more difficult to place the bicycle

Friedman's $Q(3) = 22.8, p < .001$



When individual ratings changed across conditions, they tended toward higher difficulty with the hazard strip present and with a parked vehicle present



Safety Rating

Rated as feeling
less safe



Friedman's $Q(3) = 30.8, p < .001$

Conclusions

Signage and road markings clearly impact motorists' expectations for where a cyclist should ride

- Directive “Bicycles Take the Lane” more effective than “Share the Road”
- Hazard Strip more effective than Sharrow alone

Continued examination of *in situ* guidance for road sharing is necessary but also holds promise

Questions?

Contact Mary Still at mstill@odu.edu