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# 2nd water sensitive cities conference

2015

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# Evidence-based raingarden design to promote community acceptance (A4.1)

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# Outline

- Study design
- Empirical evidence that can inform design:
  - Community support for use of treated stormwater
  - Preference for streets with raingardens
  - Attitudes of residents to their own streets with raingardens
  - Suggestions to improve appearance of their streets
  - Participation in maintenance of raingardens
- Evidence-based recommendations for design of raingardens

# Research Design

- Survey, with 139 participants resident in streets +/- raingardens

- Six pairs of streetscapes, +/- raingardens
  - Four pairs rated with best/worst scaling (streets in which respondents resided)
  - Two pairs rated with Likert scale: influence of knowledge on perception and preference

- Attitudes towards
  - Use of treated stormwater
  - Own streetscape
  - Raingardens in own street
  - Maintenance of raingardens



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# Study sites

Pascoe Vale

Mt Evelyn

Richmond

Chelsea

# Empirical evidence

## Support for different uses of treated stormwater

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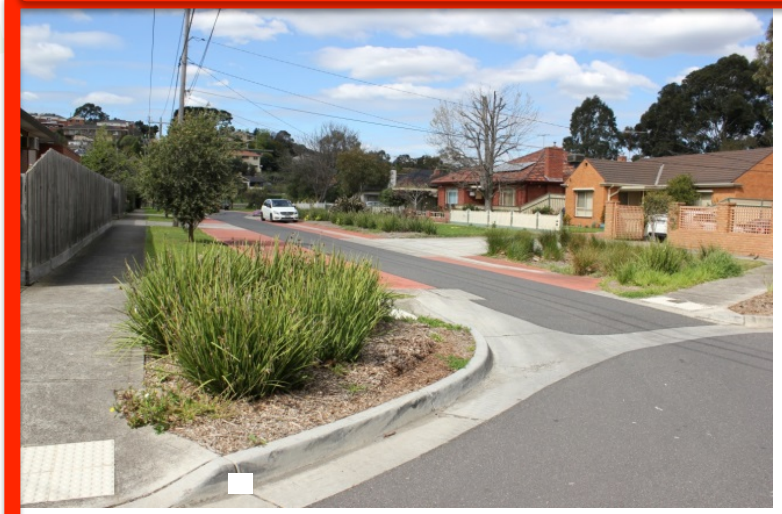
# Aggregated preference for streetscapes with raingardens

Range of scores: -7 to +7

Cremorne St, Richmond, *P* = -0.34 (3.64)

