

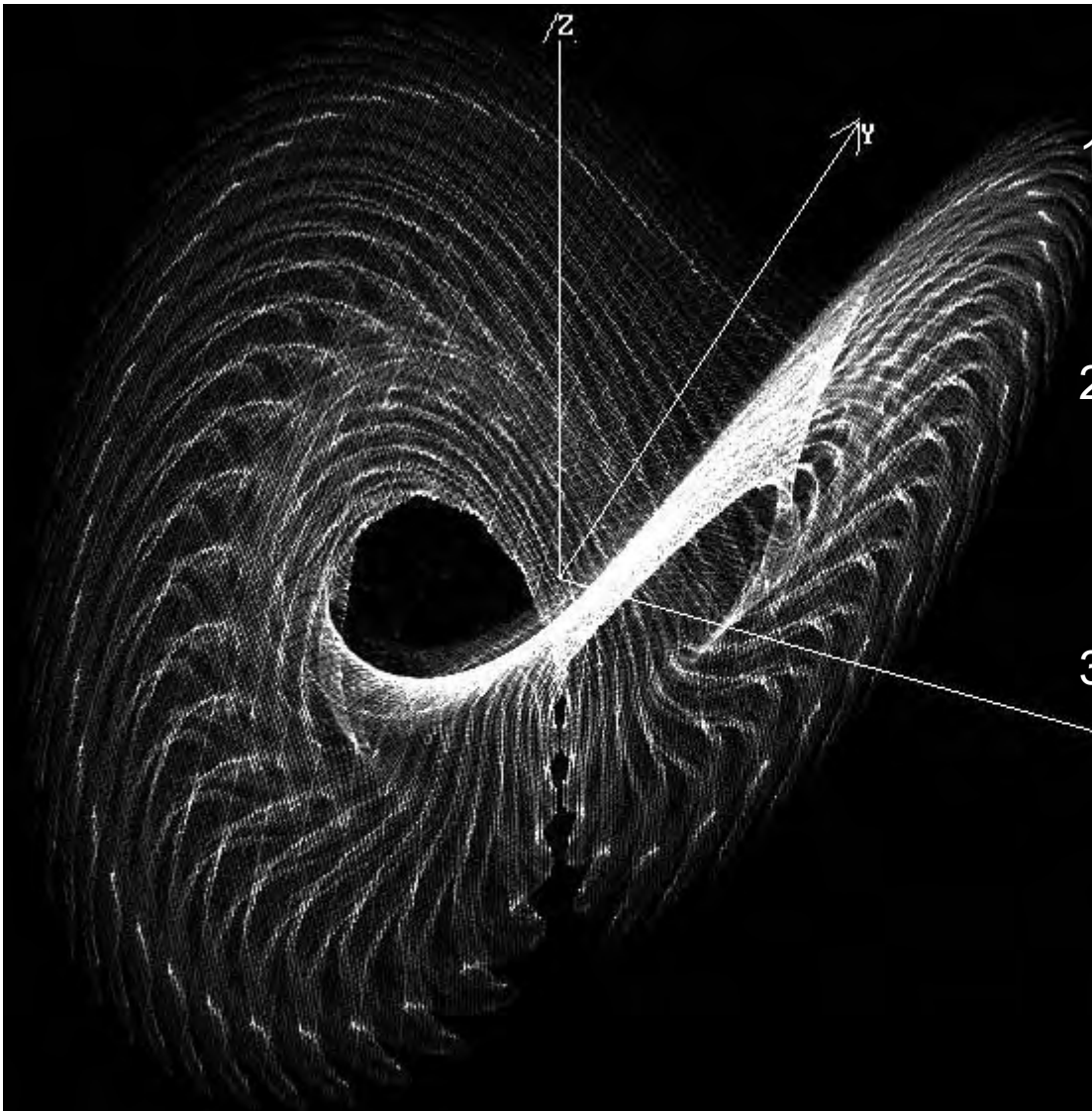
A stylized landscape with rolling hills in shades of green and brown. A path of white footprints winds across the hills, leading towards a bright sun in the distance. The overall aesthetic is clean and modern.

# Helen Reynolds

**Challenging the Car Dominated Street: Complexity Theory  
and The Shared Street Movement**

**Living Streets Aotearoa**



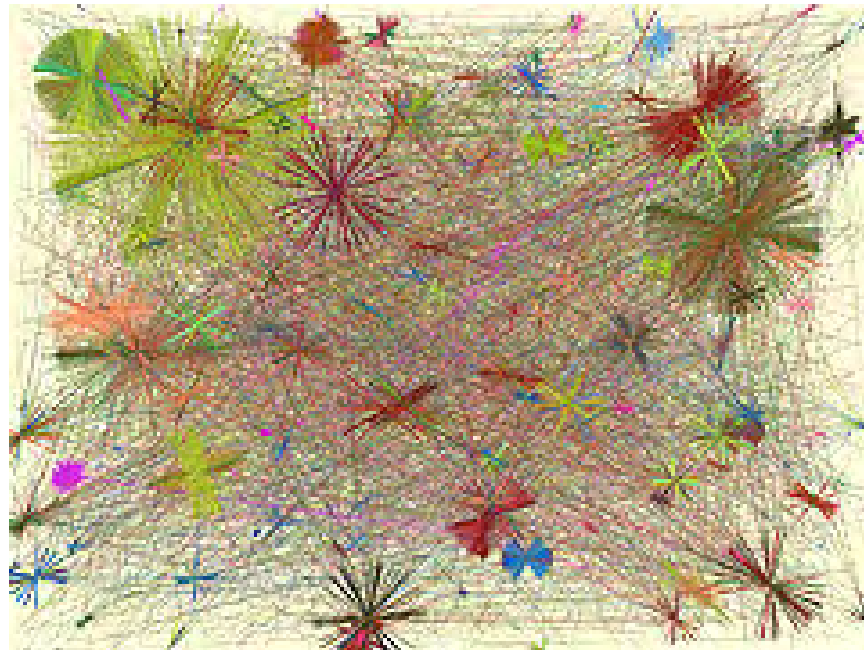


1. Simple systems – “ a small number of individuals with relatively weak interactions”. Tool – reductionist analysis
2. Statistical systems – “composed of such a vast number of objects that we can employ statistical averaging techniques to study their behaviour”
3. Complex systems – the number of elements is between simple and statistical, the agents are adaptive, and get information from a number of other agents, but not all of them

*Casti Would be worlds 1997*

Small changes in complex systems can lead to large and unexpected results  
“the flap of a butterfly’s wings in Brazil set off a tornado in Texas” (Lorenz)

