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# Coloured Cycle Lane Research

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And  
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# European Cycle Lanes



# Cycle Lane with Symbol Only

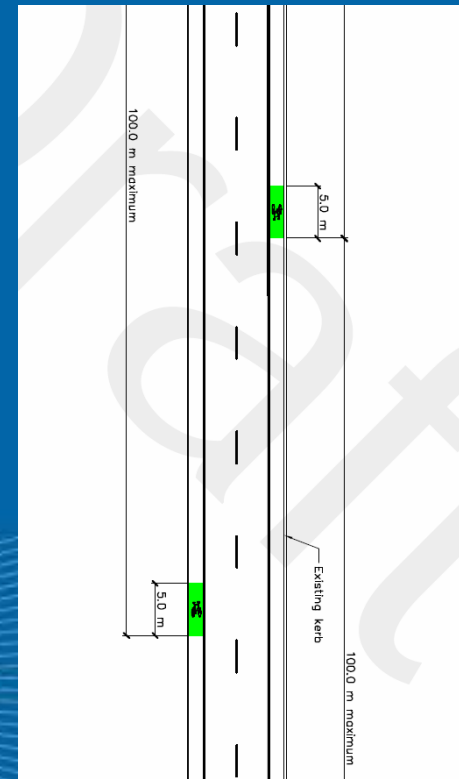
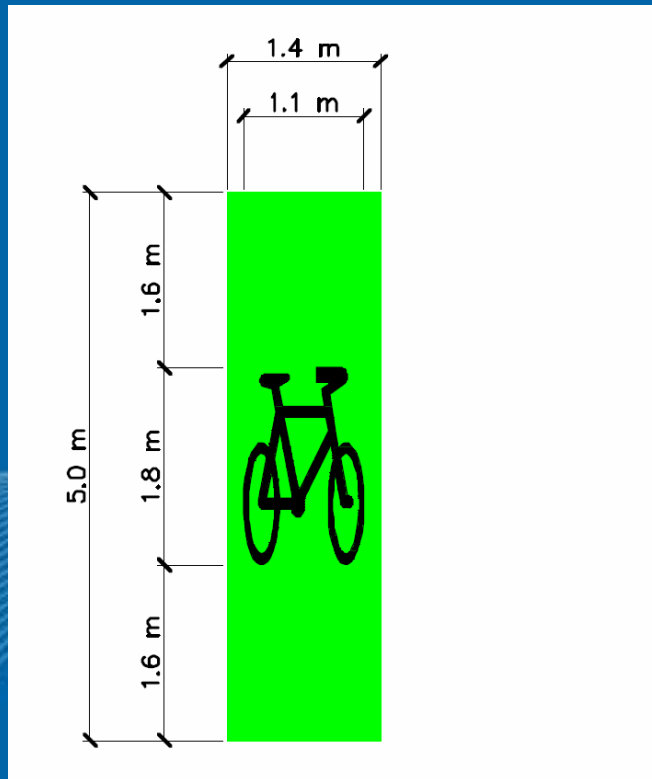




# Cycle Lane – Coloured at Intersections or narrow spots only



# DRAFT Auckland Regional Cycle Standards for Marking, Colouring and Signage



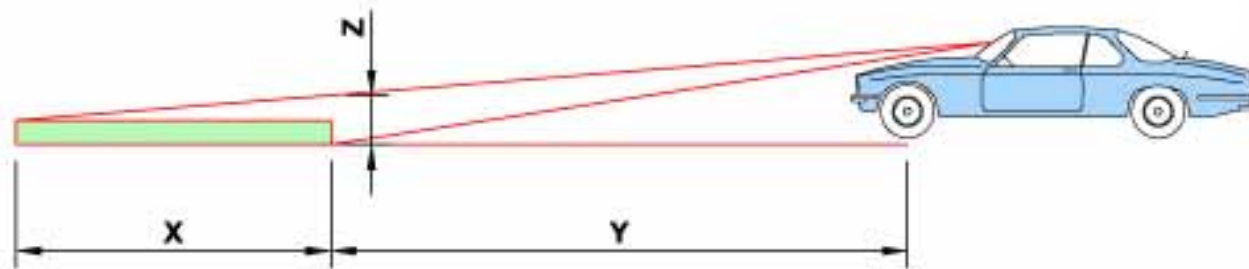
# Driver's Viewpoint

$X = 5 \text{ m}$

$Y = 55 \text{ m}$  (safe stopping distance at 60 kph)

