



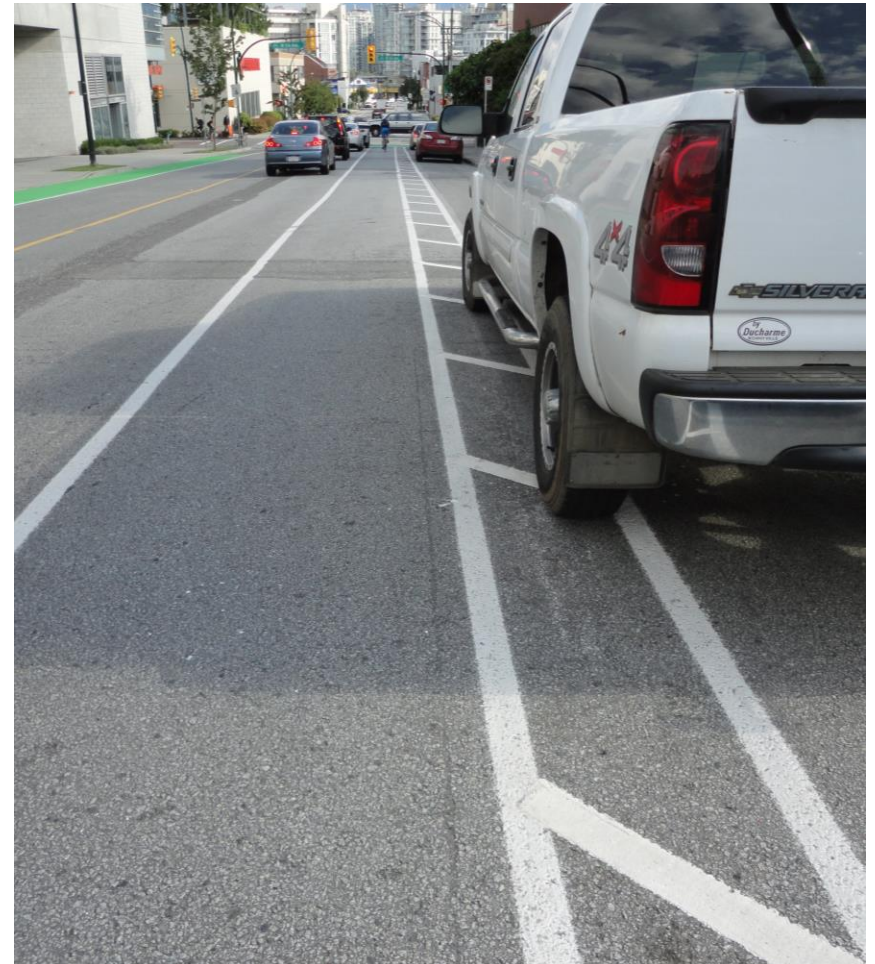
# Parking Lane Width in a Complete Streets Environment



# Simon Button, MEng, EIT



- How to allocate space in complete streets?
- How do you prioritize space?
- What's the harm in reducing the parking lane width?