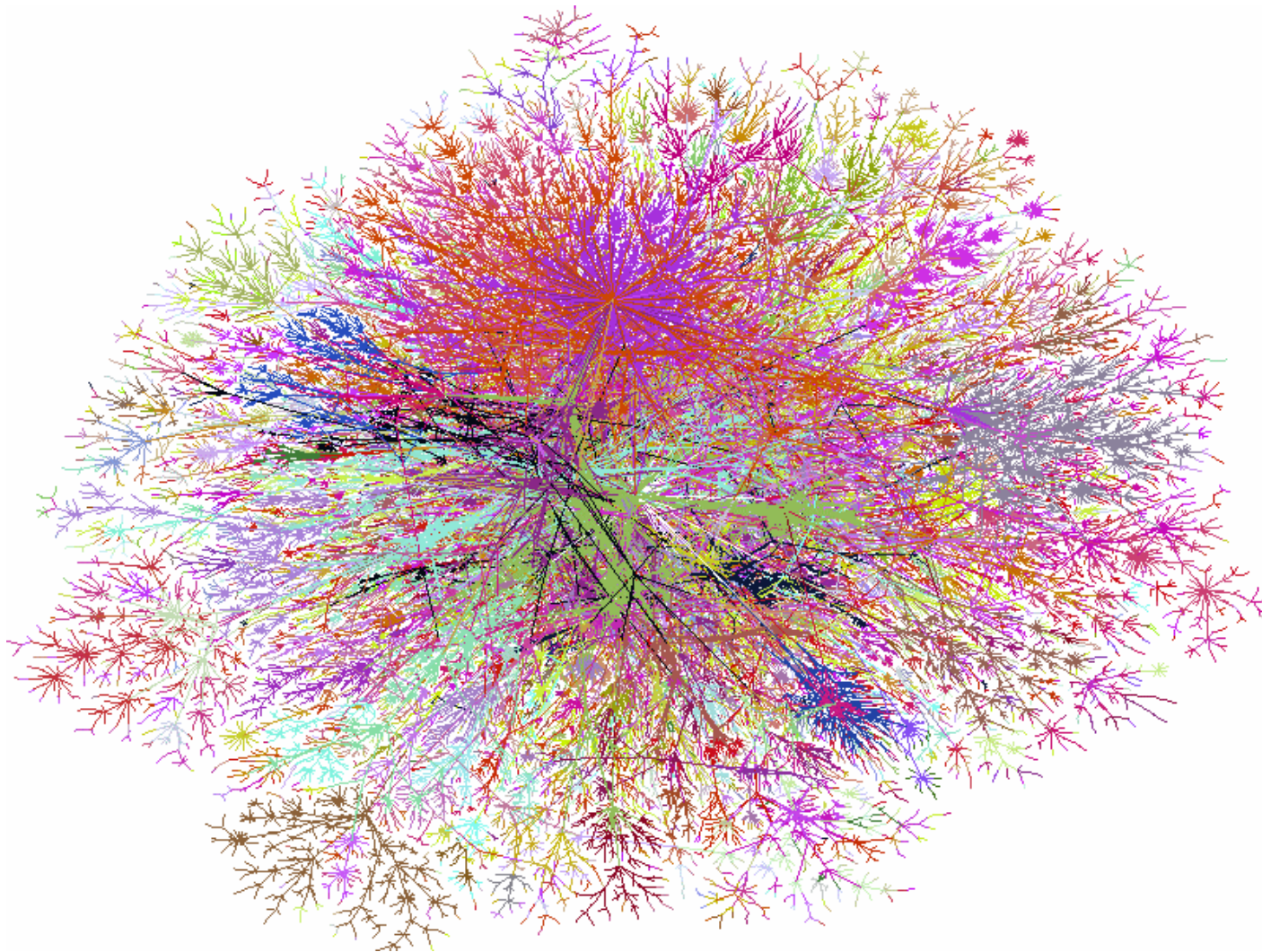




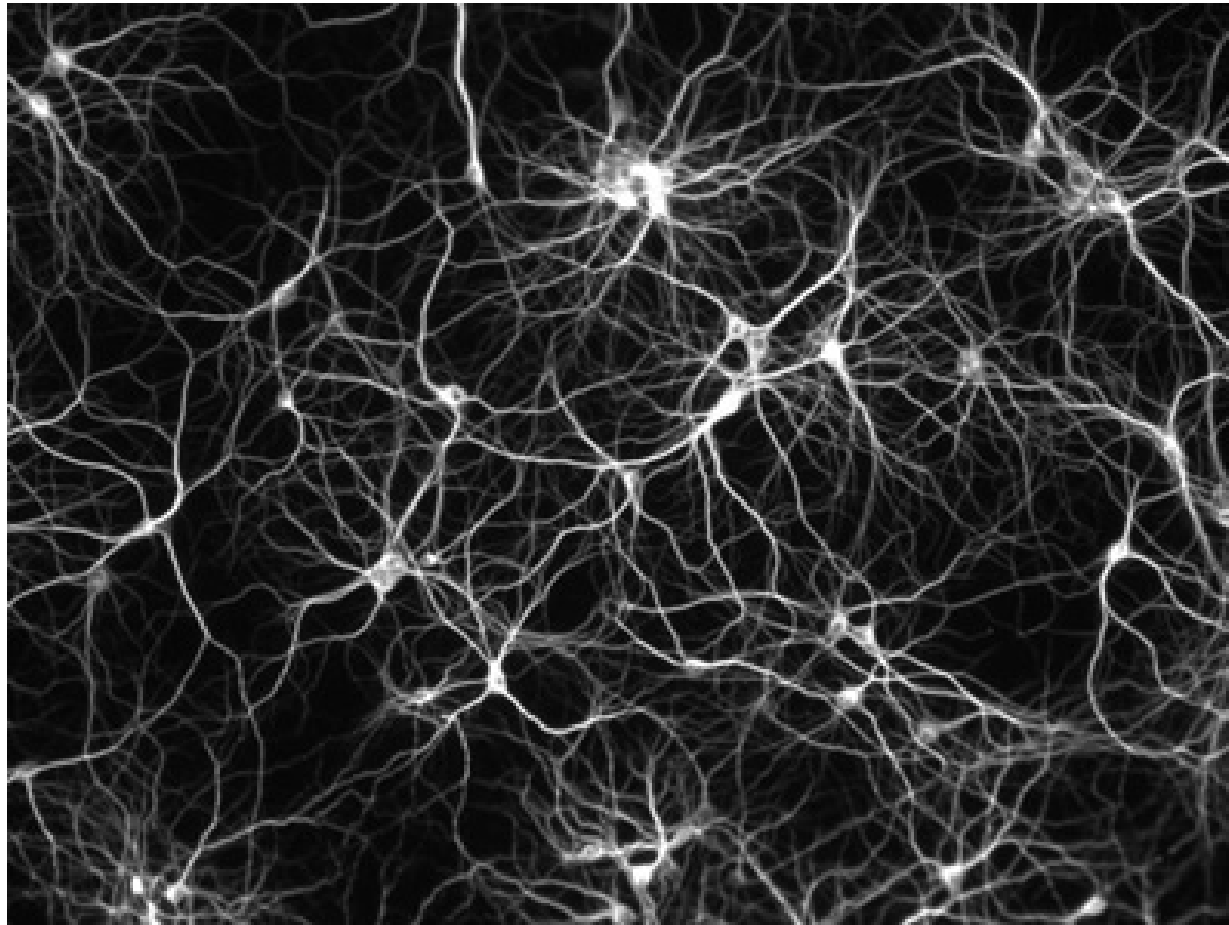
Fashion colour network  
Arikan & Dalton

<http://plw.media.mit.edu/people/arikan/2005/microfashionnetwork>

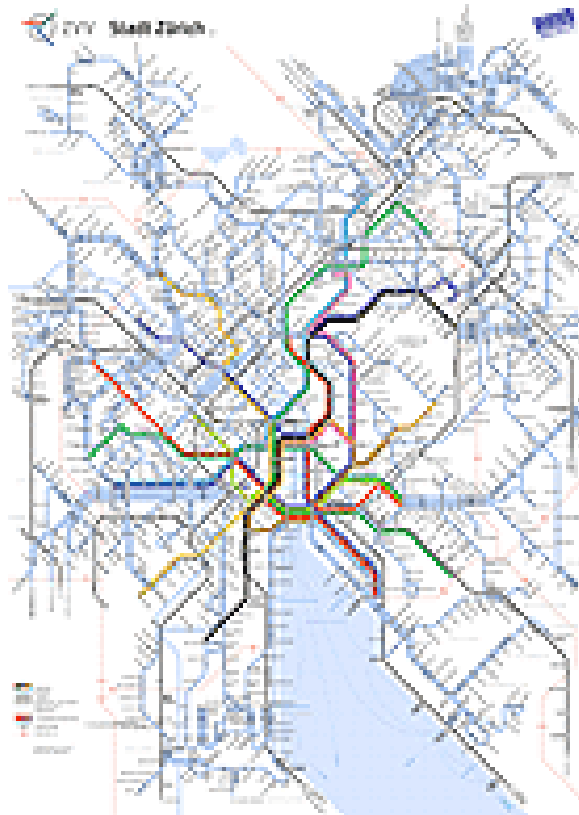




Map of the Internet, William R. Cheswick

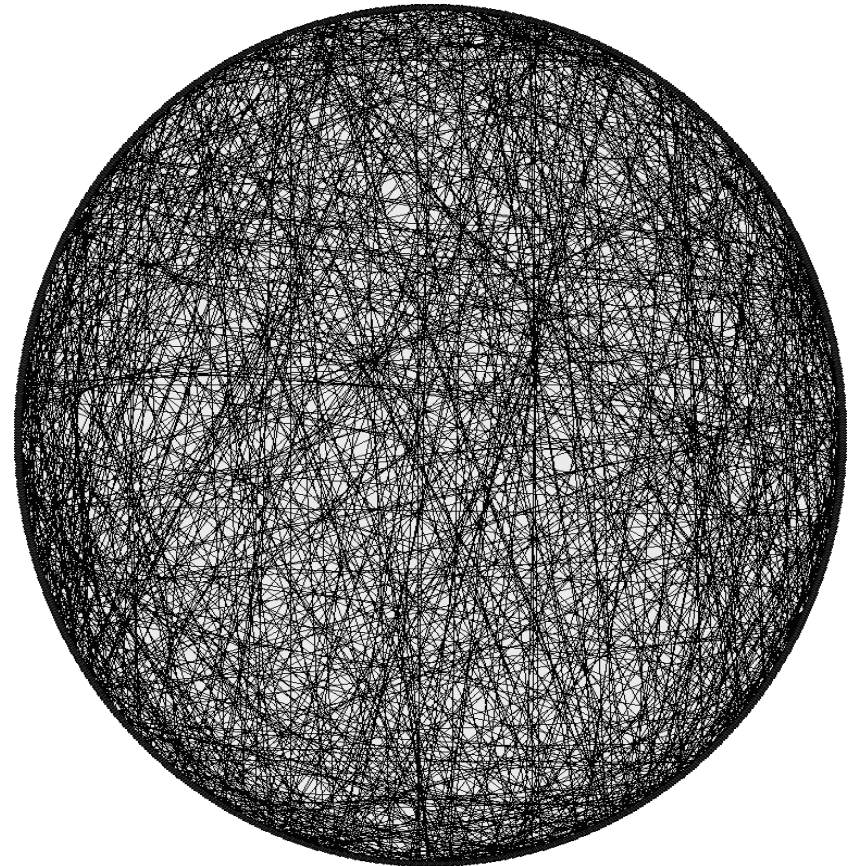
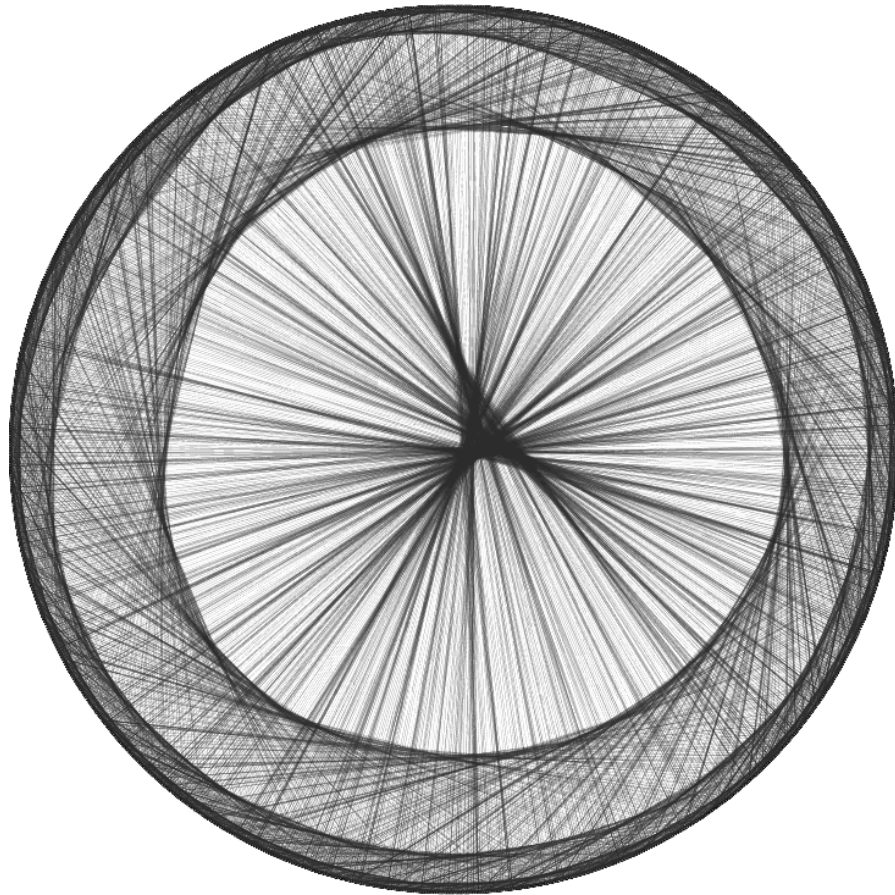