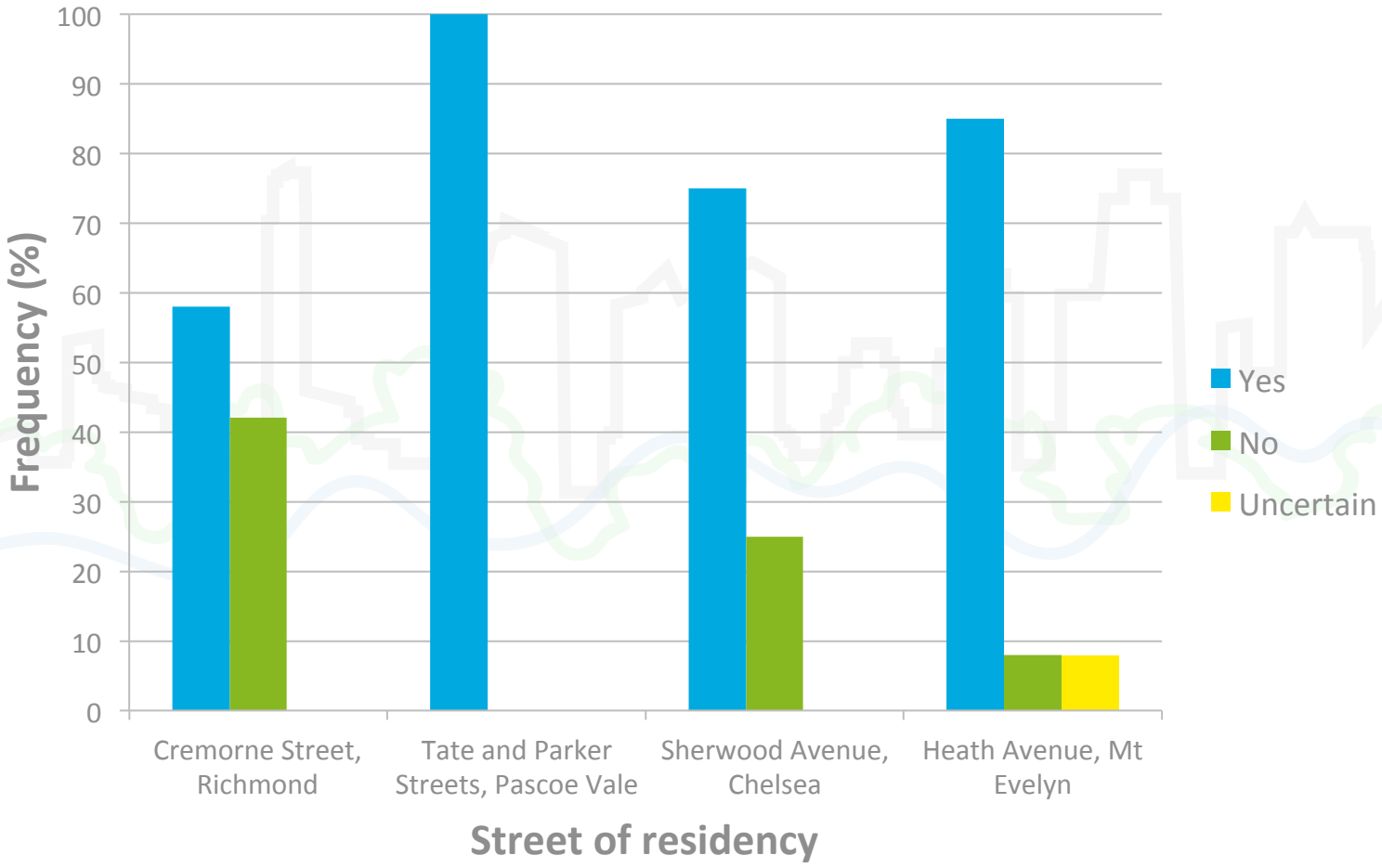
Stawell St, Chelsea, *P* = 1.80 (2.59)

Heath Avenue, Mt Evelyn, *P* = 1.91 (2.96)



Tate/Parker St, Pascoe Vale, *P* = 2.14 (3.28)

