



# Transition Engineering Brainstorm

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**Safe  
Sustainable  
Future**

IPENZ Transportation  
Group Conference 2017

29 - 31 March 2017  
Distinction Hotel  
Hamilton

# Safe Future

- IPENZ - How do you work on a **safe** transport future?



- Research
- Engineering
- Technology
- Behaviour



# Sustainable Future

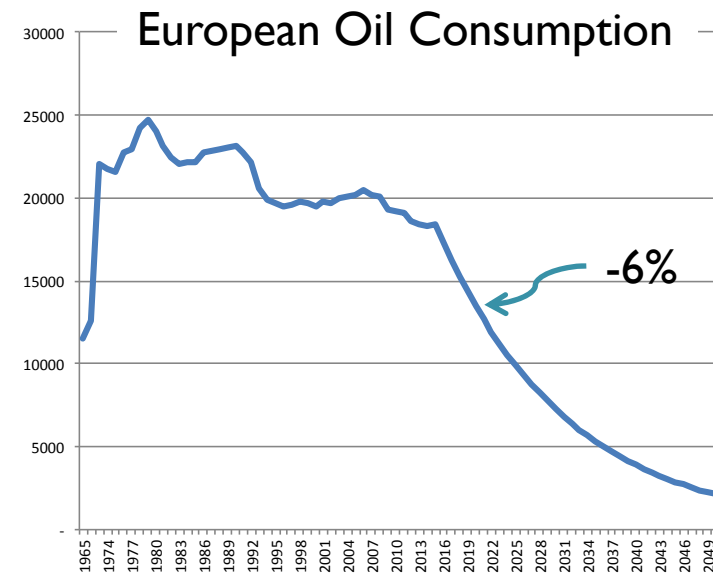
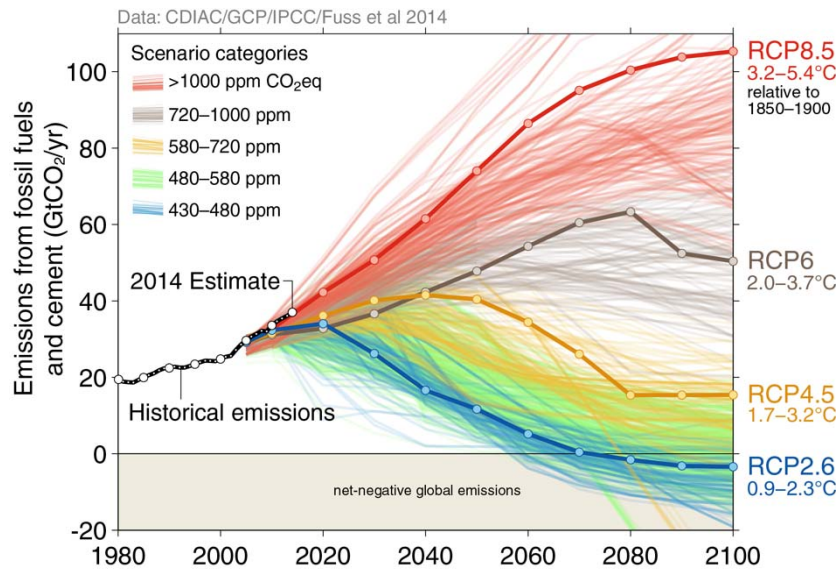
- IPENZ - How do you work on a **sustainable** transport future?