Rat hippocampal neural net



Zurich transport network

# Ordered & Random networks



[http://planet.urv.es/pkanetsim/images/symphony\\_1000\\_random.gif](http://planet.urv.es/pkanetsim/images/symphony_1000_random.gif)



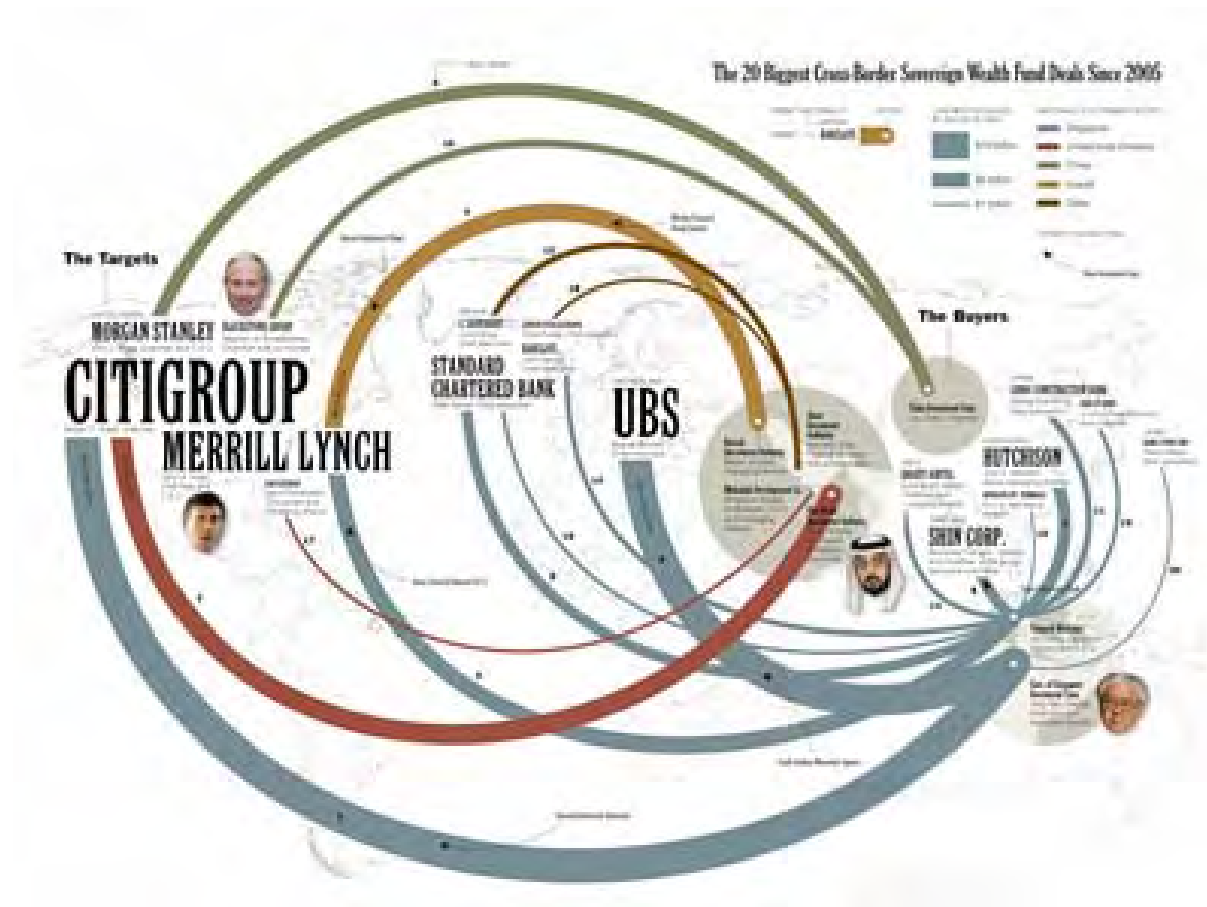
The agents and their interactions “...then generates a pattern at a higher level than the agents themselves. Such a pattern is often termed an *emergent* phenomena since it emerges out of the aggregate interactions among the individual agents in the system.”

Casti 1997





- <http://www.levitated.net/notes/AOC/images/sandDollars.jpg>



- <http://www.primeminister.govt.nz/oldpms/images/pm28.jpg>
- [http://www.visualcomplexity.com/vc/images/592\\_big01.jpg](http://www.visualcomplexity.com/vc/images/592_big01.jpg)

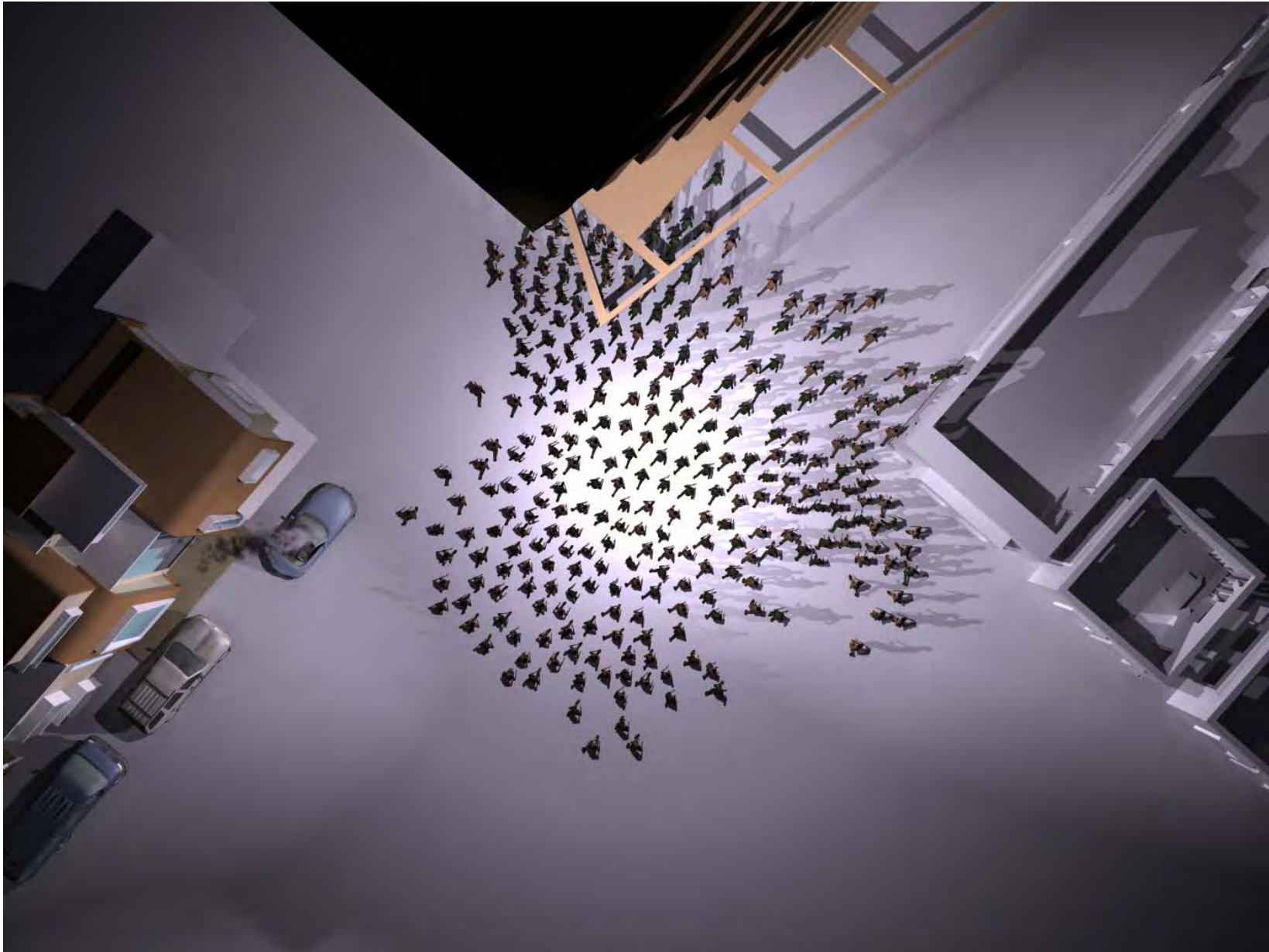


<http://www.paulhobson.co.uk/Starling%20flock%203.jpg>

<http://image.guim.co.uk/sys-images/Guardian/Pix/pictures/2007/11/06/starlings11a.jpg>