# Do residents like their own street?



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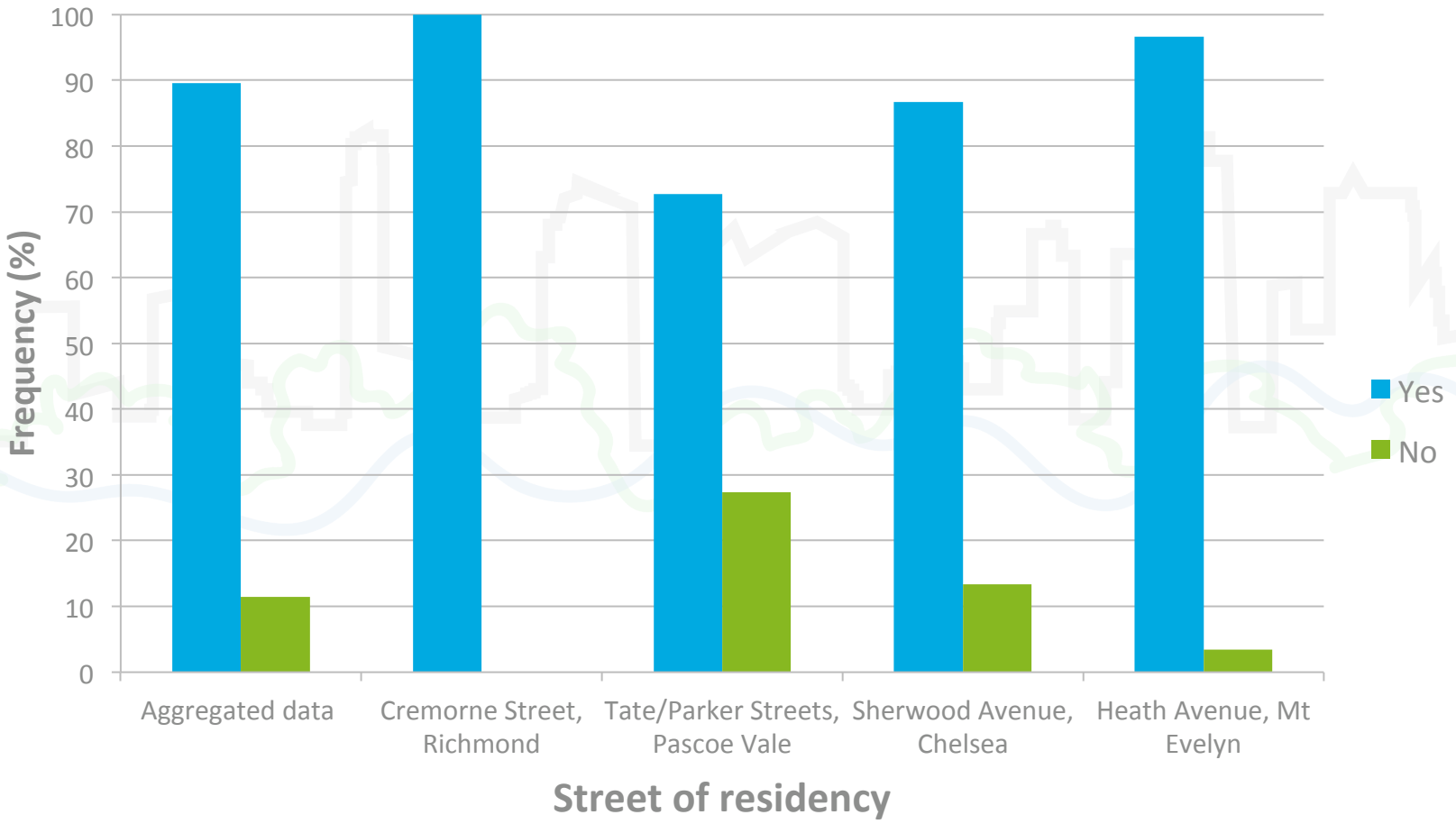
# Do residents notice raingardens in own street?