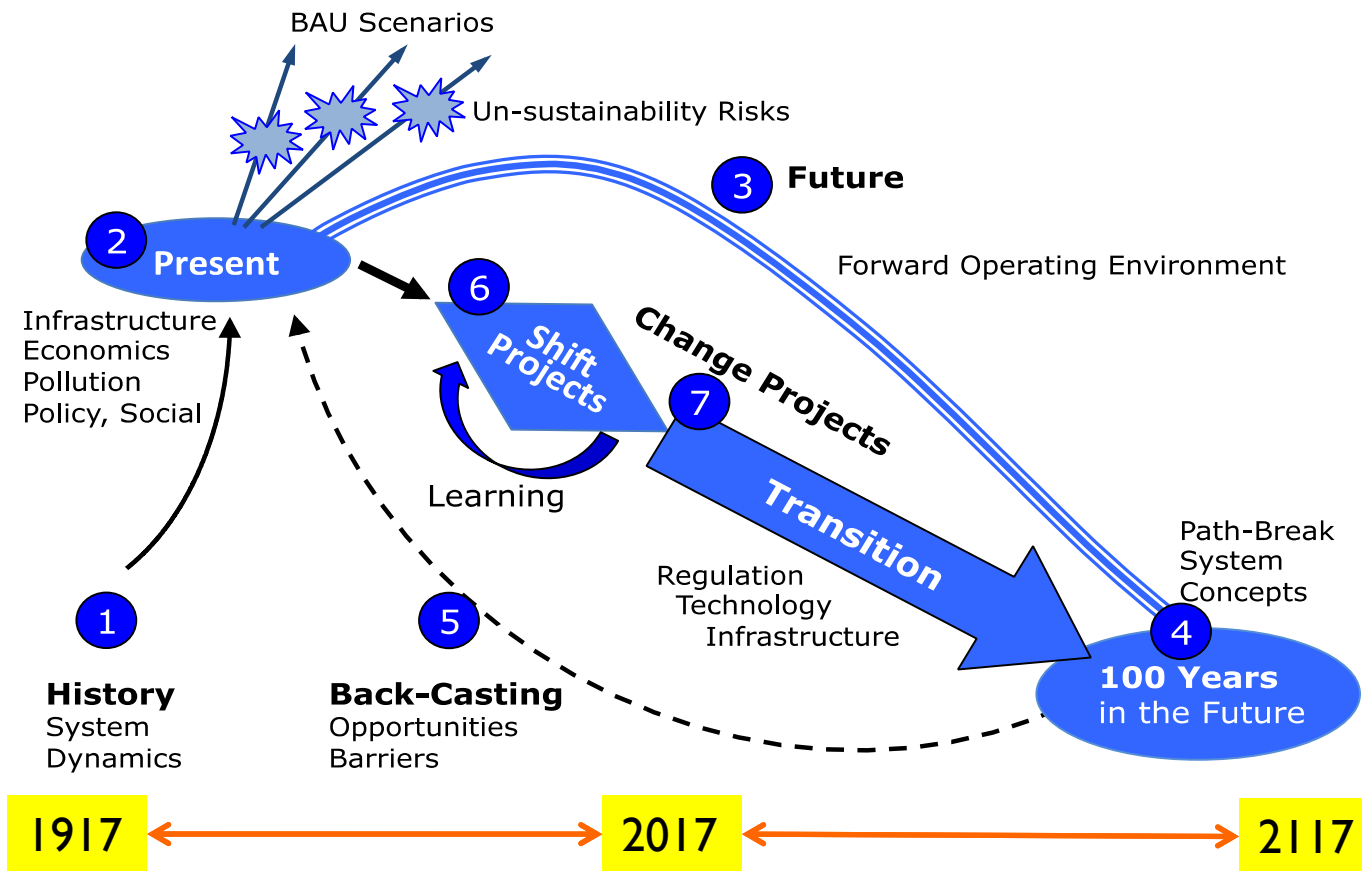
Photoshop  
out the  
pavement?

