

exchange space vs movement space

Big Picture

Which is better economically?

Transportation influences the pattern of urban development

High Transport Focus
 - High density, high value, high quality
 - High quality, high value, high density

Property Value Modelling

Further research:
 - Walkability trends with an integrated
 - Land use and transportation
 - Economic indicators
 - Spatial analysis and modeling
 - Walkability data

Space is Money
 The economic case for walkable settlements in New Zealand

Dr. Andrew Gordon
 Auckland Business College

Conclusions

Other and future benefits of free bikes
 - The benefits of free bikes are in New Zealand
 - Free bikes are a good investment
 - Transport planning for potential benefits received
 - Walkability trends with an integrated
 - Land use and transportation
 - Economic indicators
 - Spatial analysis and modeling
 - Walkability data

Benefits

Parking
 Infrastructure
 Health

Other benefits

Benefit Assessment Tool

Space is Money

The economic case for walkable settlements in New Zealand

Julie Anne Genter
McCormick Rankin Cagney



NZTA:
Valuing the Health Benefits of Active Modes
Valuing Urban Design
The Economic Impact of Urban Form
The Business Case for Walking & Cycling



NZTA:

Valuing the Health Benefits of Active Modes

Valuing Urban Design

The Economic Impact of Urban Form

The Business Case for Walking & Cycling

Local Government:

Parking strategies/reports for Waitakere, Franklin, Auckland City,

Hamilton City, Rotorua, South East Queensland -- Gold Coast,

Sunshine Coast, Logan City, Adelaide

exchange space vs movement space

Big Picture

Which is better economically?

Transportation influences the pattern of urban development

High Transport Focus
highlighting "best practice" and "best of class" cases

Property Value Modelling

Further research
- walkability trends, with an emphasis on local government
- economic indicators
- social indicators and community well-being data

Space is Money

The economic case for walkable settlements in New Zealand

Dr. Andrew Gordon
Director of Research, Land Use Research Centre

Key findings:
- Walkable settlements are more economically productive
- Walkable settlements are more socially inclusive
- Walkable settlements are more environmentally sustainable
- Walkable settlements are more resilient to climate change

Conclusions

Other and future benefits of walkability
The benefits of walkability are not limited to the economic and social benefits
Transportation planning for pedestrian-friendly environments
Walkability is a key indicator of urban quality
Walkability is a key indicator of urban quality
Walkability is a key indicator of urban quality

Benefits

Parking
- Reduced parking demand
- Increased parking efficiency
- Reduced parking costs

Infrastructure
- Reduced infrastructure costs
- Increased infrastructure efficiency
- Reduced infrastructure maintenance costs

Health
- Increased physical activity
- Reduced health care costs
- Increased quality of life

Other benefits
- Increased social cohesion
- Increased community safety
- Increased environmental quality

Benefit Assessment Tool

The Benefit Assessment Tool is a web-based tool that allows users to assess the benefits of different urban planning scenarios. It includes a user-friendly interface, a comprehensive database of benefits, and a flexible reporting system.