• <http://www.youtube.com/watch?v=8xkvaO04pcc>



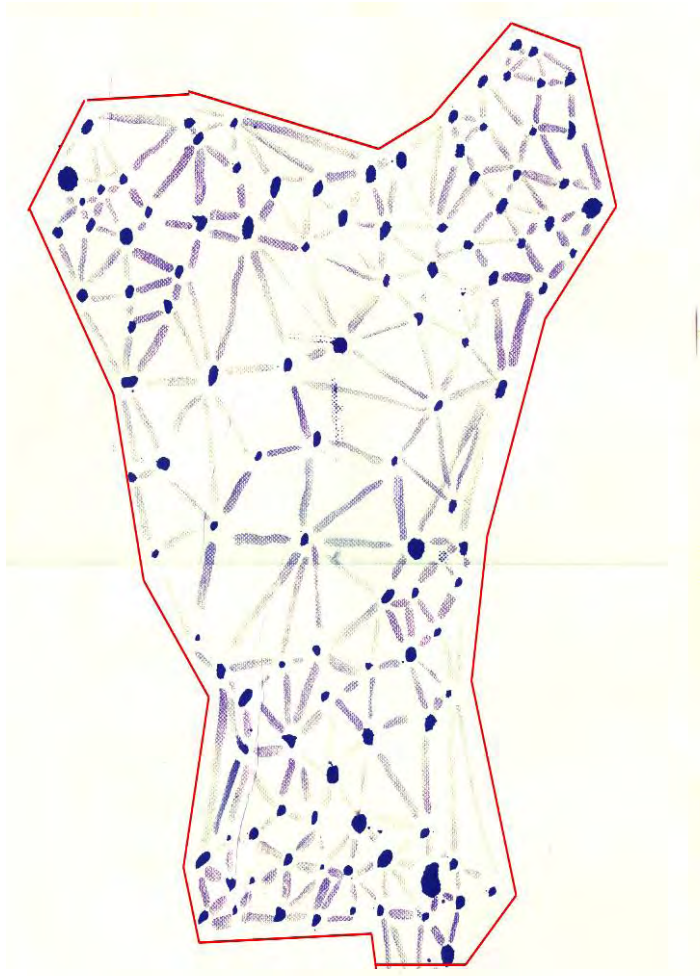






Bangkok

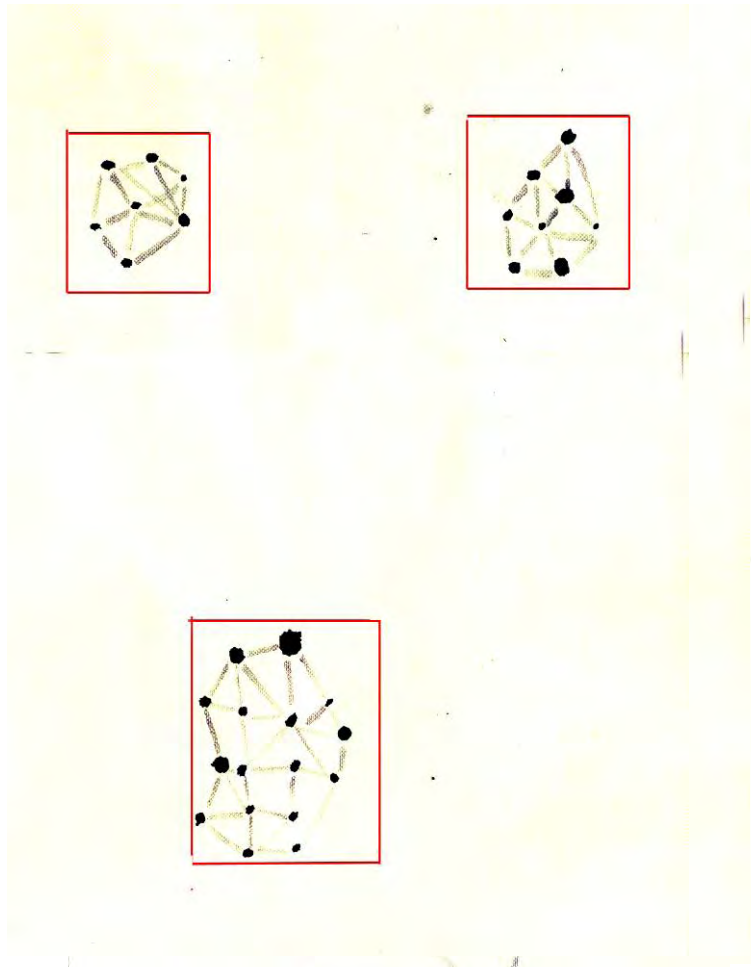
# Self organising in a complex system



‘Order for free’

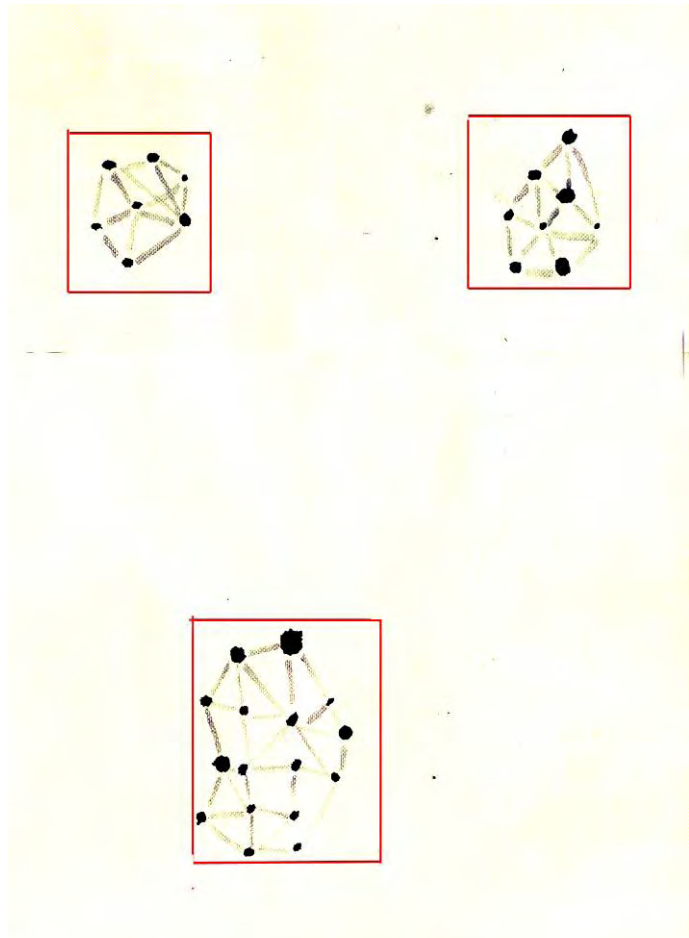
- Density of agents
- Density of interactions between them
- Variety of types of agents
- Tinkering with the feedbacks

# Breaking down self organisation in a system



- Reduce the number of agents in a system
- Reducing variety of agents
- Reduce interactions between them

# modularising



Grouping agents into components effectively reduces interactions, variety and number of agents within the smaller subsystems

The system will become brittle and liable to sudden catastrophic failure





The system will become brittle and liable to sudden catastrophic failure

Skytner 2005

[http://upload.wikimedia.org/wikipedia/commons/6/6d/Beijing\\_traffic\\_jam.JPG](http://upload.wikimedia.org/wikipedia/commons/6/6d/Beijing_traffic_jam.JPG)





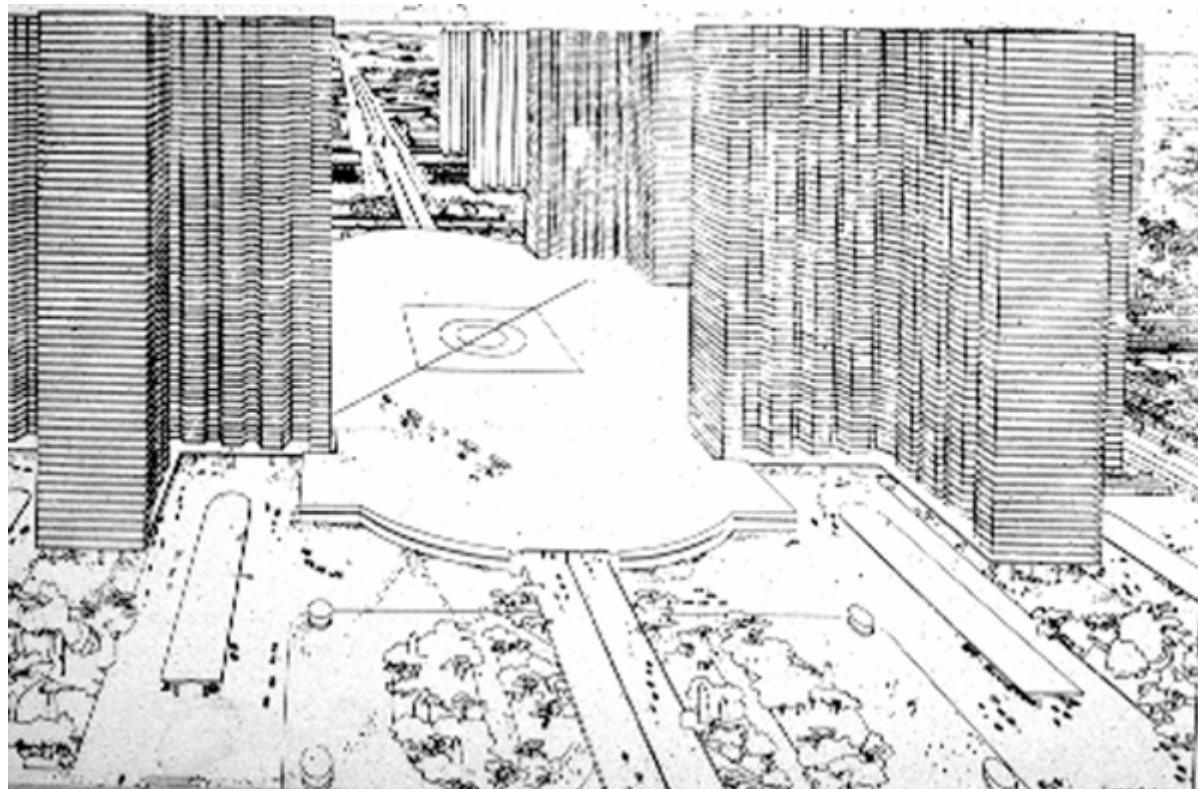
Lambton Quay 1900



BNZ corner, Wellington

Le Corbusier:

“The street is a traffic machine; it is in reality  
a sort of factory for producing speed” *The city  
of tomorrow* 1929:131