# Define the Problem

- Unsustainable Oil Production and Oil Consumption



# Transition Engineering Method



# 100 Year Perspective

Illustrated with four 10 year old boys

Julius



1917

Julius



1947

Jarral



1977

Julian



2017

# Auckland Congestion



# 1. History 1917 Queen St





# 1. Historical Dynamics



# I. Historical Dynamics



New Southern Motorway  
1950



## 2. Present

### **Economic Picture**

- Auckland GDP = \$61 Billion
- Cost of congestion \$725-\$1,250 million/yr
- Cost of personal vehicle operation = \$9.5 Billion
- Council spend on car transport = \$2.6 Billion

*22% of all money spent in Auckland is just to get around  
Personal transport is fuelled by imported oil, so represents a  
risk to prosperity and carbon emissions that must be reduced*

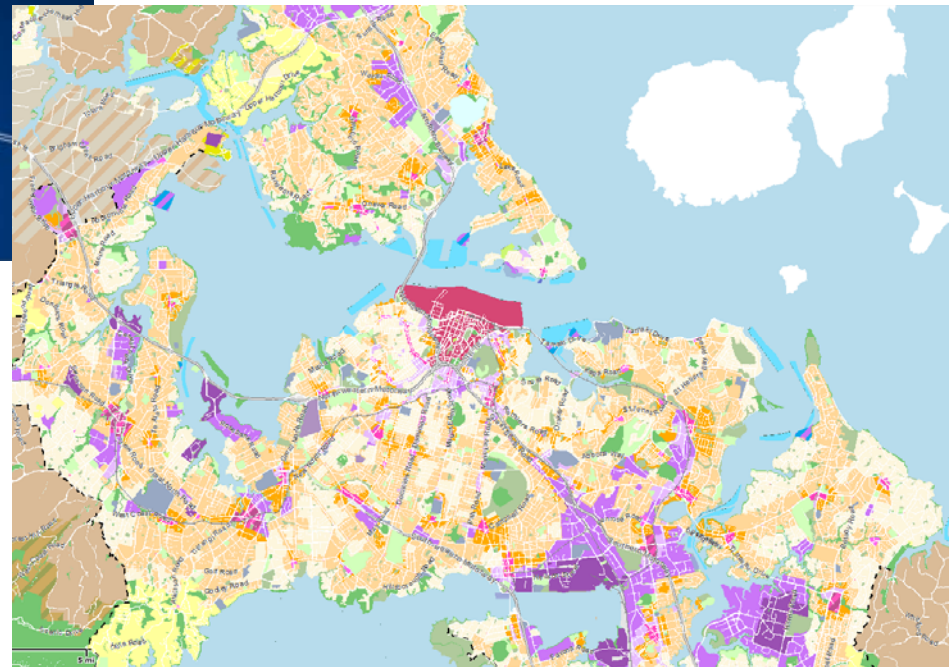
## 3. Technology Scenarios

- Electric Cars – Max 4% of current car Numbers
- Biofuels - Max 1% of current fuel
- Self-Driving Cars – Not available Max 0% savings

*None of these solve the problem of Congestion or Oil!*



# 3. Today's Forward Projects



# 3. What are the projects?

- More Intensification of Apartments
- More Granny Flats and Infill
- More Sprawl of Houses
- More Motorways
- More Rail
- More Cycle Lanes



## 4. Pathbreak: 100 years from now

- Congestion is not a problem, because...





## 4. Pathbreak 100 Years from now

- Auckland is a prosperous city in 2117
- Congestion is not a problem
- Accessibility is not a problem
- Oil supply and oil consumption are not a problem
- Auckland is connected to the rest of the country and the rest of the world





## 4. Tour of Auckland 2 | 17

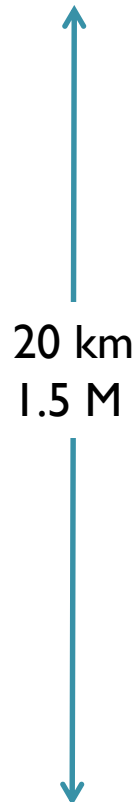
- They have a lot of repurposed pavement
- They have a lot more trees
- The land use and distance relationships are complex and organic, and “human scale”
- Urban areas are mixed use, mixed density, active accessible, co-located activities
- They have a thriving manufacturing & service industries