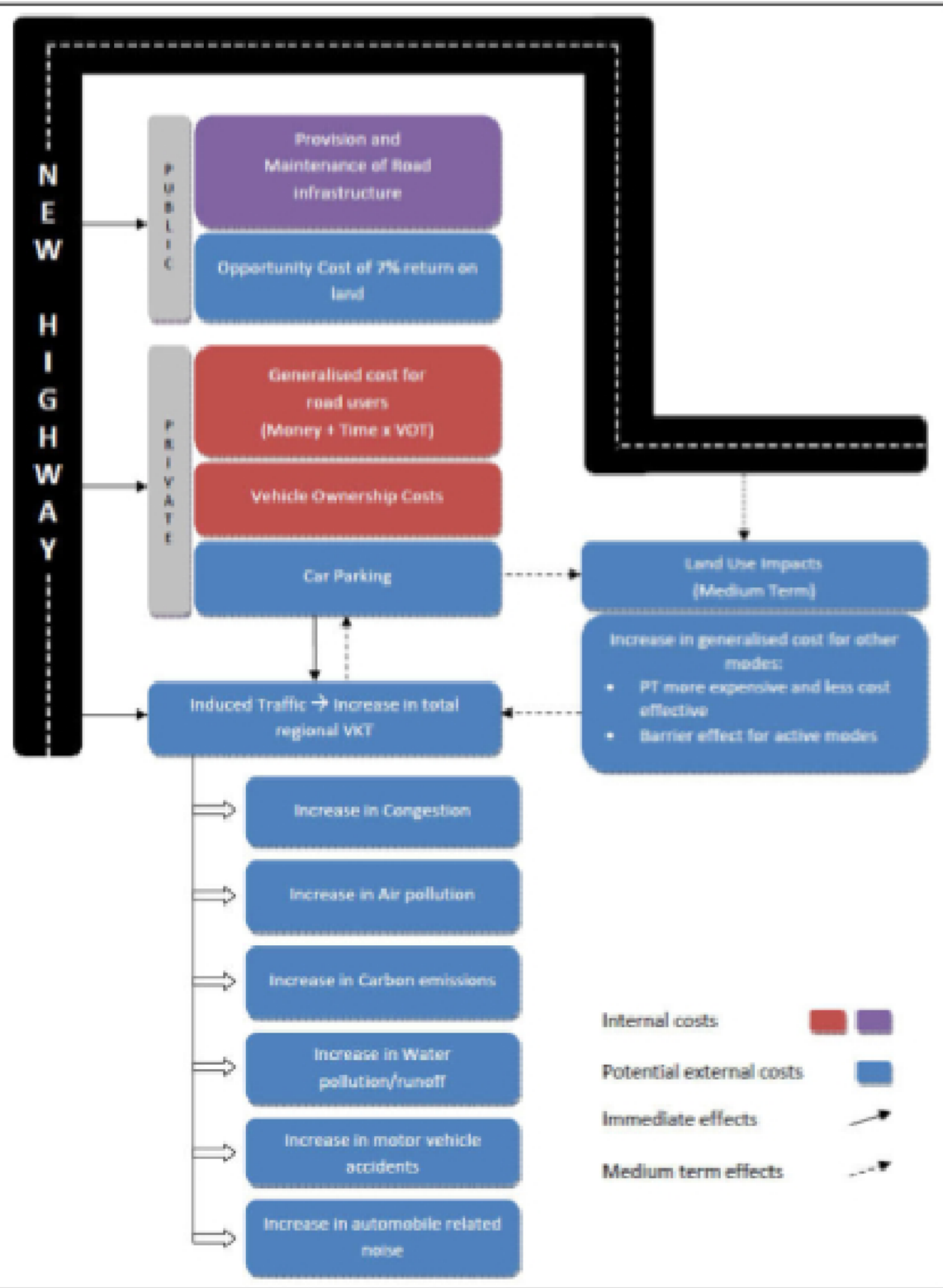
How could it be economically efficient for 85% of the population to need a 2-tonne imported vehicle, fuelled by imported energy that is subject to fluctuating prices, to go about their daily business?

Especially when they need to store their vehicle at all their destinations

Especially when they need to store
their vehicle at all their destinations

Transportation engineering and urban planning has artificially subsidised
an environment that makes it cheaper and easier for households to use a
car and harder to do anything else...

But we are ALL paying too much for transport because of this.



Settlements : towns and cities

Humans come together in places where they can exchange goods, services, and ideas. This trend is increasing.

- 2007 more than 50% of world population living in cities
- More than 84% of New Zealanders live in urban areas

Human Settlements are complex systems

Transportation engineering and urban planning has artificially subsidised an environment that makes it cheaper and easier for households to use a car and harder to do anything else...

But we are ALL paying too much for transport because of this.



Settlements : towns and cities

Humans come together in places where they can exchange goods, services, and ideas. This trend is increasing.

- 2007 more than 50% of world population living in cities
- More than 84% of New Zealanders live in urban areas