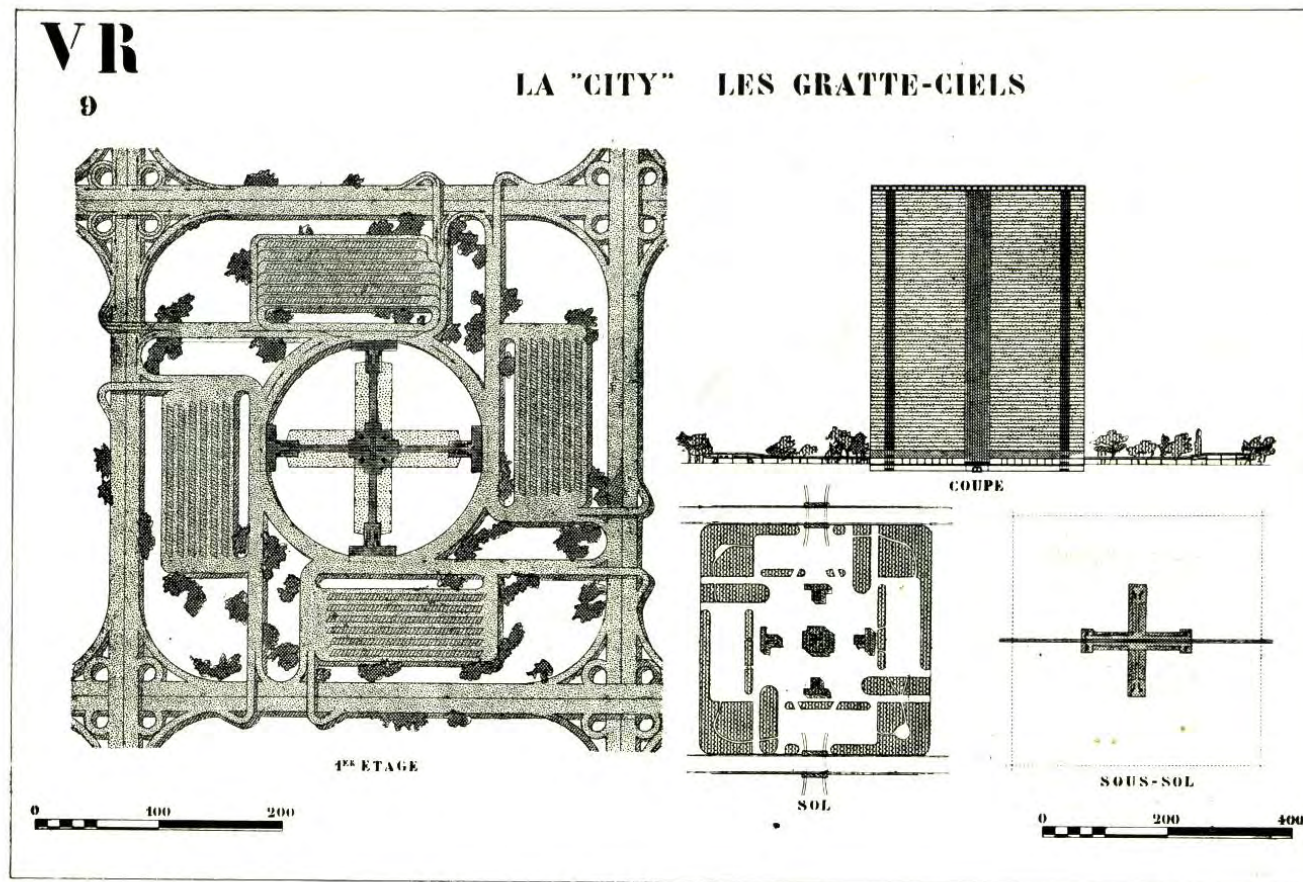


“The Plan must rule

Disappearance of the street

Differentiation between simple and multiple speeds..”

*The Radiant city* Le Corbusier 1933:7







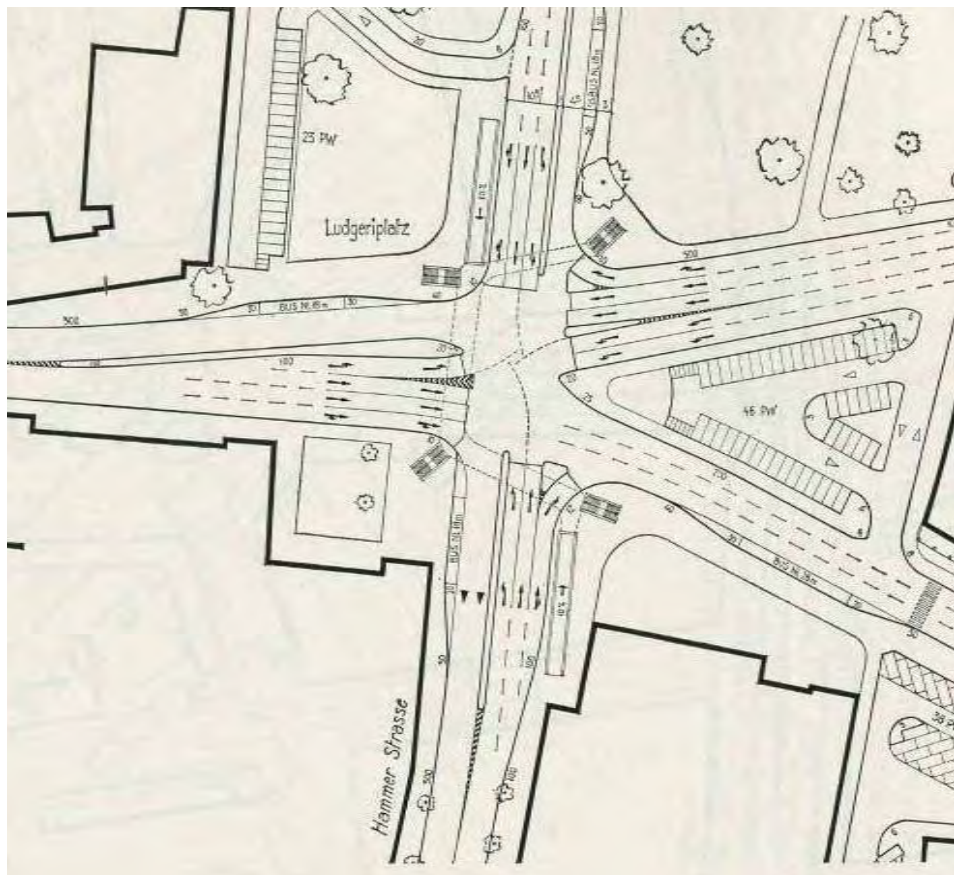


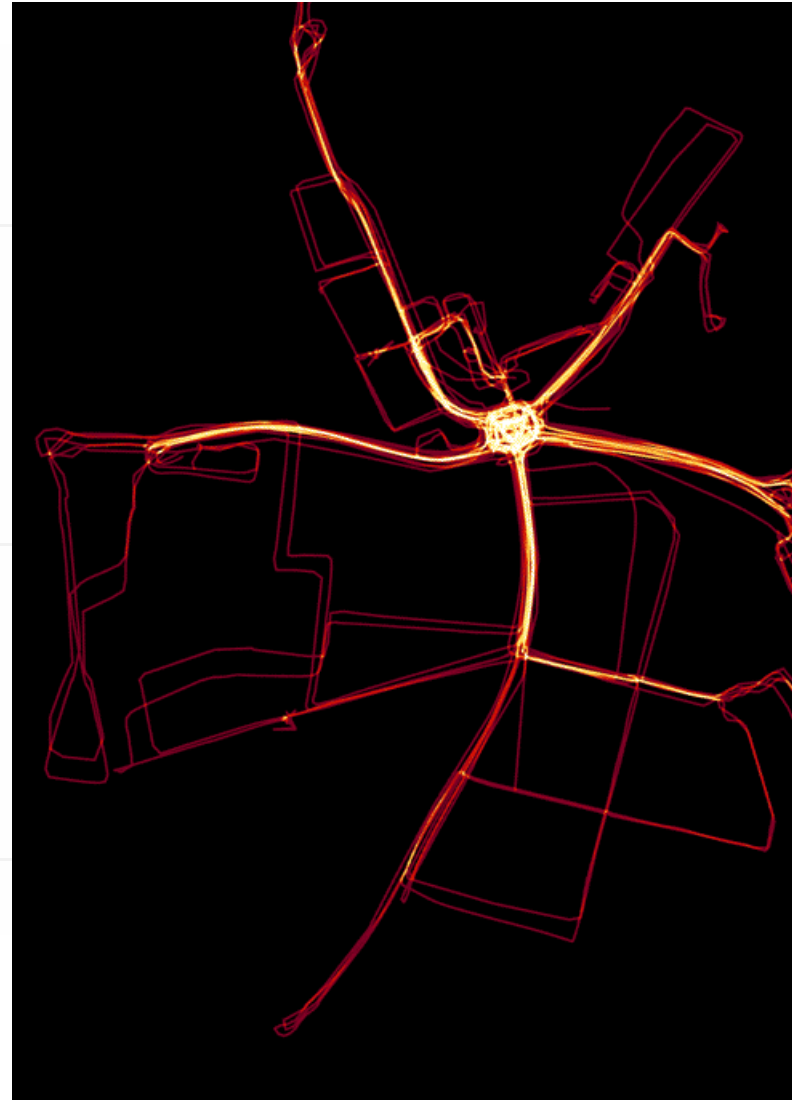
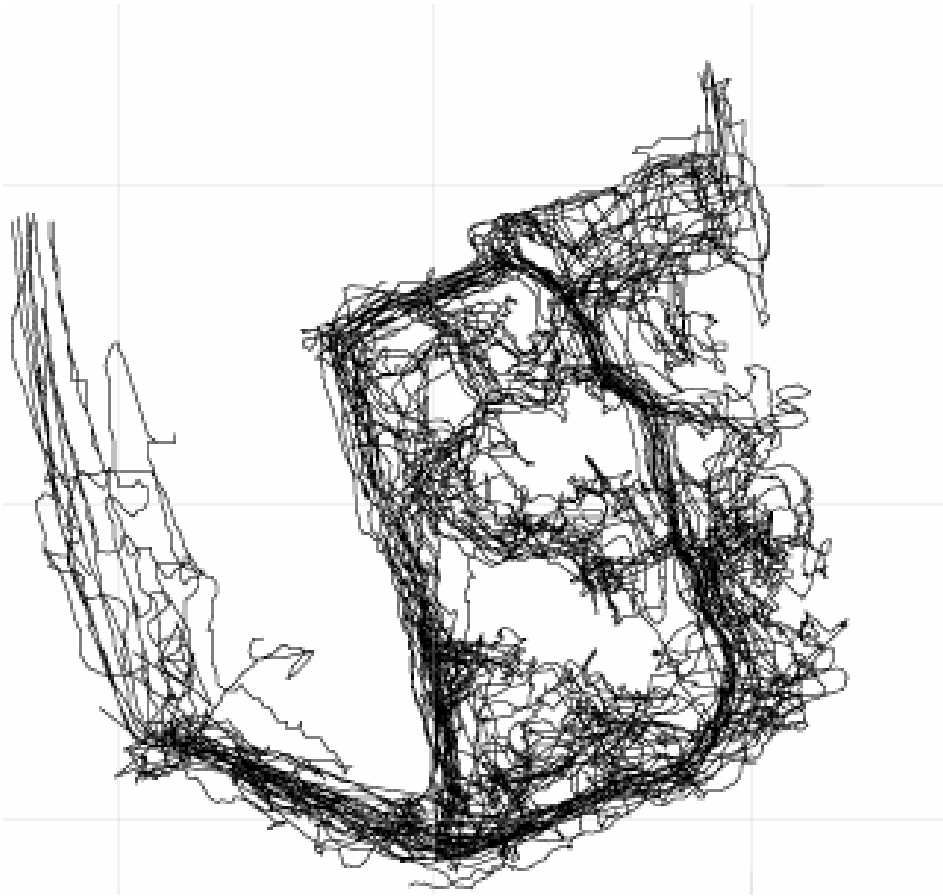












