Visualising Active Transport to School Route Data for Dunedin

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Overview

• Visualisation of transport-to-school trajectory data
• Aspects of school ID, transport mode and safety
• Derived from digitised hand drawn routes (n=740) from students at the 12 Dunedin high schools
• Superimposed routes create frequency value for roads
• Can be depicted as thematic flow maps
• What patterns will be revealed?
Routes travelled by students from drawn maps

Legend

Dunedin High Schools

NAME

- Bayfield High School
- Columba College
- John McGlashan College
- Kaikorai Valley College
- Kavanagh College
- Kings High School
- Logan Park High School
- Otago Boys’ High School
- Otago Girls’ High School
- Queens High School
- St Hilda’s Collegiate
- Taieri College

Kilometres

0 1 2
Flow maps

Minard’s graphic from E.Tufte, 1983;
Other flow maps from R.Kirkpatrick, 2005
“Contemporary Atlas of New Zealand”
Transport Mode

Walking routes for students

Motorbike routes for students

Car routes for students

Bus routes for students

Legend

- Dunedin High Schools
- NAME
- Bayfield High School
- Columbia College
- John McGlashan College
- Kakanui Valley College
- Kavanagh College
- Kings High School
- Logan Park High School
- Otago Boys’ High School
- Otago Girls’ High School
- Queens High School
- St Hilda’s Collegiate
- Taieri College

Legend

- No. Students
- 1
- 10

Legend

- No. Students
- 5
- 10

Legend

- No. Students
- 1
- 10
Unsafe Data

"Safe" routes for students

Legend
Dunedin High Schools
NAME
- Bayfield High School
- Columba College
- John McGlashan College
- Kakanui Valley College
- Kereru College
- Kings High School
- Logan Park High School
- Otago Boys' High School
- Otago Girls' High School
- Queens High School
- St Hilda's Collegiate
- Taiti College

Legend
No. Students
- 1
- 10
- 100

Legend
No. Students
- 1
- 10

"Unsafe" routes for students

Legend
Dunedin High Schools
NAME
- Bayfield High School
- Columba College
- John McGlashan College
- Kakanui Valley College
- Kereru College
- Kings High School
- Logan Park High School
- Otago Boys' High School
- Otago Girls' High School
- Queens High School
- St Hilda's Collegiate
- Taiti College

Legend
No. Students
- 1
- 10

Unsafe Data

"Unsafe": Traffic

Legend
Dunedin High Schools
NAME
- Bayfield High School
- Columba College
- John McGlashan College
- Kakanui Valley College
- Kereru College
- Kings High School
- Logan Park High School
- Otago Boys' High School
- Otago Girls' High School
- Queens High School
- St Hilda's Collegiate
- Taiti College

Legend
No. Students
- 3

"Unsafe": Intersections & Crossings

Legend
Dunedin High Schools
NAME
- Bayfield High School
- Columba College
- John McGlashan College
- Kakanui Valley College
- Kereru College
- Kings High School
- Logan Park High School
- Otago Boys' High School
- Otago Girls' High School
- Queens High School
- St Hilda's Collegiate
- Taiti College

Legend
No. Students
- 3
"Unsafe" Data

"Unsafe": Built Environment

Legend
- Dunedin High Schools
  - Bayfield High School
  - Columba College
  - Kings High School
  - Logan Park High School
  - Otago Boys' High School
  - Otago Girls' High School
  - Queens High School
  - St Hilda's Collegiate
  - Taieri College

No. Students
- 1

"Unsafe": Natural Environment

Legend
- Dunedin High Schools
  - Bayfield High School
  - Columba College
  - John McGlashan College
  - Kavanagh College
  - Kings High School
  - Logan Park High School
  - Otago Boys' High School
  - Otago Girls' High School
  - Queens High School
  - St Hilda's Collegiate
  - Taieri College

No. Students
- Join_Count

"Unsafe": Drivers and Pedestrians

Legend
- Dunedin High Schools
  - Bayfield High School
  - Columba College
  - John McGlashan College
  - Kavanagh College
  - Kings High School
  - Logan Park High School
  - Otago Boys' High School
  - Otago Girls' High School
  - Queens High School
  - St Hilda's Collegiate
  - Taieri College

No. Students
- Join_Count

"Unsafe": Social Factors

Legend
- Dunedin High Schools
  - Bayfield High School
  - Columba College
  - John McGlashan College
  - Kavanagh College
  - Kings High School
  - Logan Park High School
  - Otago Boys' High School
  - Otago Girls' High School
  - Queens High School
  - St Hilda's Collegiate
  - Taieri College

No. Students
- Join_Count
Patterns – high density in inner city and south

• Individual Schools
  – Non-central schools tend to have a local catchment
  – Private and / or central schools have larger catchments

• Mode of transport: north-south divide
  – Motorised more popular; cycling less so, on the flat

• Safety: motorway traffic, lack of footpaths
  – Correlated with driver behaviour; also “danger areas”
  – Topography and influence of natural phenomena
Routes travelled by students from drawn maps

Dunedin High Schools
NAME

- Bayfield High School
- Columba College
- John McGlashan College
- Kaikorai Valley College
- Kavanagh College
- Kings High School
- Logan Park High School
- Otago Boys’ High School
- Otago Girls’ High School
- Queens High School
- St Hildas Collegiate
- Taieri College

No. Students

- 1
- 10
- 100
Next

- Patterns revealed, obvious and not
  - Bringing in built environment variables

- Decision Support tool for schools and council

- Ways forward
  - Combined flow map:
  - Working with geocoded data
  - Use of abstracted ("less spatial") representations
  - Use of cartograms and animations
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