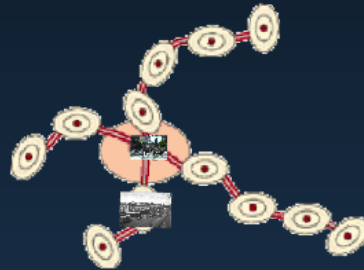
Human Settlements are complex systems

Auto City

Walking City



Transit City



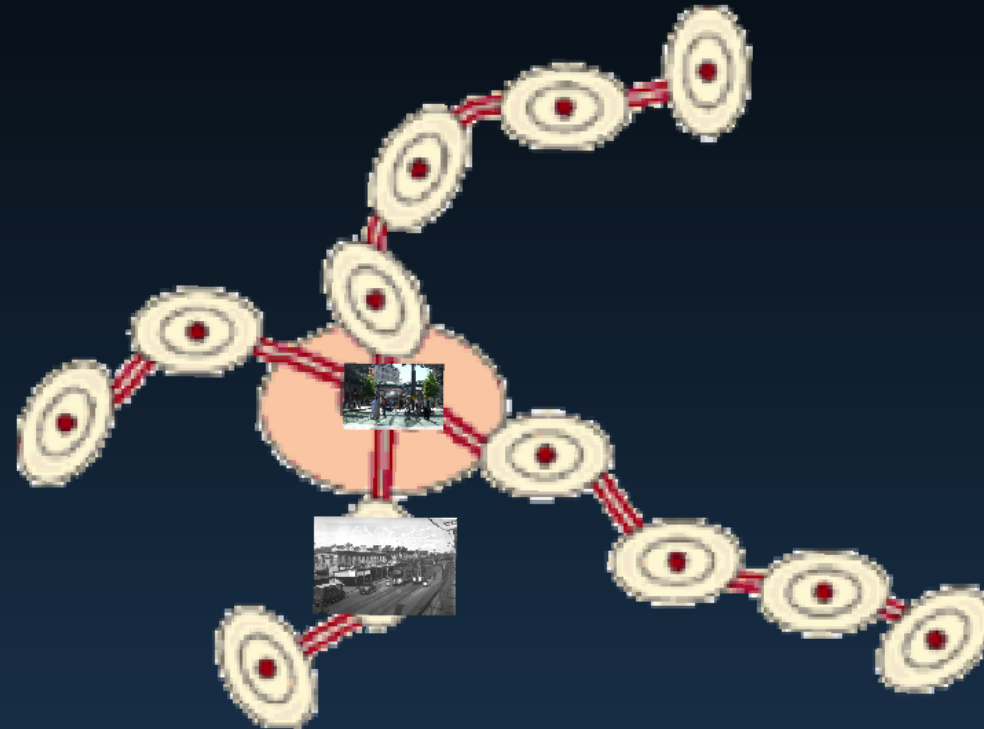
Walking City





ing City

Transit City







Auto City

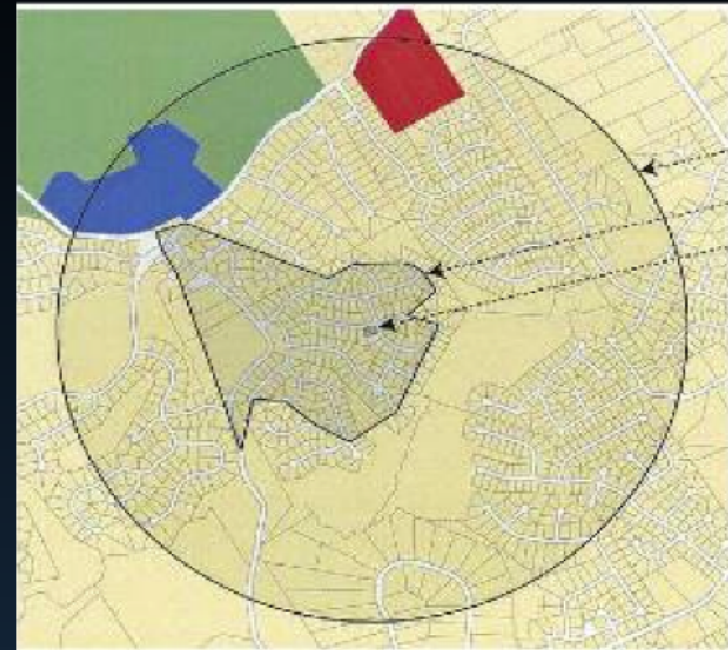
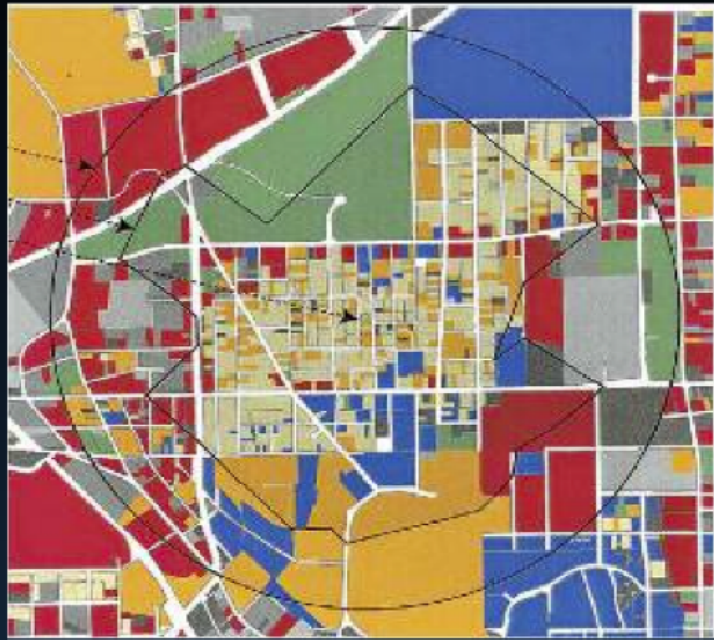