$Z = 95 \text{ mm}$

If  $X = 20 \text{ m}$ ,  $Z$  increases to 300 mm







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## 5 m Length of Green Bus Lane





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## 5 m Length of Green Bus Lane at 20 m







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## 5 m Length of Green Bus Lane at 40 m





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## 5 m Length of Green Bus Lane at 55 m







# Cycle Lane Research

Effect of colouring a cycle lane

Three stage survey

- No cycle lane
- Lane marking only
- Full green cycle lane

Photos to determine car and cycle placement in each scenario

Undertaken with assistance of Sandi Morris at Palmerston North City Council



# Methodology





# Sample Size

	Car Only	Car + 1 Cycle	Car + 2 Cycle	1 Cycle	2+ Cycle	Total
No Cycle Lane	73	15	4	39	9	140
Cycle Lane	92	14	3	29	4	142
Green Cycle Lane	187	6	1	11	3	208

# No Cycle Lane

Variation in cycle behaviour





# No Cycle Lane

Cars driving over the centre-line

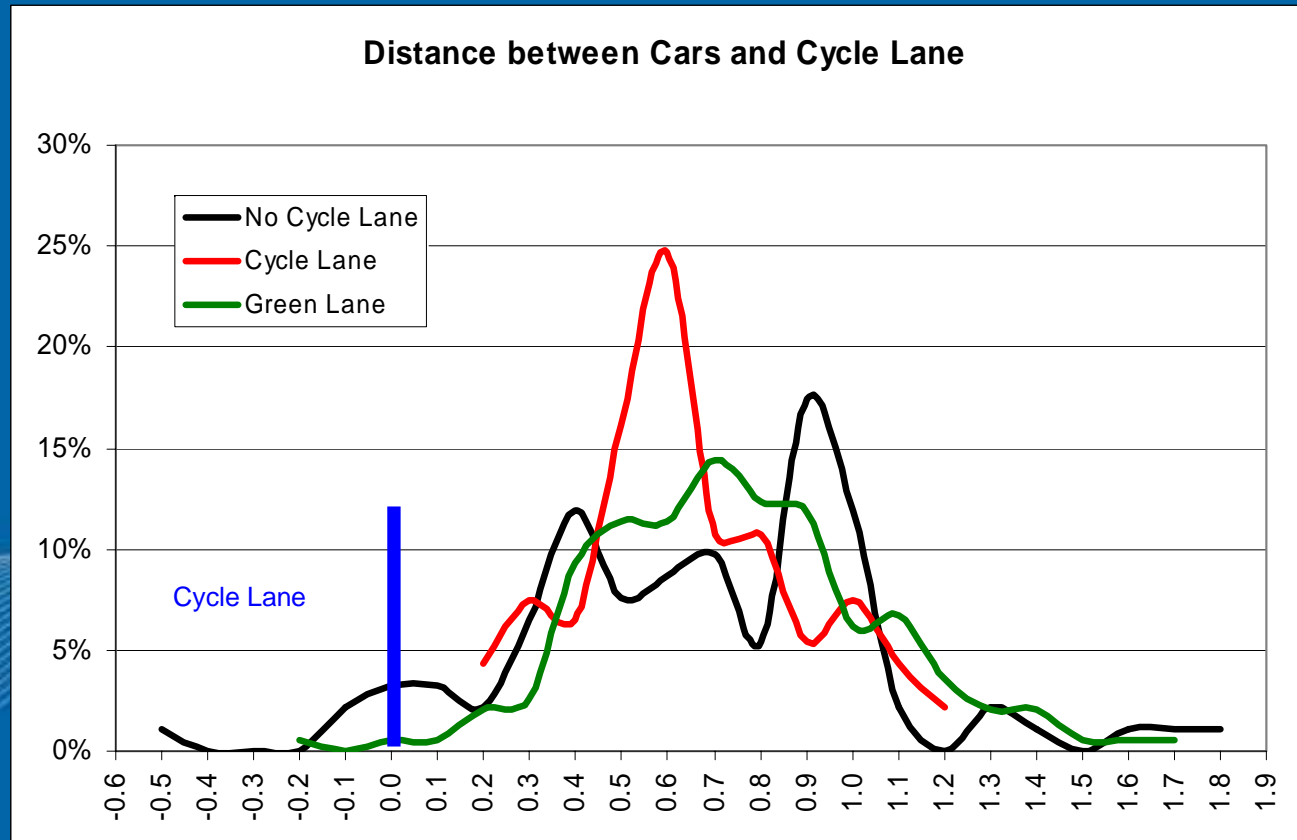


# Cycle Lane Marking

- Generally cyclists within cycle lane
- Cars no longer cross centre-line
- Perception that Cars drive slower (narrower lanes)
- Perception that Cars park closer to kerb