## Curb Parking



## Floating Parking



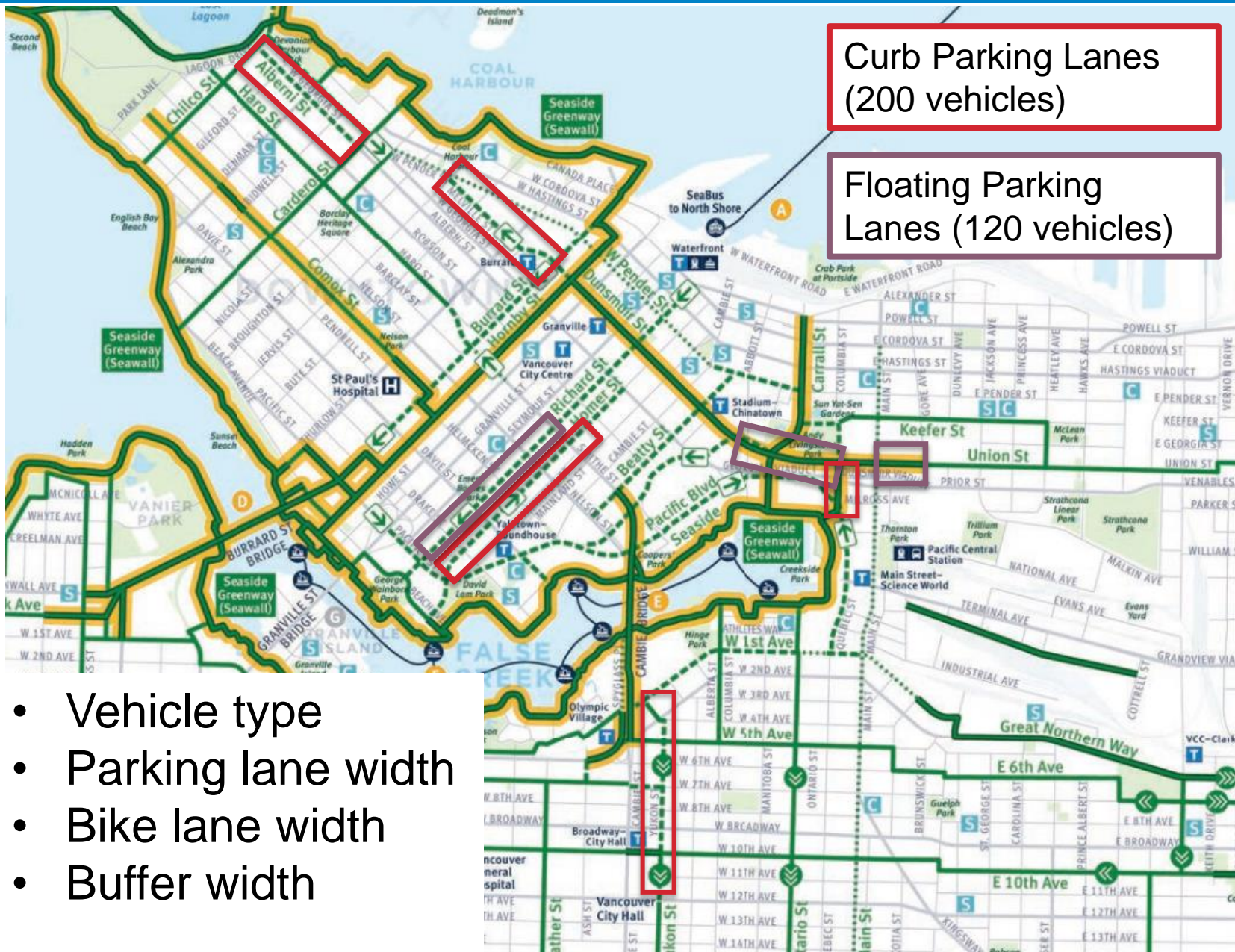
Parking Distance

- Does the parking lane width affect a vehicle's parking distance?
- Is there different parking behaviour in curb and floating parking lanes?
- What is an appropriate parking lane width?

# Recommended Parking Lane Width Adjacent to Bike Lanes



Organization	Document	Recommended Parking Width (m)	Minimum Parking Width (m)
<b>AASHTO</b>	Guide for the Planning, Design, and Operation of Bicycle Facilities	2.4	2.1
<b>NCHRP</b>	Recommended Bicycle Lane Widths for Various Roadway Characteristics	2.43 or 2.14 with a buffer	N/A
<b>NACTO</b>	Urban Streets Design Guide	2.14 to 2.74	N/A
<b>ITE</b>	Designing Walkable Urban Thoroughfares	2.43	2.14
<b>City of Boston</b>	Boston Complete Streets Guidelines	N/A	2.14