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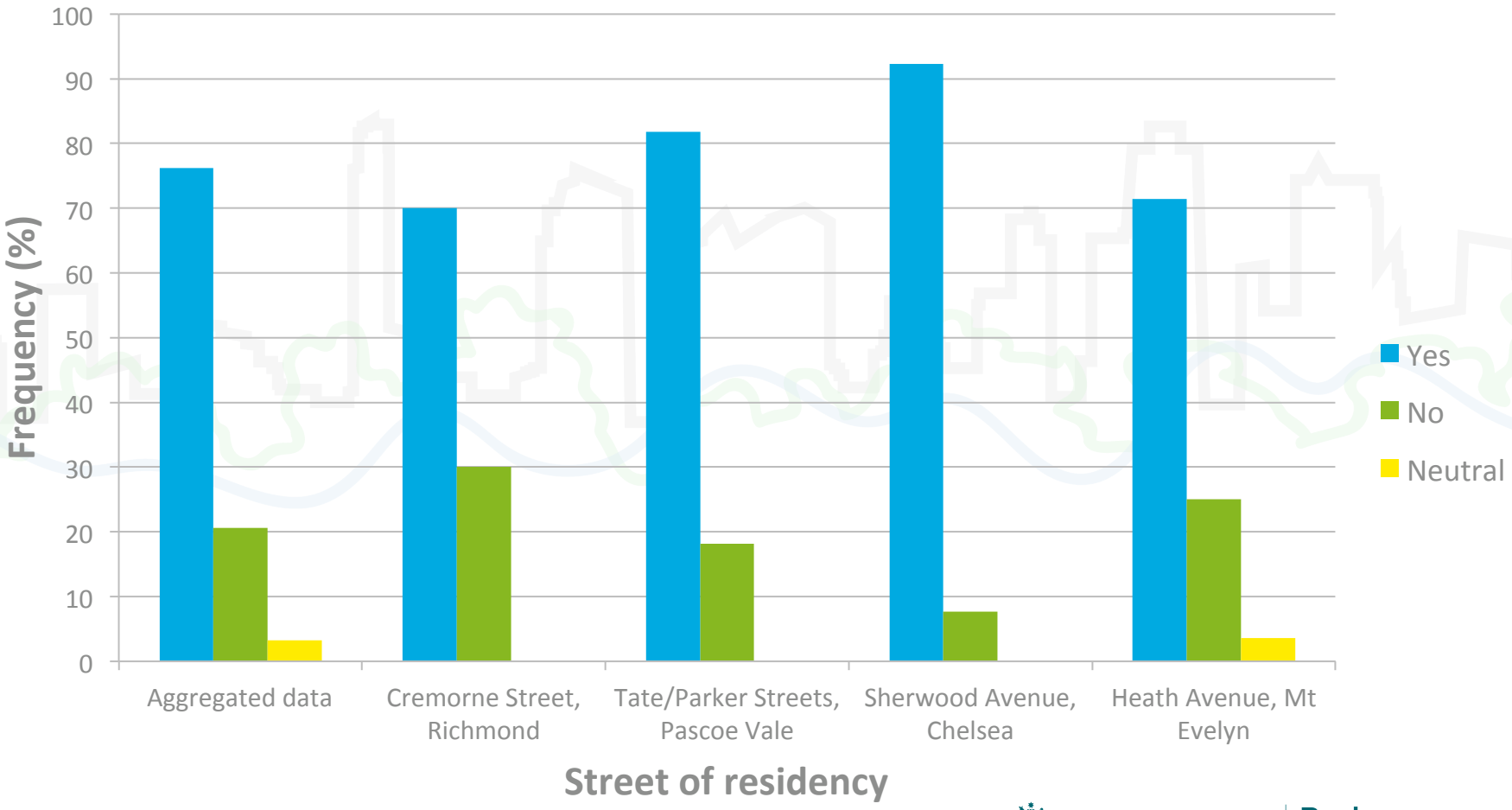
# Do residents like raingardens in own street?



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# Cremorne Street, Richmond

## Attitudes towards appearance of own street with raingardens and suggestions for improvement

*Why residents like street*

*How street could be improved*

*"Untidy, (I) don't really (like it)"*

*"It looks very functional, mixed commercial, industrial, high-density residential, and a bit cramped. I accept it for the location. I do like the water filtering gardens"*

*"More greenery. Bigger trees"*

*"Tidier, garden sections, cleaner building facades"*

# Tate & Parker Streets, Pascoe Vale

***How street could be improved***

***Why residents like street***

*"Better established tree(s) … are required. Roads are quite new + water treatment aspects are good"*

*"The matting around the grasses in the storm water collection areas looks untidy"*

*"remove the power lines + more upkeep of curbside trees + plants"*

*"more springtime flowers (like Princes Hill in Carlton)".*

# Sherwood Avenue, Chelsea

***Why residents like street***

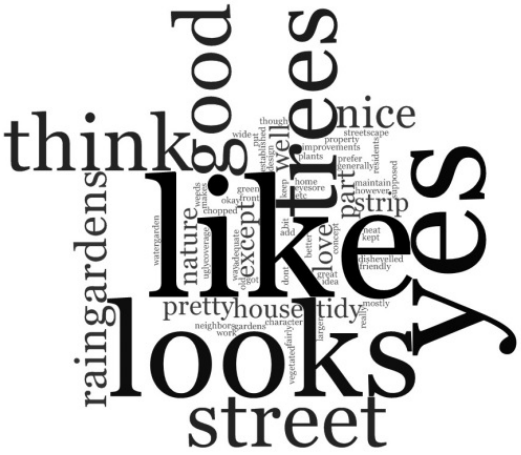
***How street could be improved***

*"It's very nice, particularly since the raingardens were put in"*

*"Garden takes up road space; should have been on nature strip"*

*"More shade trees"*
*"… more colour plants"*

# Heath Avenue, Mt Evelyn




***Why residents like street***

***How street could be improved***

*"No I don't like the trees on the nature strip and I don't like the plants in the raingardens"*

*"take out the trees for something smaller (lower) and put nicer plants into the raingarden"*