# Distance between Cars and Cycle Lane



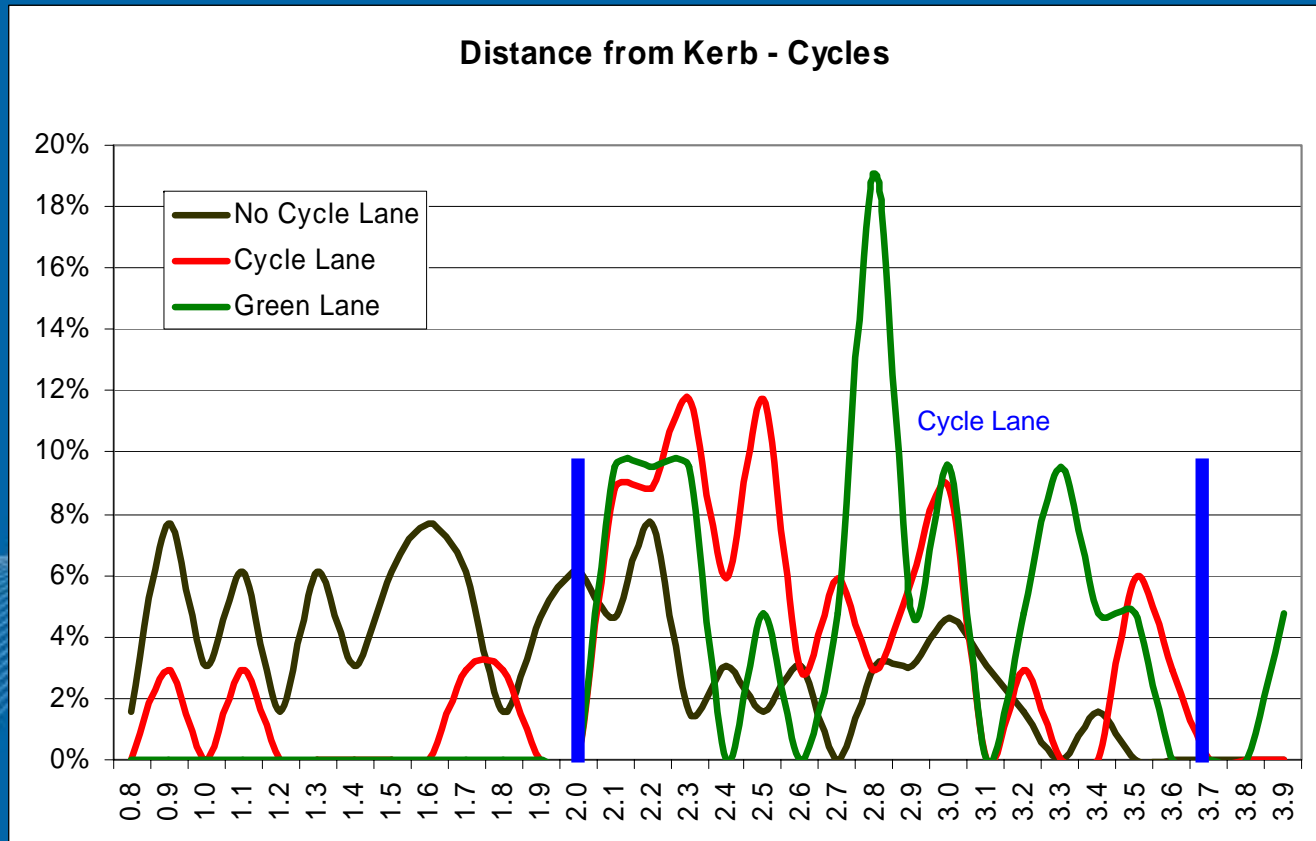


## Distance between Cars and Cycle Lane

	car only	car and cycle	shift with cycle
No cycle lane	0.60 m	0.88 m	0.24
Cycle lane	0.63 m	0.74 m	0.11
Green cycle lane	0.72 m	1.12 m	0.50
Difference with green	+0.09 m +14%	+0.48 m +65%	

Drivers appear to be more aware of cyclists when the lane is green

# Distance between Cycles and Kerb



## Distance between Cycles and Kerb

- No cycle lanes - 1.90 m
- Cycle lane - 2.49 m (1/3 from edge of cycle lane)
- Green cycle lane - 2.81 m (mid way in cycle lane)

Green cycle lane increases distance between kerb and cycle by 32 cm

Do cyclists perceive they are safer on a green cycle lane?

Distance between cyclist and parked cars increased



## Distance between Cars and Cycles

- No cycle lanes - 2.46 m
- Cycle lane - 1.74 m
- Green cycle lane - 2.01 m

With Green, distance between cars and cyclists  
increased by 25 cm or 15%

Data includes observations of BOTH cars and cycles in same frame

# Summary

- Cyclists more uniform with cycle lane, whether green or not
- Green lane compared to marked lane:
  - increased distance between cars and cycles
  - drivers appear to be more aware of cyclists