# Analysis

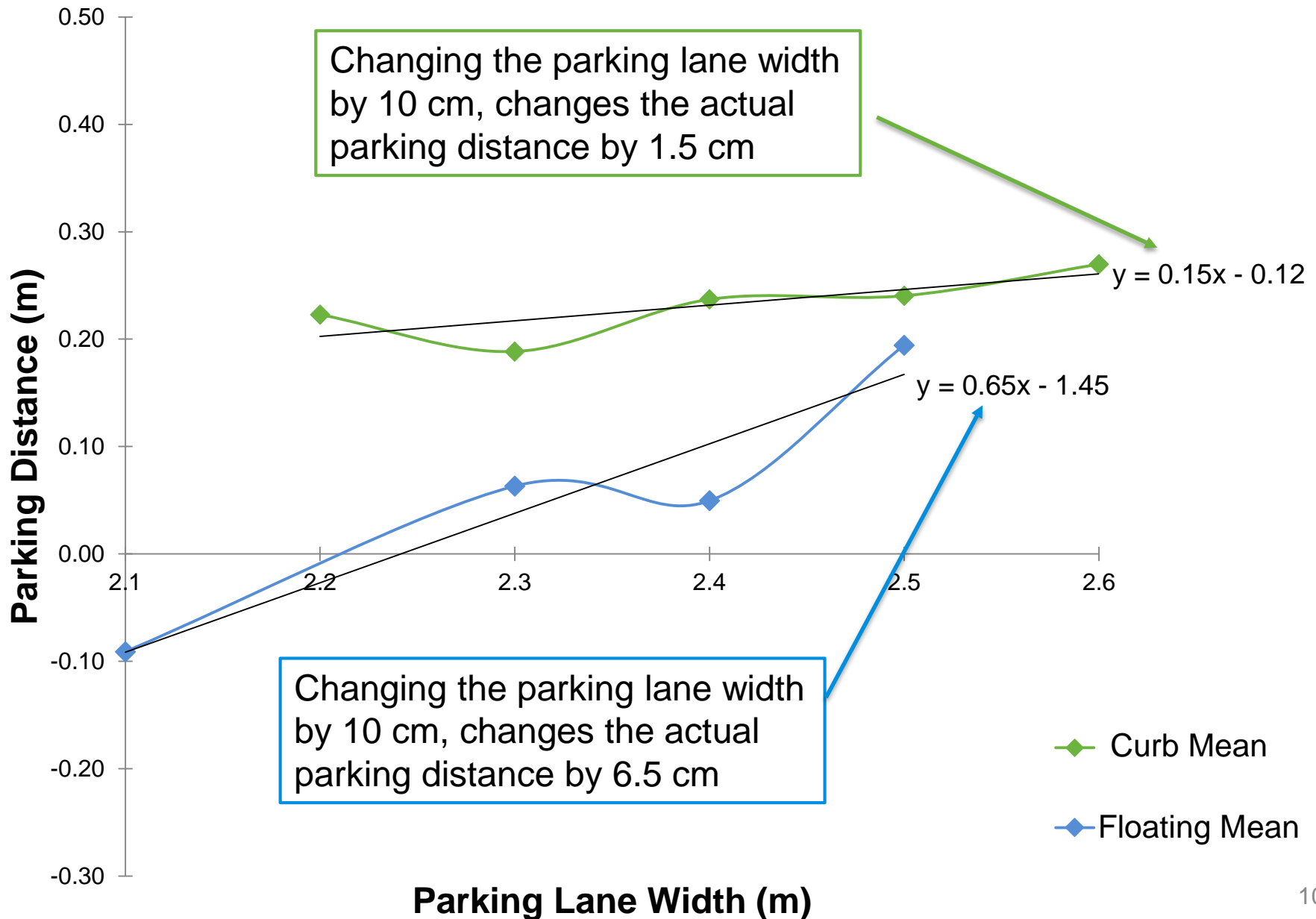




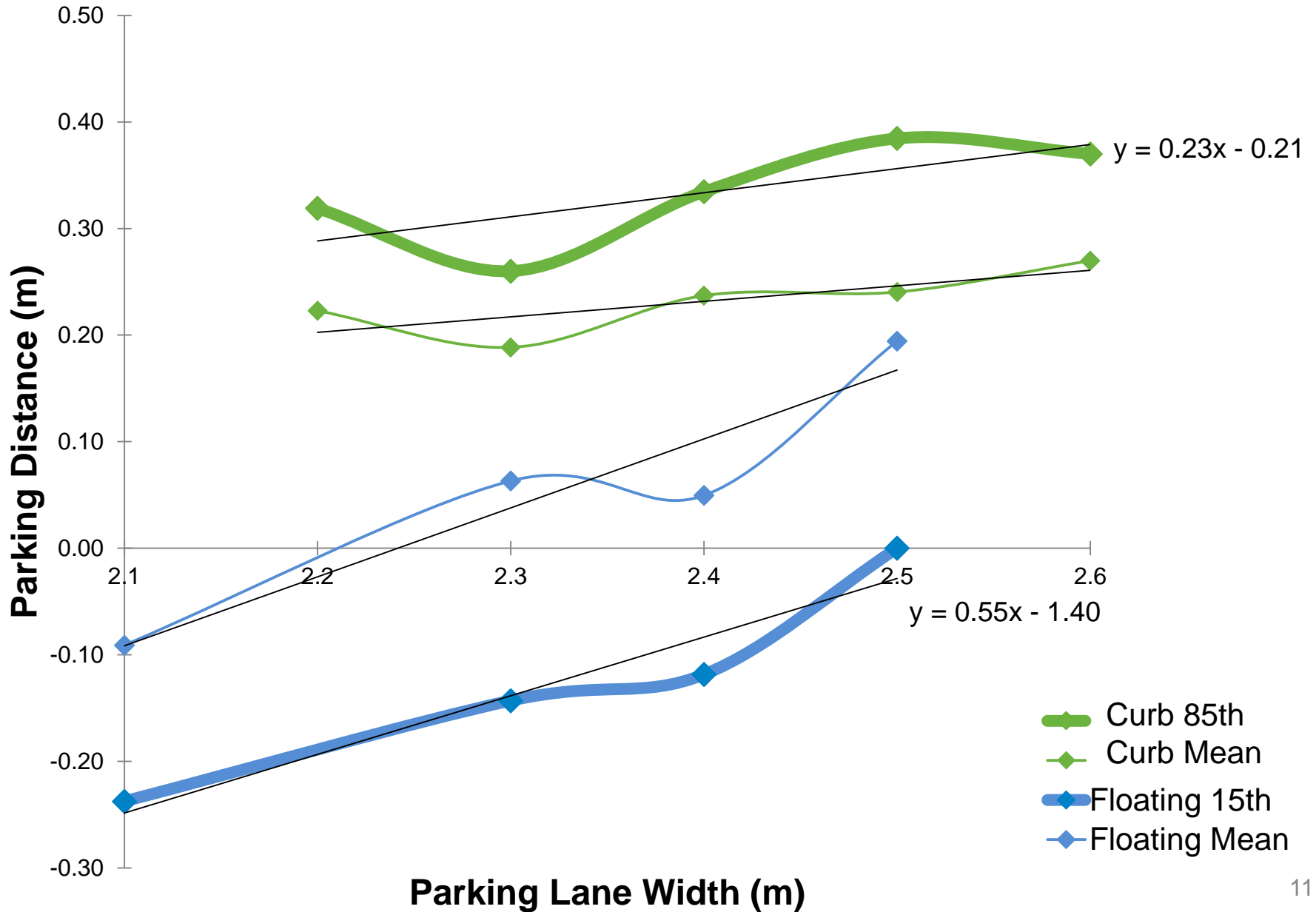
# Effect of Parking Lane Width (1 of 3)



# Effect of Parking Lane Width (2 of 3)



# Effect of Parking Lane Width (3 of 3)



Lane Width (m)	Encroachment into Bike Lane / Buffer (m)	
	Body of Vehicle*	Open Door (1 m)
2.5	- 0.34	0.66
2.4	- 0.27	0.73
2.3	- 0.19	0.81
2.2	- 0.11	0.89
2.1	-0.03	0.97

+7.7 cm

\* Assuming a 1.8 m vehicle width

- For each 10 cm reduction in parking lane width:
  - Vehicles move 2.3 cm closer to the curb
  - 2.3 cm of space can be gained

Lane Width (m)	Encroachment into Bike Lane / Buffer (m)	
	Body of Vehicle	Open Door (1 m)
<b>2.5</b>	0.03	1.03
<b>2.4</b>	0.08	1.08
<b>2.3</b>	0.14	1.14
<b>2.2</b>	0.19	1.19
<b>2.1</b>	0.25	1.25

+5.5 cm

- For each 10 cm reduction in parking lane width:
  - Vehicles move 5.5 cm closer to the curb
  - 4.5 cm of space can be gained