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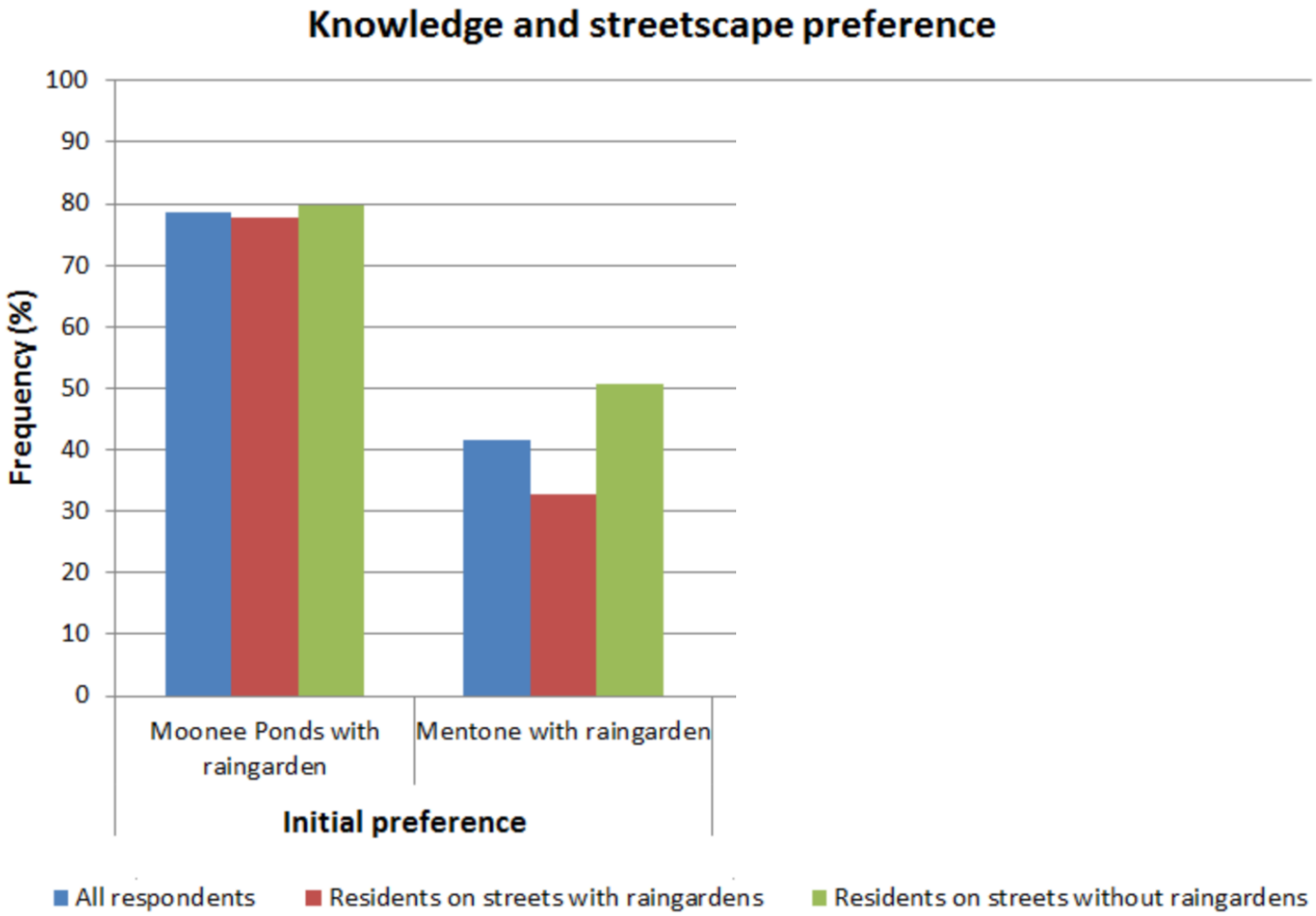