Transportation
influences the pattern
of urban
development

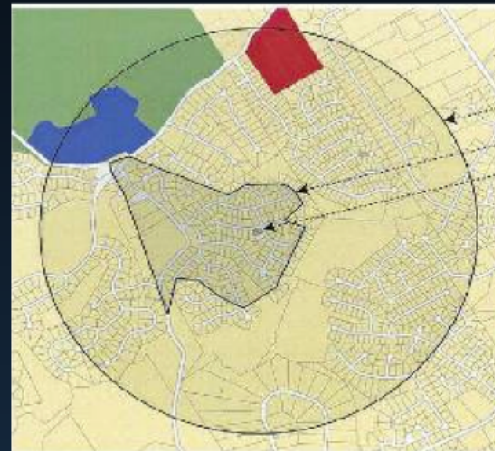
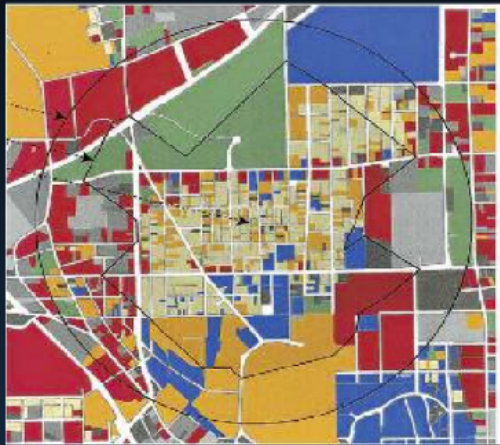
Which is better econom



Mobility versus Access

Planning that increases vehicle mobility can DECREASE access

Which is better economically?