[http://www.gpsdrawing.com/gallery/land/magic\\_roundabout/roundastar.gif](http://www.gpsdrawing.com/gallery/land/magic_roundabout/roundastar.gif)

" When the two [pedestrians] are about twenty feet apart, they will look at each other. This is a critical moment. By their glance they must not only convey the signal but see if the signal has been acknowledged. A few feet nearer they drop their gaze and make a slight shift in course...the stop and slide. The course shift in itself is not enough for a full clearance but it will be enough if the other pedestrian makes a comparable move, as with few exceptions they do."

*Whyte, City: rediscovering the center:1998.57*









Design by Hans Monderman

Quality of the flowing of traffic 2000

Good	3%
Reasonable	8%
Moderate	22%
Bad	67%



Quality of the flowing of traffic 2005

Good	49,5%
Reasonable	33%
Moderate	12,1%
Bad	5,5%



Buses now take 20 seconds to move through the intersection  
instead of 56 seconds

Leeuwarden 2007

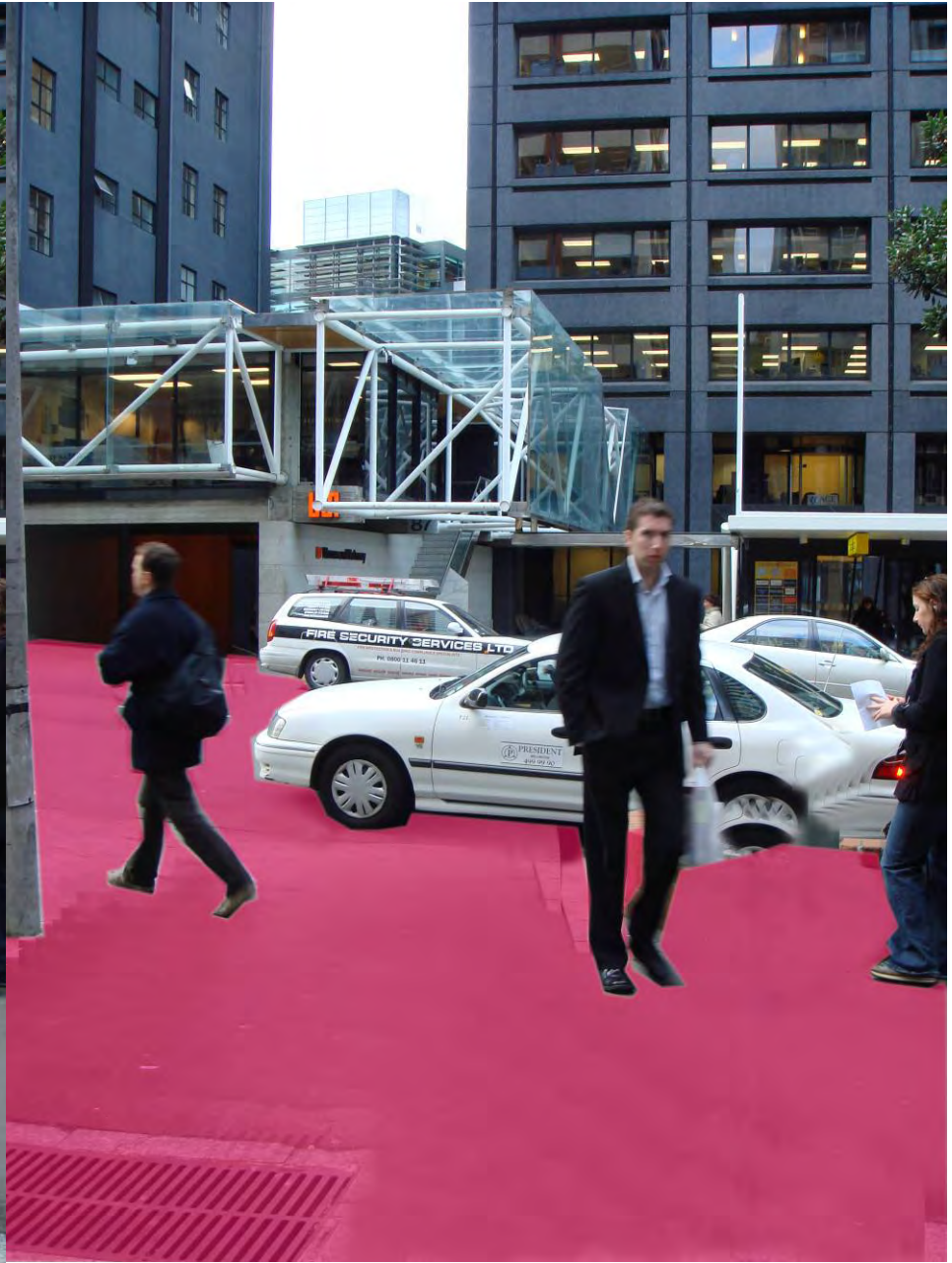
Other studies find serious accidents reduced by 50%