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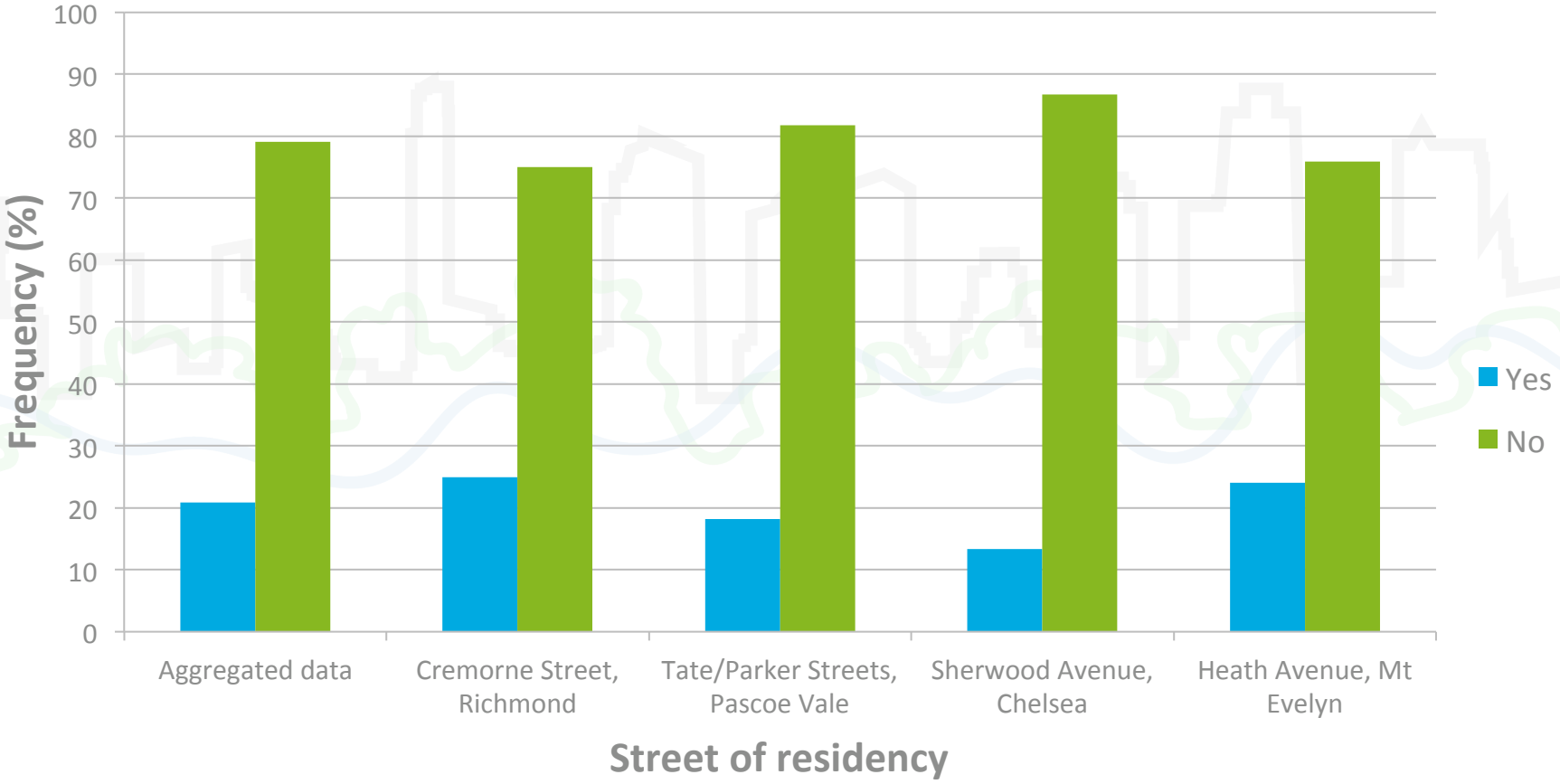
# Do residents help to maintain raingardens in own street?