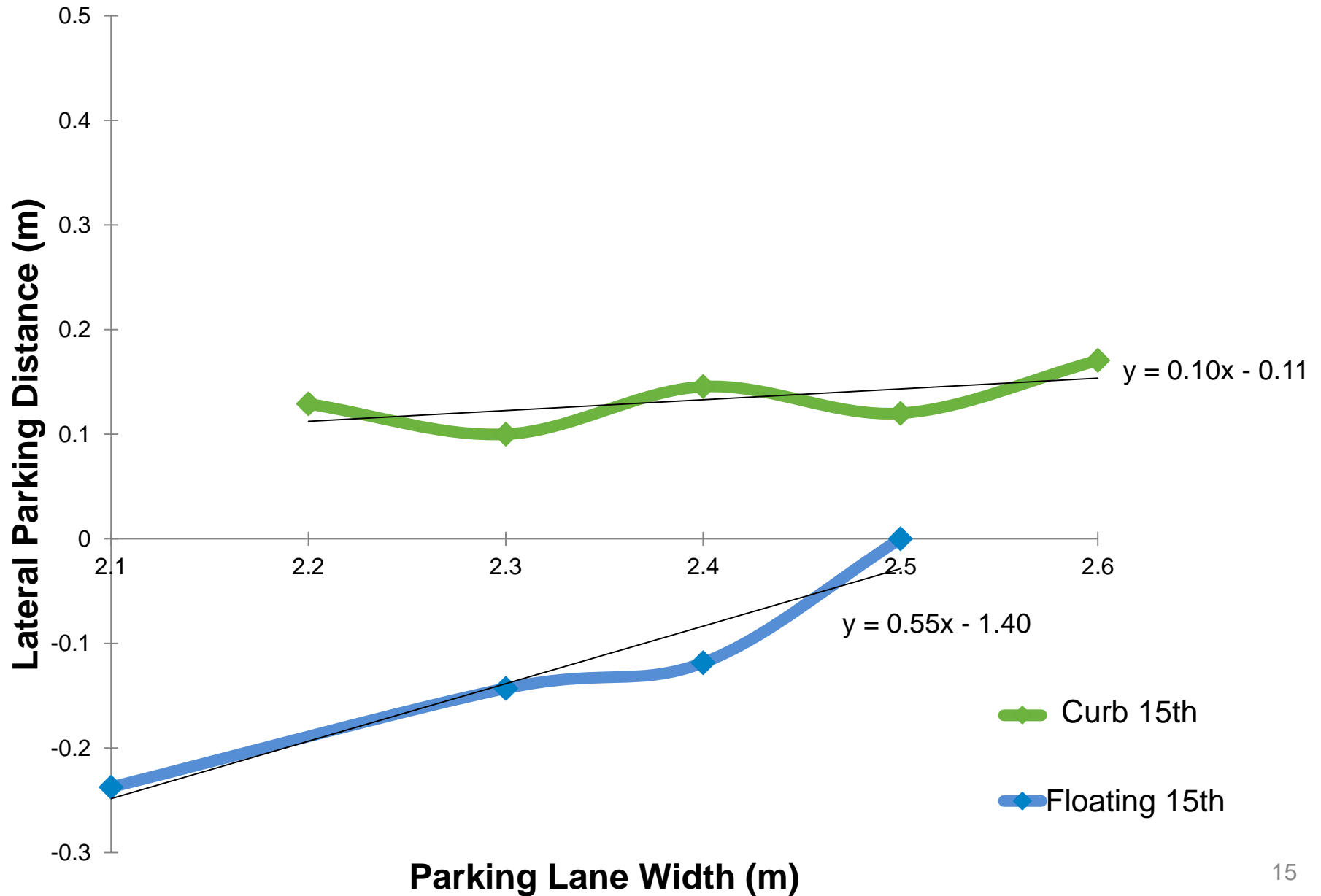


# Effect of a Curb



Paul Krueger

# Effect of a Curb (1 of 2)

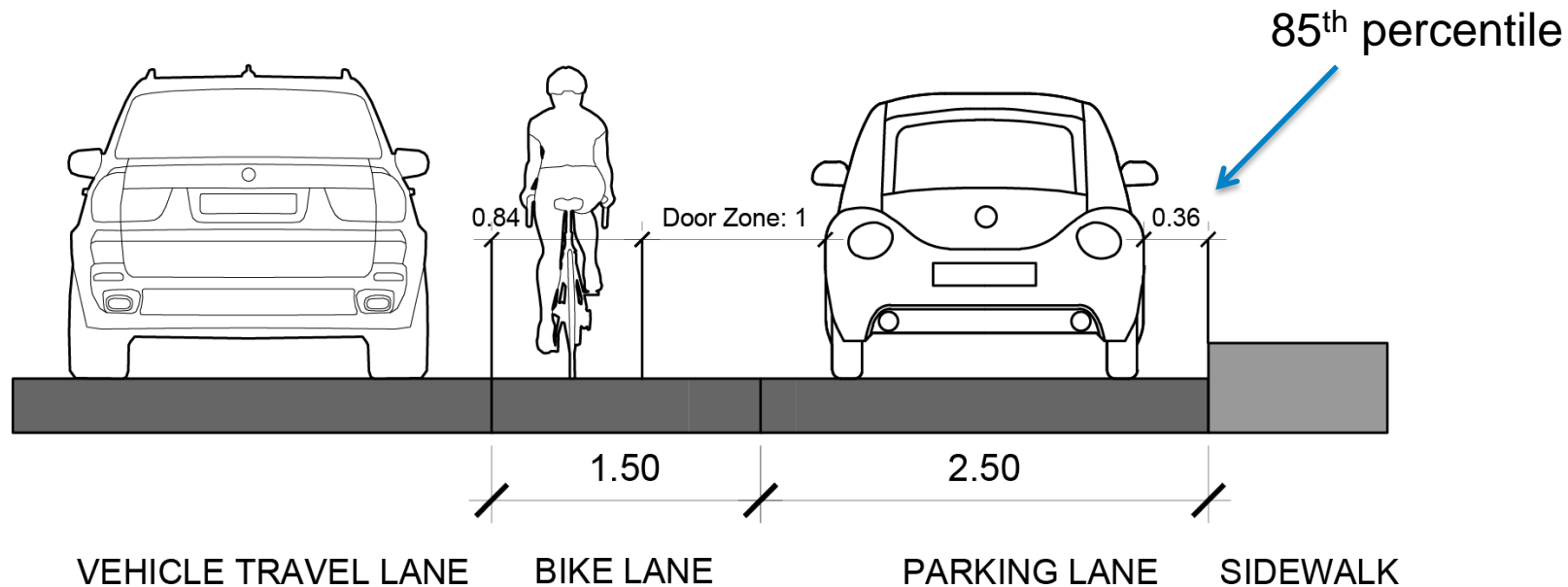


<b>Lane Width (m)</b>	<b>Effect of a Curb (m) Difference of 15<sup>th</sup> Percentile Lateral Parking Distance of Curb Parking Lanes and Floating Parking Lanes</b>
2.5	0.17
2.4	0.22
2.3	0.26
2.2	0.31