Ben-Joseph 1995

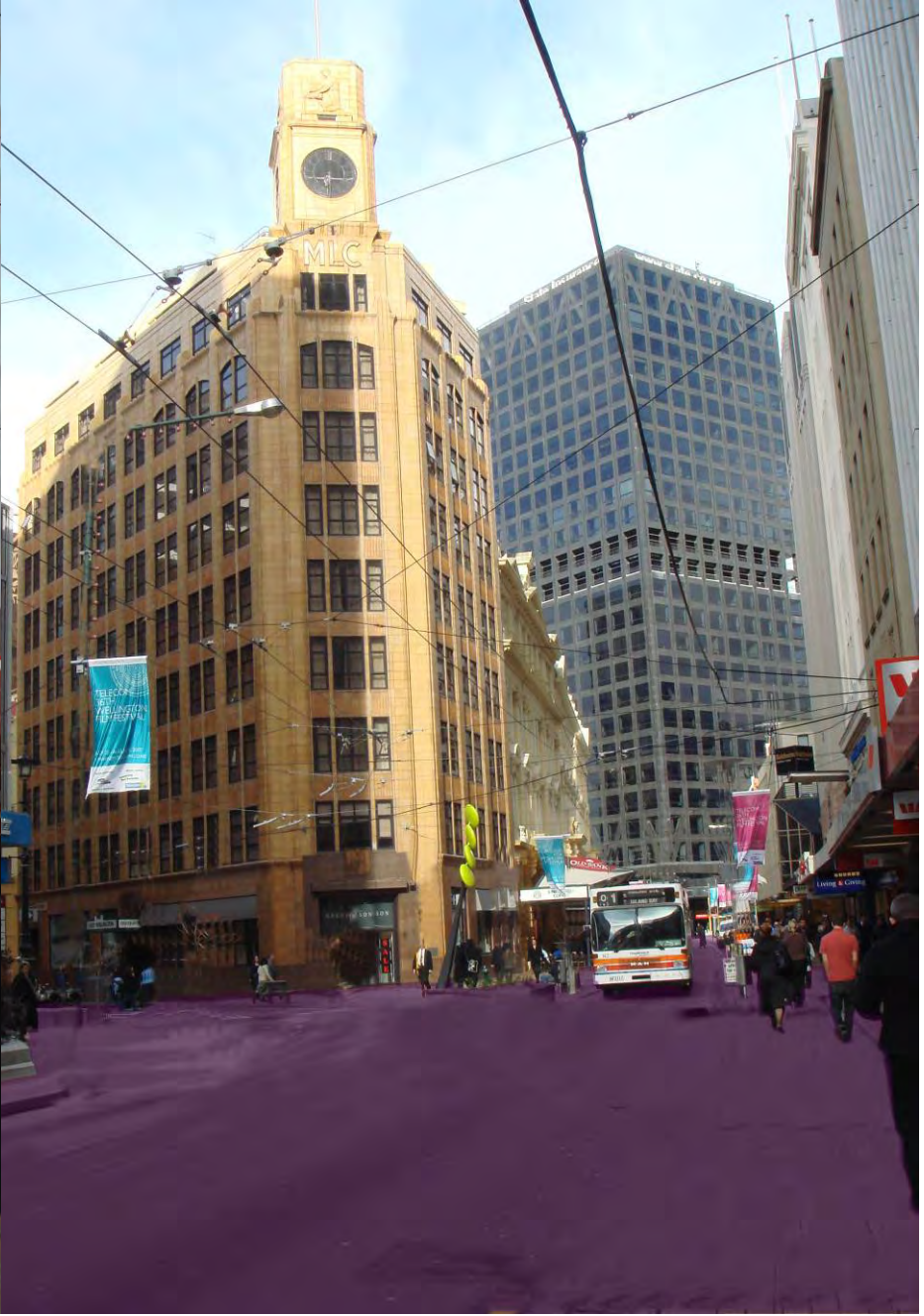
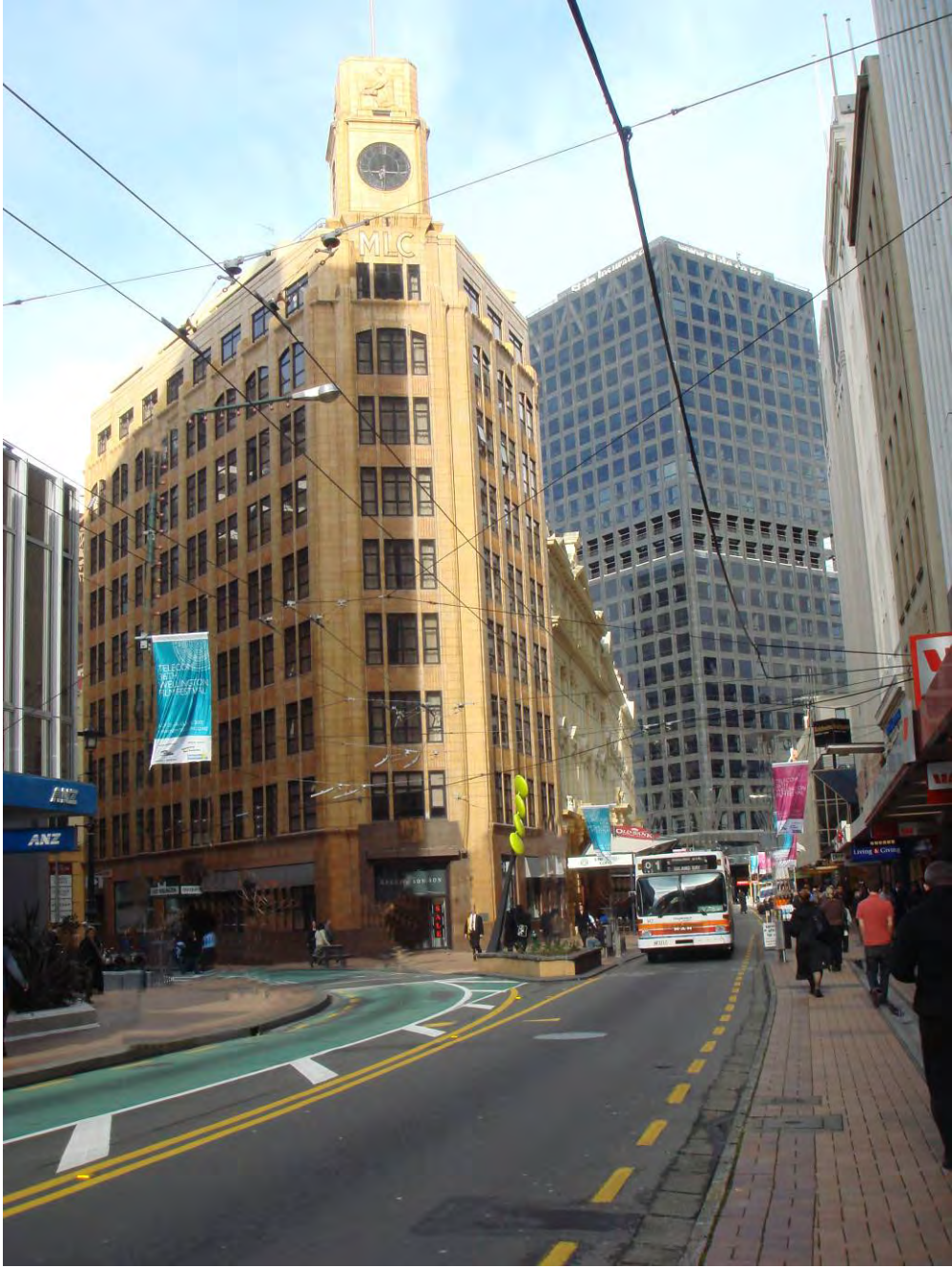
The reason the shared street is able to work so well is that it enables the power of self-organization to work amongst *both* walkers and drivers. The shared street removes the modularization of space and movement modes and enables interactions between ALL the agents on the street. Without specific rules for movement the drivers and walkers must both make the slight, subtle negotiations that will allow flocking or swarming to give us 'order for free'.

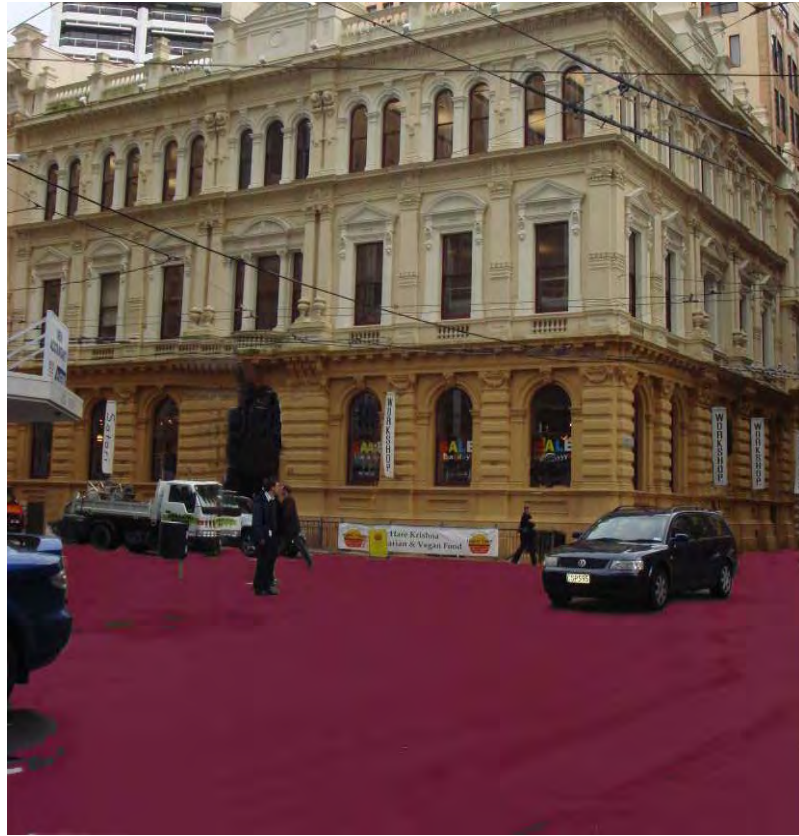
















- **Removes the hierarchy between walkers and drivers**
- **Reduces brittleness in the road system**
- **The carriageway is returned to public space**
- **Allows aesthetic design**
- **Flexibility to adapt to changing futures**

The background features a stylized landscape with rolling hills in shades of green and brown. A path of white footprints winds across the hills. In the foreground, there is a large, faint, stylized graphic of a person walking. At the bottom, a row of white silhouettes depicts various people walking: a child, a woman with a shopping bag, a man with a suitcase, a woman with a cane, a woman with a child, a person in a wheelchair, and a man with a dog. A palm tree is on the far right.

# Katy Marriott

Tips and tricks to get your walking project funded

Living Streets Aotearoa





# Funding Walking Projects

Tips & tricks

Katy Marriott  
Regional Walking and Cycling Coordinator  
NZ Walking Conference August 2008



Auckland Regional  
Transport Authority





## The warm fuzzies....

- Government Policy supports walking more than it has done for decades – an opportunity exists that may never come again
- The government is aligning policy with funding decisions
  - Government Policy Statement
  - New funding category for pedestrians
  - New guidelines for walking strategies and pedestrian facilities
- Advice on monitoring



## Reality strikes....

- International Walking Charter – all talk and no action?
- Increasing community expectations lead to council budget cuts
- Increasing cost of infrastructure means each \$ buys less
- Walking projects do not win votes
- Everybody walks already and most roads have footpaths
- Walking advocates are too nice



## The Strategic Route part 1....

First you need a strategy

- What you want to achieve?
- How long it will take?
- What will it cost?
- How do you know whether you have been successful?

NZTA will “support” strategies it agrees with



## The Strategic Route part 2....

### Packages and groups of activities

- Packages of synergistic activities (multi agency, multi modal, 3 E's)
- Groups of similar projects (low cost, low risk, generic projects)
- Calculate a Package or Group benefit/cost ratio

NZTA will “endorse” packages and groups that deliver supported strategies



## The Strategic Route part 3....

Individual projects are submitted for NZTA funding

- Projects need to implement the endorsed packages/groups and the supported strategies
- Streamlined funding approval
- Individual BCR not needed for small projects under \$250k (to be confirmed)

## The problem with the Strategic Route....

- Time to get to funding approval for individual projects
- Predictions of growth – impact on benefit/cost ratio
- Measurement and monitoring
- Existing government bias against recreational walking projects.....