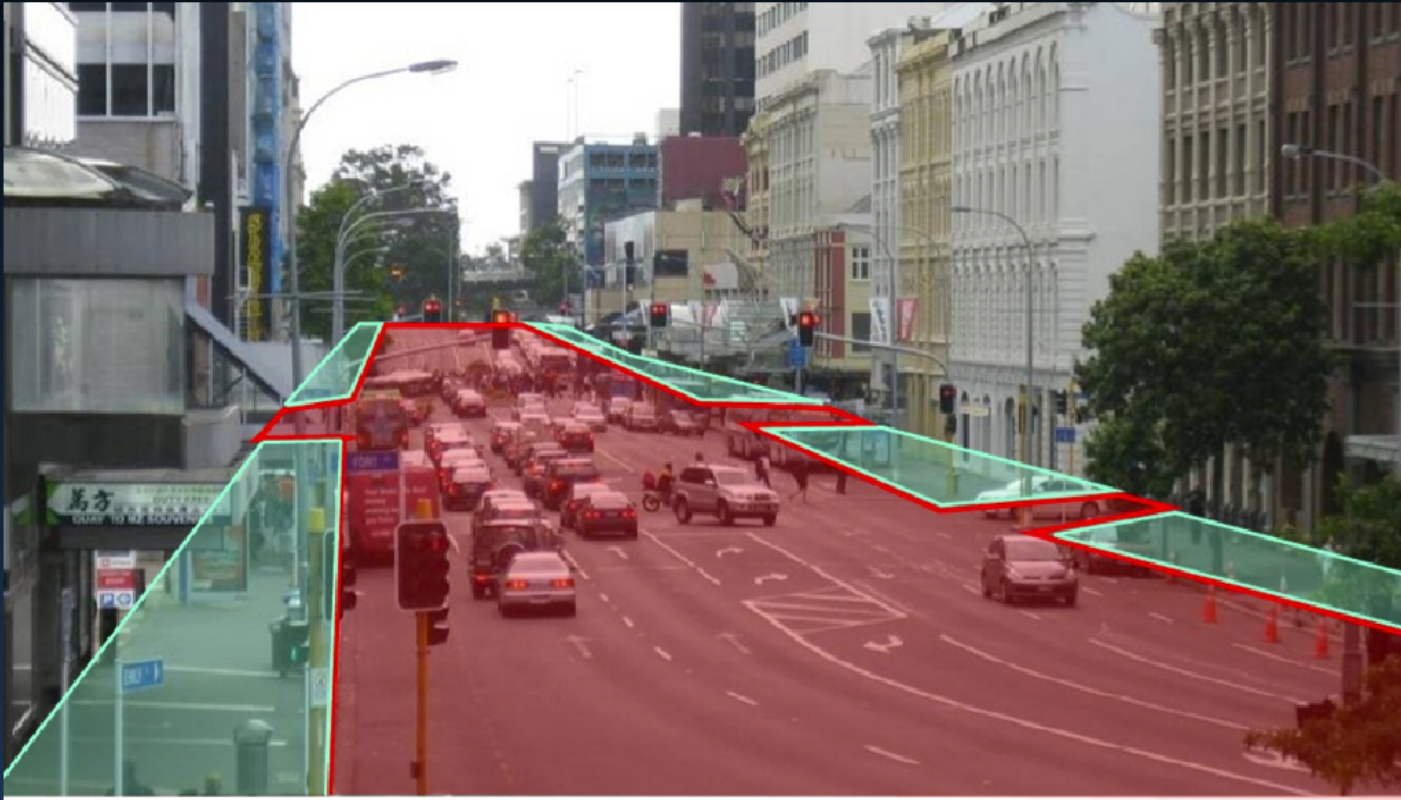


The main object of urban design is to maximise the benefits of exchange space, with the least amount of movement space.

Mobility versus Access

Planning that increases vehicle mobility can DECREASE access

exchange space vs movement space



movement space has a high cost as it reduces the amount of space available for exchange