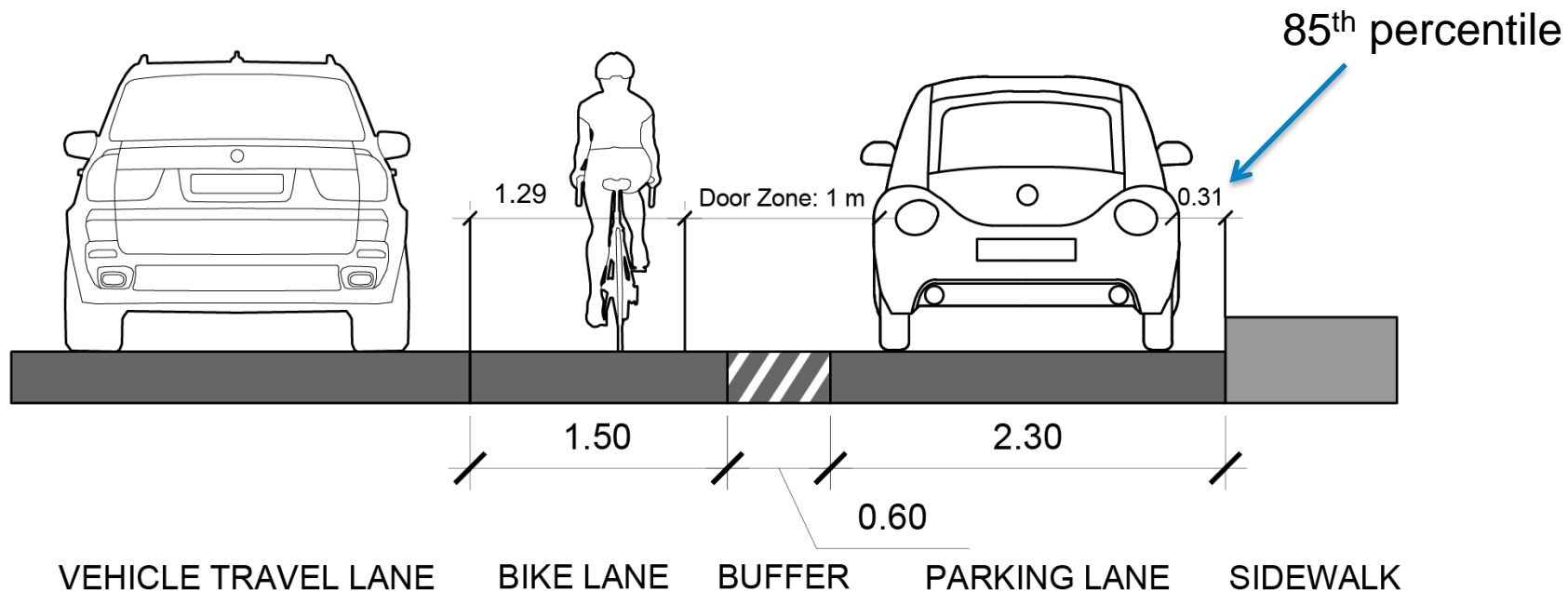
+4.5 cm



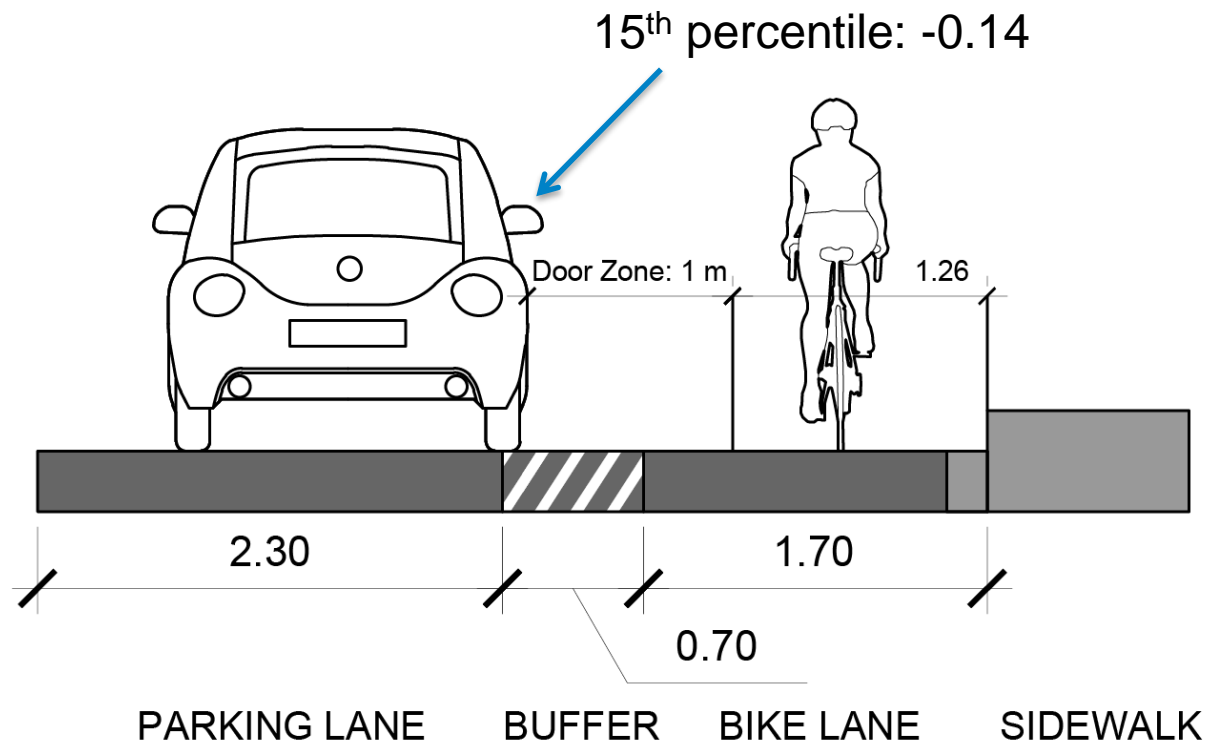
## HOMER STREET 1000 - 1300 BLOCKS



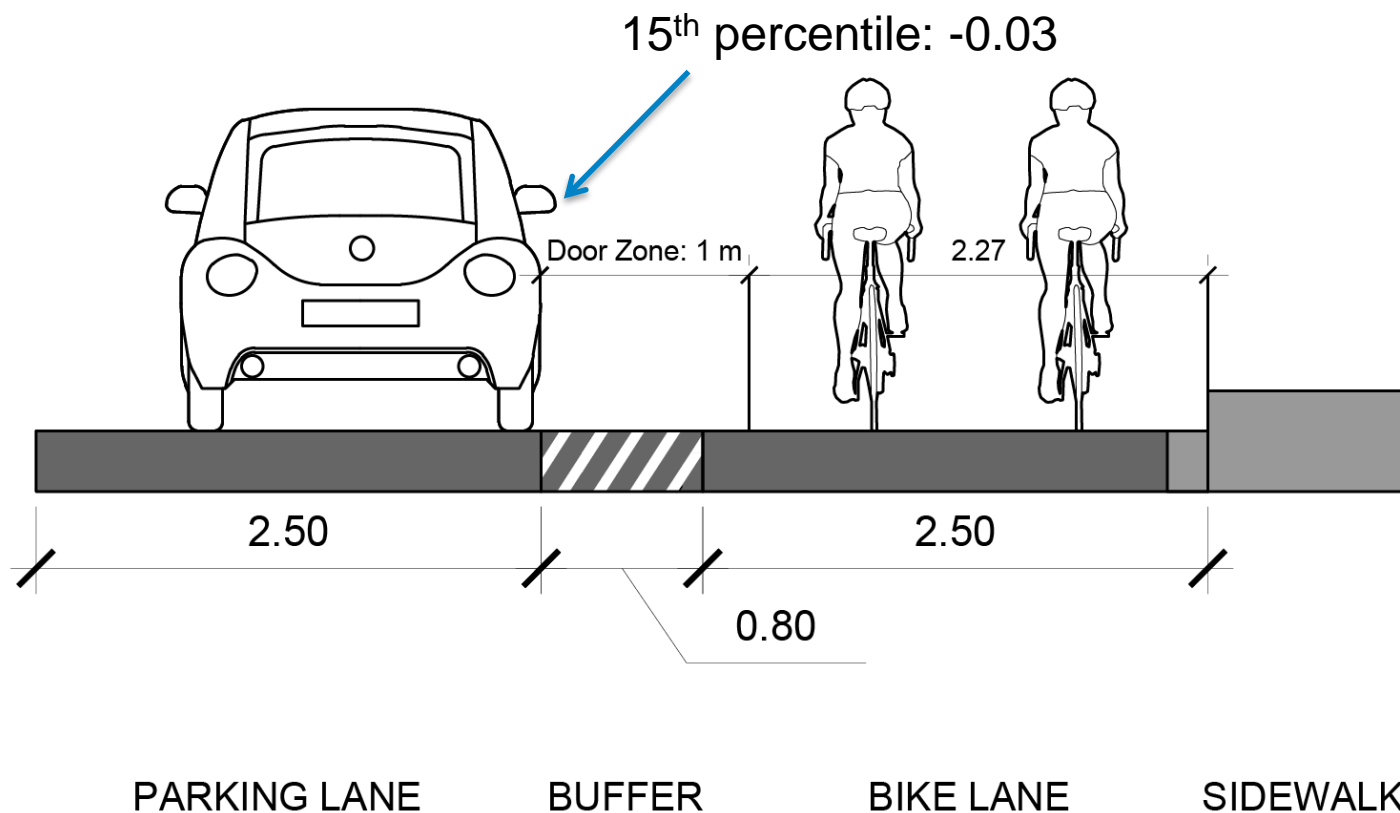
## YUKON STREET 2100 / 2200 BLOCKS



## RICHARDS STREET 900 / 1000 BLOCK



## UNION STREET 200 BLOCK



- All elements of a street are a system – design them together
- Design for human behaviour
- By reducing two 2.5 m parking lanes to 2.2 m, **14 – 20 cm is gained** for people cycling
- By adding a concrete curb to a 2.2 m floating parking lane **31 cm is gained** for people cycling
- Parking lane widths can likely be 2.2 (but adapt other street elements appropriately)



# Questions and Comments?

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