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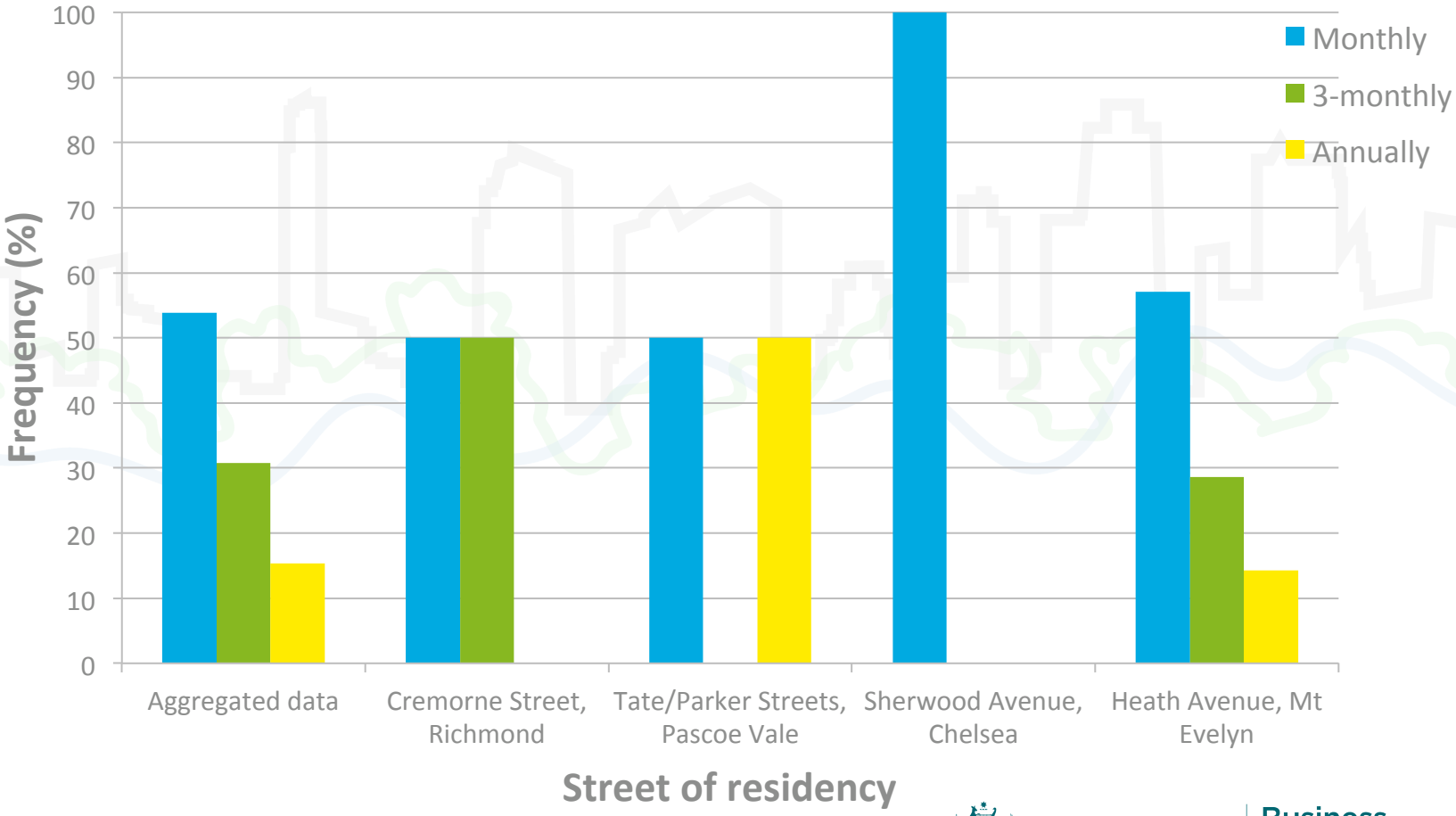
# Frequency with which residents help to maintain raingardens in own street



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# Who is responsible for raingarden maintenance?

# Design recommendations

1. ***Always design to reflect the local context***
2. Carefully consider placement of raingardens within a street and possible consequences, e.g. loss on on-street parking
3. When selecting plants, consider how area around raingardens might be used
   i. Wherever possible, include **trees**
   **ii. Choose plants for aesthetic function** as well as technical function
   iii. Include plants with colourful flowers or foliage
4. **Provide regular maintenance**. Don't assume that residents will help…..though they might
   i. Ensure raingardens always look **tidy** and **well cared for**
   ii. Ensure raingardens always look **green**
5. Provide signage as '**cue to care**' or implement communication strategies to increase knowledge and understanding of the raingardens



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