PEDESTRIANS
GIVE WAY
TO
TRAFFIC





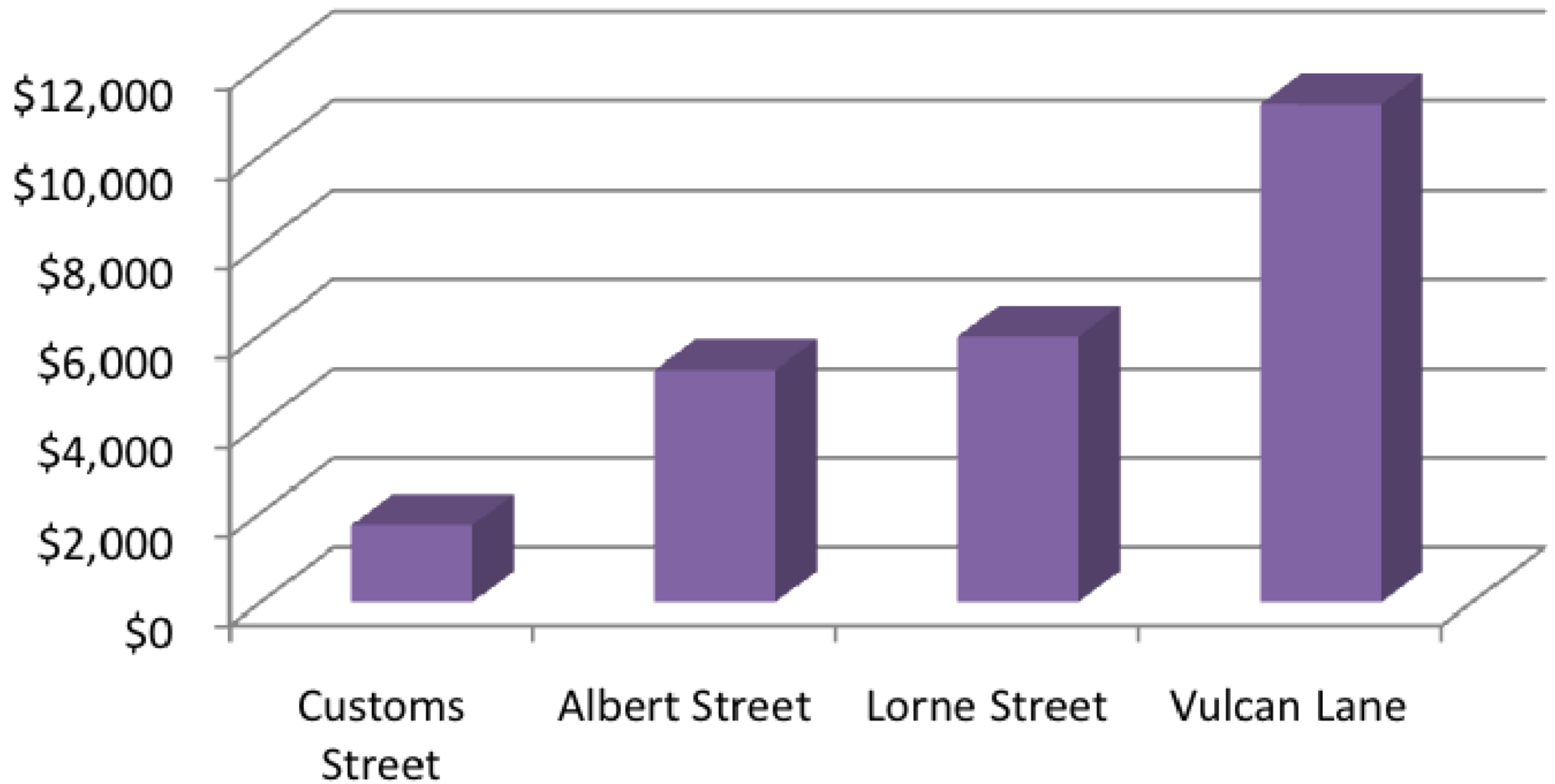
unbalanced to movement

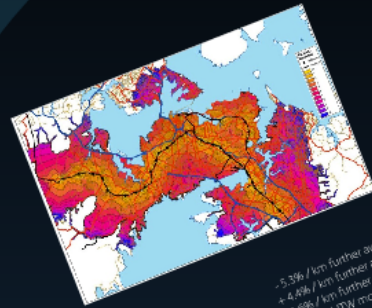


balanced exchange space



Land value [\$/sqm]





If walking and cycling mode share were to increase to 10%, would be worth \$10,000 per property.

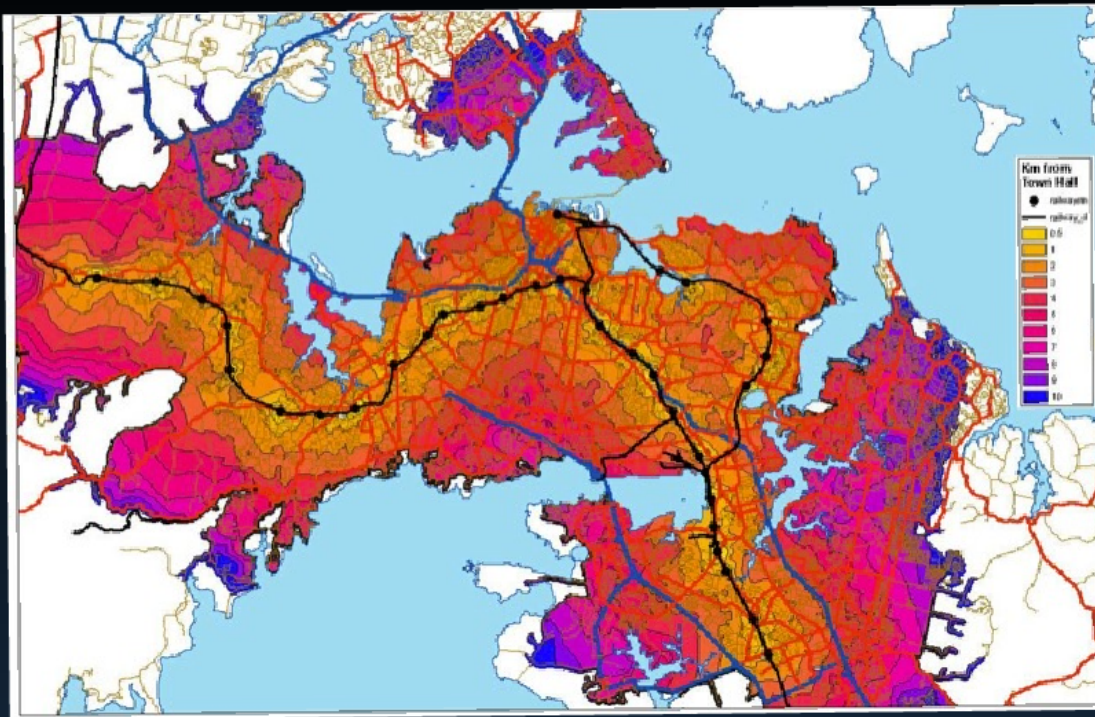
Distance to CBD
Distance to motorway junction
Distance to beach
Active Mode Friendly