  - cyclists appear to feel safer on green lanes
- BUT cost is an issue



# Costs

- Cost varies with type of surfacing used
- Maintenance varies with
  - Traffic volume over cycle lane – eg intersections
  - Colour retention of product
  - Future roadworks
  - Laying conditions



# Epoxy Glue Coloured Chipcoat

- COST                      \$65 / m<sup>2</sup>
- MAINTENANCE        resurface after 7 years

1 month after colour



18 months after colour



# Coloured Thermoplastic

- COST \$70 / m<sup>2</sup>
- MAINTENANCE resurface after 10 years

1 month after colour



18 months after colour



# Modified Water Borne Emulsion

- COST \$20 / m<sup>2</sup>
- MAINTENANCE resurface after 1-2 years

1 month after colour



18 months after colour



Shane Haligans

Roadmarking Services

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# Cost Summary of Coloured Surfaces

	Initial Construction Cost	Lifespan	Cost over 20 years	Colour Retention
Water Borne Emulsion	\$20 / m <sup>2</sup>	1-2 years	\$200 /m <sup>2</sup>	Low
Epoxy Chipcoat	\$65 / m <sup>2</sup>	7 years	\$195 /m <sup>2</sup>	Medium
Thermoplastic	\$70 / m <sup>2</sup>	10 years	\$140 /m <sup>2</sup>	High

# Possible Future Trial

## Cycle Lane with Coloured Roadmarking