# 4. Here is Auckland 2017

Barcelona  
Vienna  
Milan  
Munich  
Birmingham  
Brussels

Or if population  
grows to 2.2 M  
This is the size of  
Paris

Transport Spend  
4% of GDP



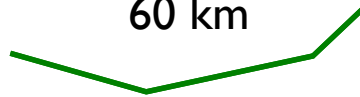
## 5. Backcasting

- Prosperous, Uncongested Auckland 2117 is POSSIBLE
- Other prosperous cities of under 2M around the world with <30% personal vehicle mode are reality today



# 5. Back-Casting

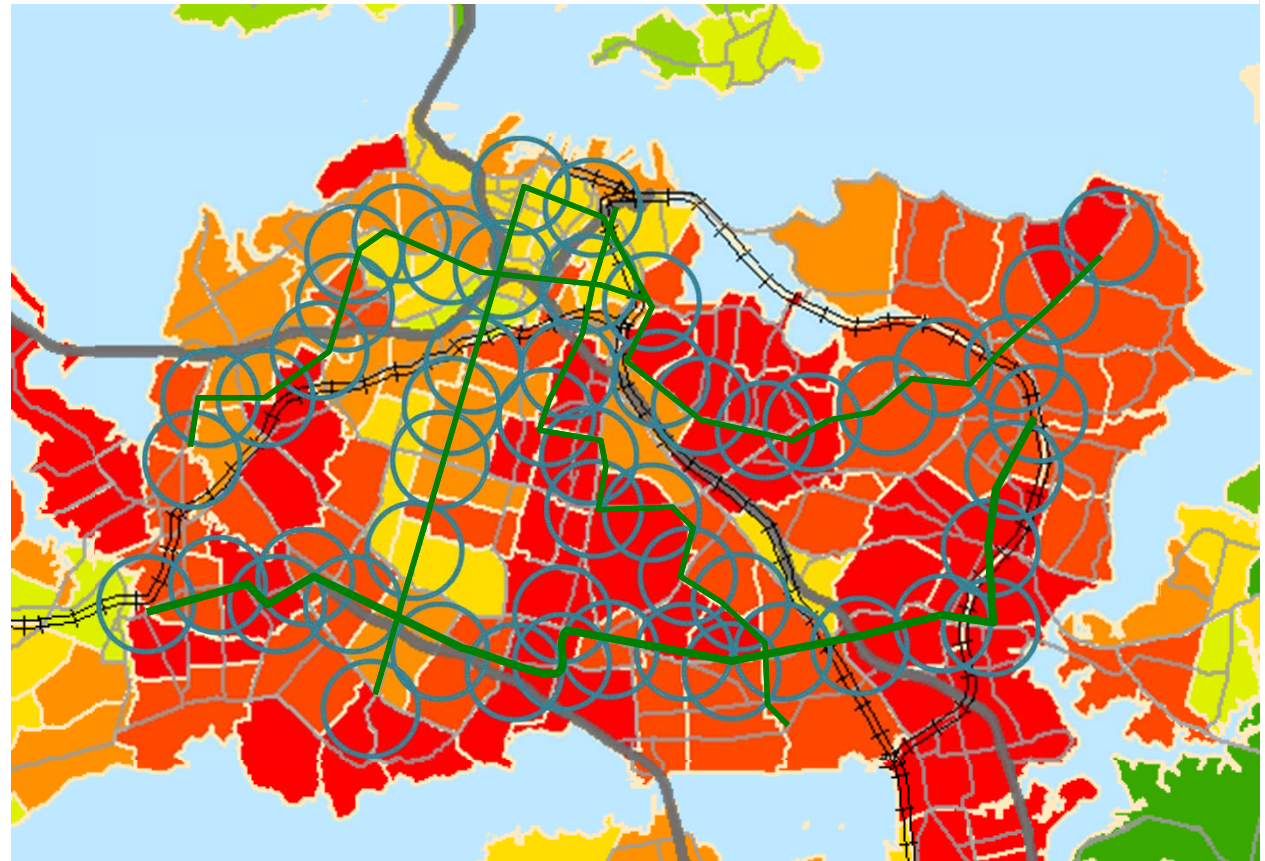
2-way Tram Line  
60 km



1 km  
15 minute walk



4 km  
15 min cycle





## 6. Shift Project - Innovation

- Work with Alstom to design a tram network that would serve all of core Auckland with about 60 km of line