-5.3% / km further away
+4.6% / km further away
-1.69% / km further away
+0.92% / 1% mode share

Property Value Modelling

Further research:

- verify Active Friendly with on-the-ground urban design assessments
- Expand model to include public transport accessibility and journey to work mode share



If walking and cycling mode share were to increase to 10%, would be worth \$10,000 per property.

Distance to CBD

- 5.3% / km further away

Distance to motorway junction

+ 4.4% / km further away

Distance to beach

- 1.6% / km further away

Active Mode Friendly

+ 0.92% / JTW mode share

Further research:

- verify Active Friendly with on-the-ground urban design assessments
- Expand model to include public transport accessibility and journey to work mode share

Benefits

Parking



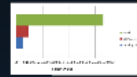
\$10b a year?

Minimum Parking Requirements

District plan rules force there to be an oversupply of parking

This is the single biggest subsidy to car trips - and creates an environment that is inhospitable to walking

Prohibit new car trips with a 10% increase in parking fees from existing
Prohibit new development with a 10% increase in parking fees from existing
Prohibit new development with a 10% increase in parking fees from existing
Prohibit new development with a 10% increase in parking fees from existing



Prohibit new development with a 10% increase in parking fees from existing



Infrastructure

Government

more than 1/4 of local govt budget



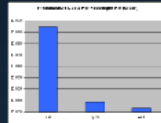
The Basics

Current methods of estimating cost effectiveness of infrastructure rely on average cost per user and assume constant increase in vehicle trips.

They don't take the amount we spend on a transport mode by the number of people using that transport mode.

But what if we consider first principles?

For a 3km trip, what is the cost per maximum possible user for each mode?



Environmental

10% of urban population in flood zone

Water

Over 1000km² of wetlands

40%

Health

Direct & Public Costs

- Cardiovascular Disease
- Cancer
- Diabetes
- Dementia



Valuing the Health Benefits of Active Modes
\$3,100 per year

Other benefits

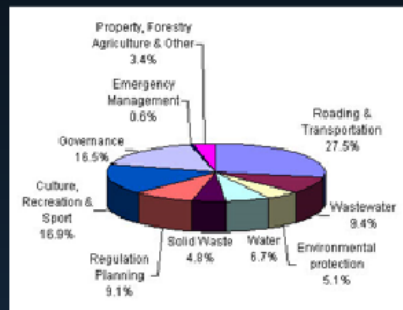
Difficult to Quantify

- GDP – reduce imports
- Employee productivity
- Crime & social cohesion

Infrastructure

Government

more than 1/4 of local govt budget



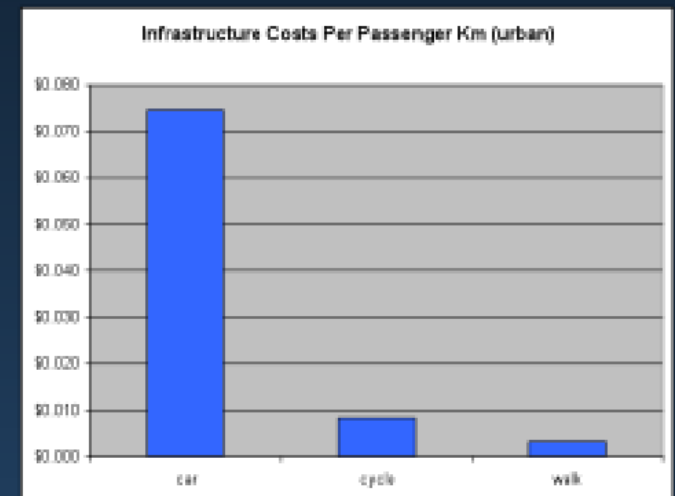
The Mistake

Current methods of estimating cost effectiveness of infrastructure rely on average cost per user and assume constant increase in vehicle trips.

They divide the amount we spend on a transport mode by the number of people using that transport mode.

But what if we consider from first principles?

For a 3km trip, what is the cost per maximum possible user for each mode.