However

- More effort at the strategic end will mean less effort at the project level
- we need to start now for 2012/13 LTCCP



## The shortcut ....

- Safety / minor improvements projects
- School Travel Plans
- Maintenance programmes
- Council or Community Board discretionary funds

## Safety / minor improvement projects....

Each Council has an allowance equal to 8% of the maintenance budget to spend on

- Pedestrian crossings
- Safety footpaths that conform to NZTA policy
- Intersection improvements
- Minor engineering works associated with community programmes
- Traffic calming





## School Travel Plans....

- Benefit / cost ratio is already calculated (based on an expected mode shift across a school)
- Can include an audit of existing infrastructure to pick up barriers to walking or pedestrian safety issues, as well as feedback from current pupils



## Maintenance Programmes....

- Signs and markings, including destination signs
- Lighting at pedestrian crossings
- Traffic counts – now include cyclists, why not pedestrians?
- Repair and rehabilitation of roads and footpaths



## Discretionary funding....

Councils and Community Boards often have discretionary funding

- Ribbon cutting ceremonies
- Very few rules about what the money is spent on
- No need to meet NZTA criteria



## In conclusion....

- Window of opportunity – environmental and sustainability issues are high profile
- We need to think strategically but this takes time and requires a lot of effort
- There are ways to get funding that are not difficult but require relationship building





## I know I said walking advocates were too nice....

- While the moaners and complainers get a lot of press it won't necessarily help to get your project funded (i.e. implemented)
- Make a Council Engineer your friend today – take them for a walk!
- Say thank you (in a letter to the Mayor)



# Peter Kortegast

How to get LTNZ to pay for your footpaths?

Living Streets Aotearoa





# How to get LTNZ to pay for your footpaths?

**Is it possible?**

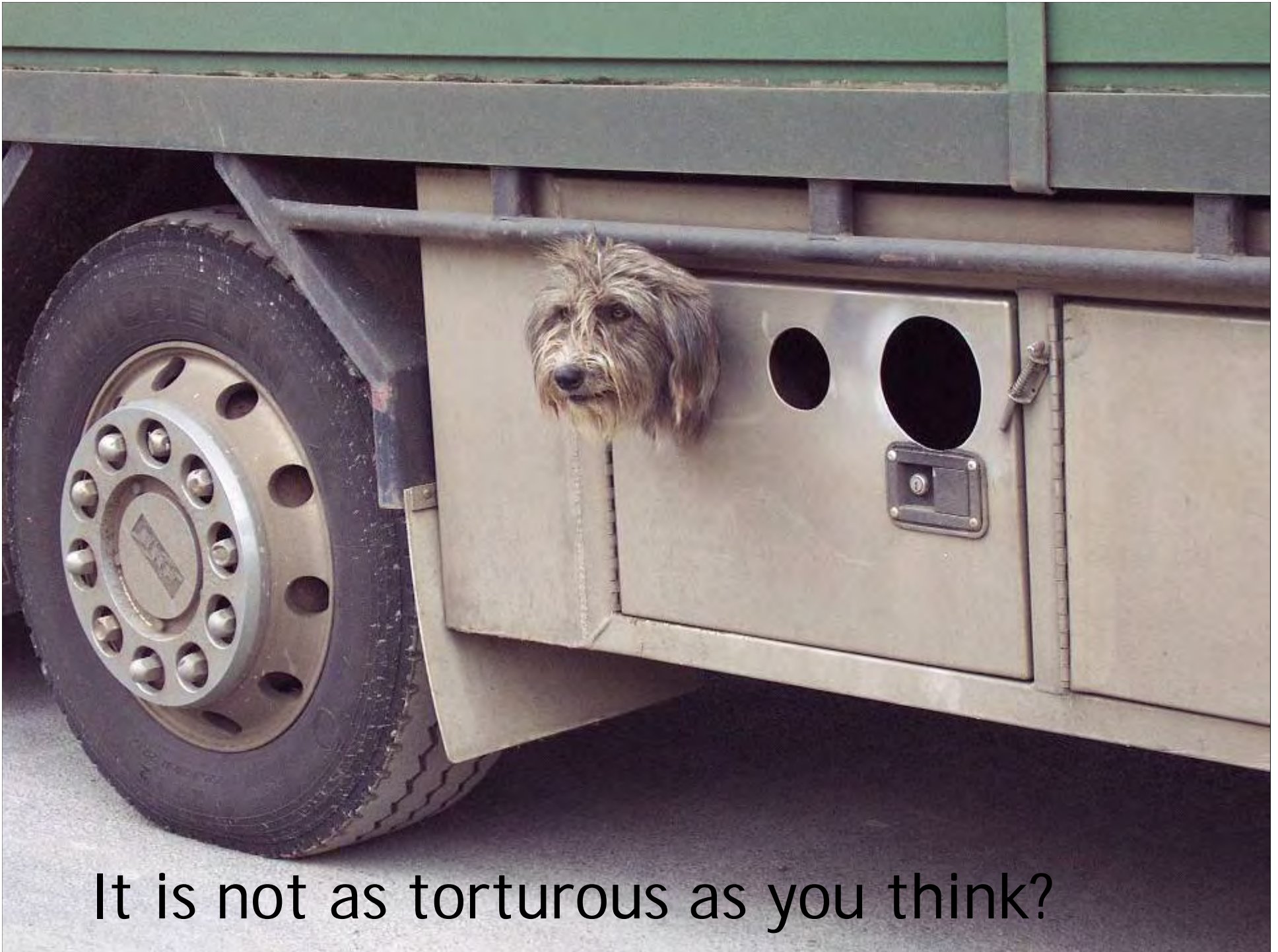
By Peter Kortegast





Everything you do doesn't have to be budget





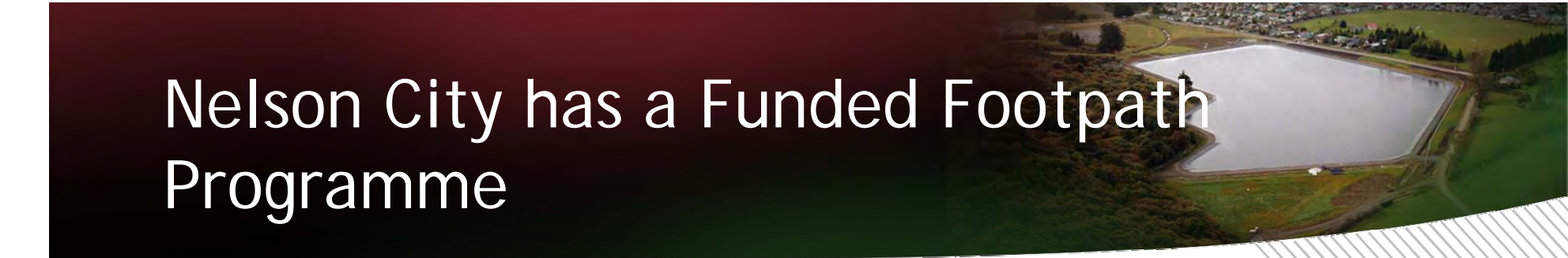
It is not as torturous as you think?

# LTNZ Financial Assistance Options



- Minor Safety Funding
- Community Projects TDM
- Neighbourhood Accessibility Plans
- **Capital Funding- Walking and Cycling**

# Nelson City has a Funded Footpath Programme



- LTNZ funding approved in 2007
- 5 year Footpath Programme (4.8km)
- Benefit Cost Ratio of 1.3
- Capital Value \$1.3 Million



Politicians asked the right questions





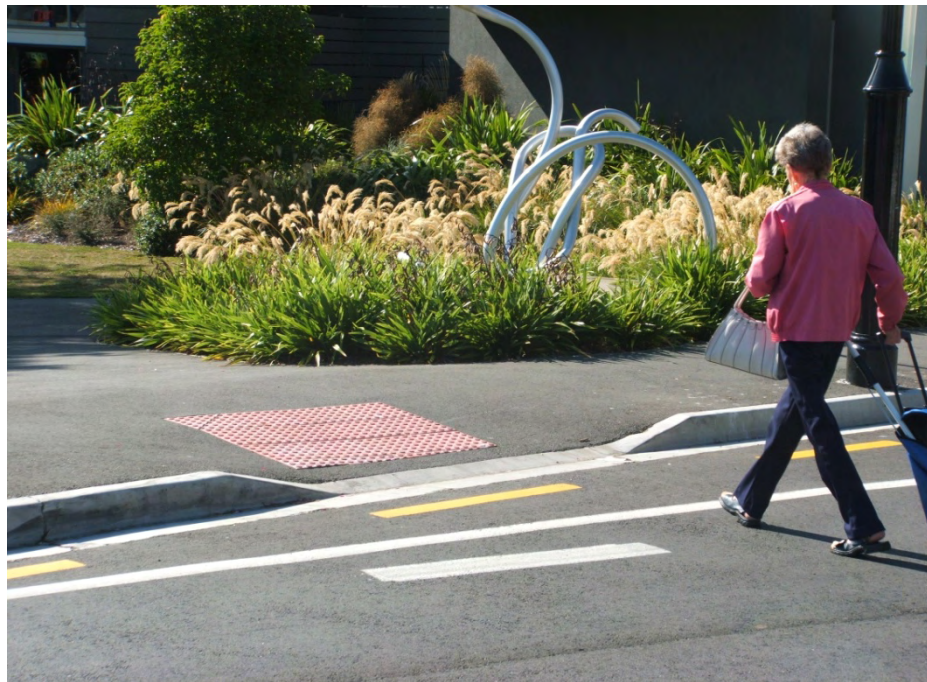


# Get your Strategies lined up

- Community Plan Outcomes ✓
- Regional Land Transport Strategy ✓
- Pedestrian Strategy ✓
- Approved Capital Programme ✓

# Select The Right Projects

Select Commuter Footpaths within 1km of Attractions,  
National Walking and Cycling Strategy



# Calculate your benefits

- Safety Benefits 60% crash reduction for new footpaths
- New Pedestrian benefits based on new commuter pedestrians
- This can get technical get a consultant experienced in PEM work.





# Don't forget package approach

- Engineering
- Education
- Enforcement
- Encouragement

My contact: [peter.kortegast@opus.co.nz](mailto:peter.kortegast@opus.co.nz)

It doesn't have to be perfect



# Afternoon Tea

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