- Transition Street Competition – Merchants and Communities prepare proposals to Extreme Make-Over their Street as a Pedestrian-Cycle-Tram Boulevard.
- Infrastructure and consents by government, investment in new properties by market

# 6. Shift Project - Innovation

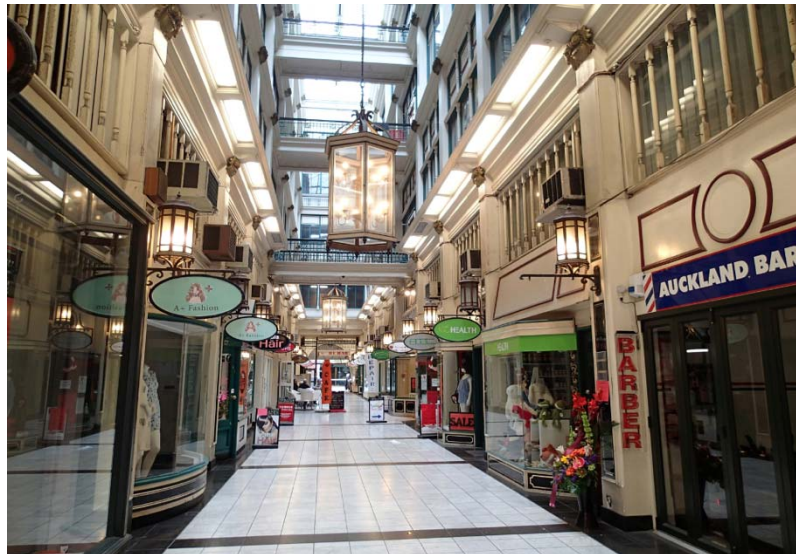
Reality TV Show follows 5 business & community teams as they go through different stages of design, competing for \$25M for Auckland's 1<sup>st</sup> 10 km Transition Street project.

The public votes on different elements to choose the winning team.

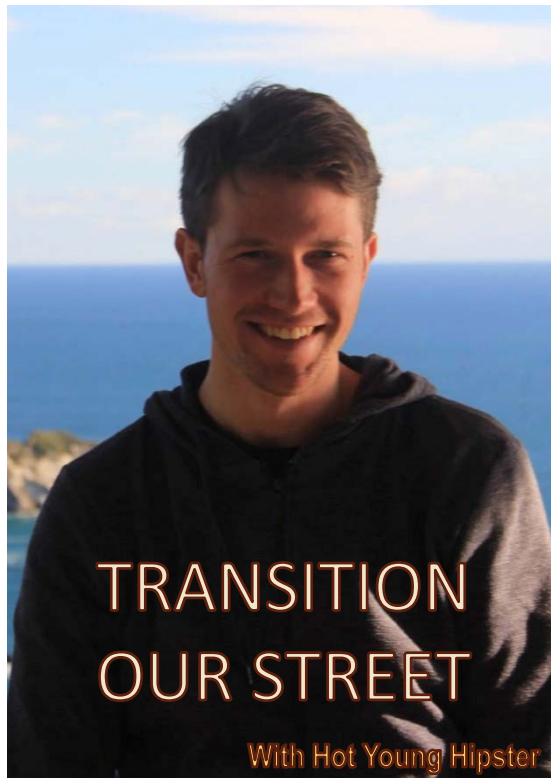


# 7. Transition

- Transition Streets creates increased property values and increased revenues and the learning needed for the next project



# Conclusion: Transition Brainstorm Result



tvnz  
Thursdays  
7:00pm