The Mistake

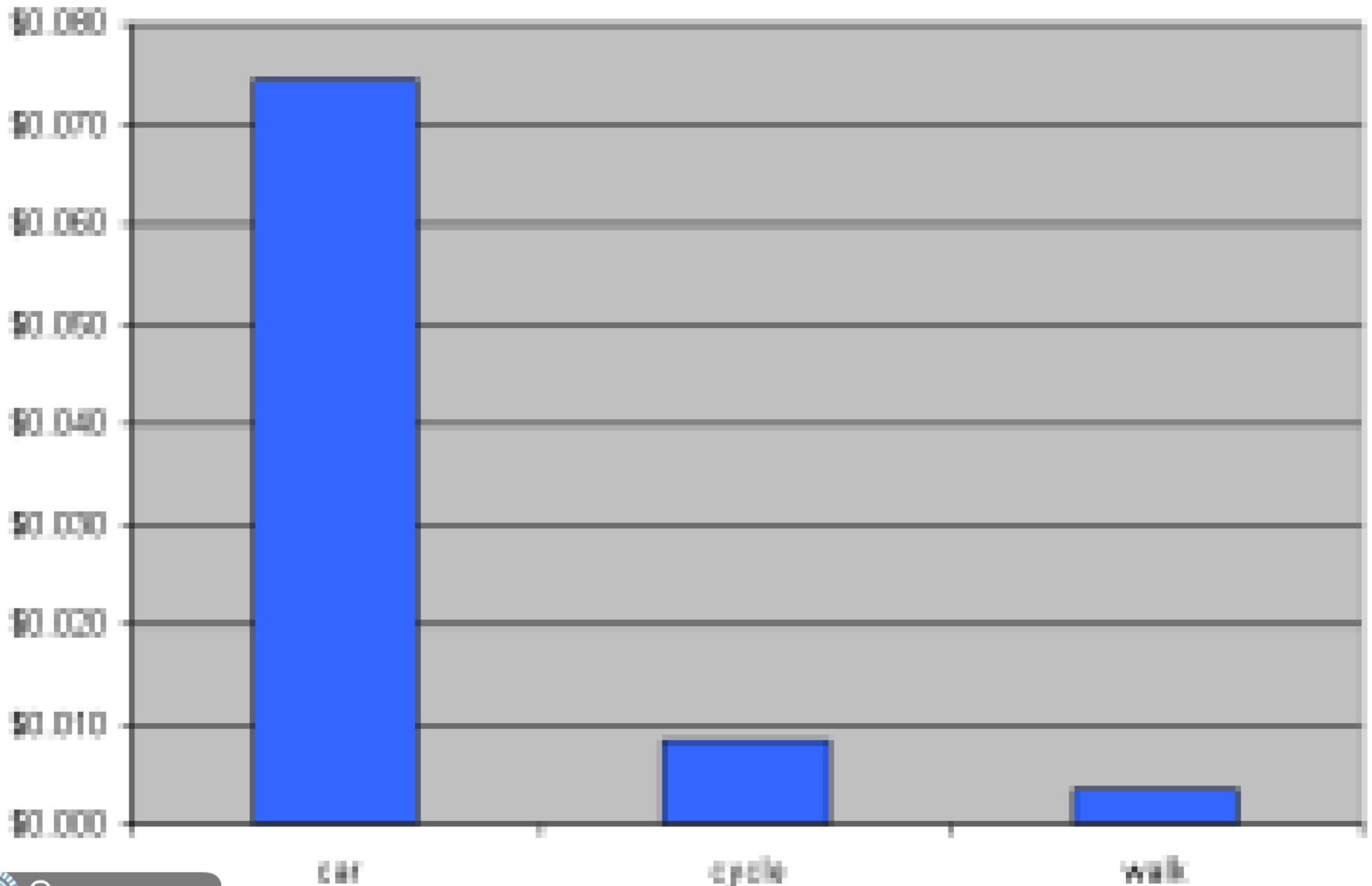
Current methods of estimating cost effectiveness of infrastructure rely on average cost per user and assume constant increase in vehicle trips.

They divide the amount we spend on a transport mode by the number of people using that transport mode.

But what if we consider from first principles?

For a 3km trip, what is the cost per maximum possible user for each mode.

Infrastructure Costs Per Passenger Km (urban)



Parking



\$10b a year?

Minimum Parking Requirements

District plan rules force there to be an oversupply of parking

This is the single biggest subsidy to car trips - and creates an environment that is inhospitable to walking

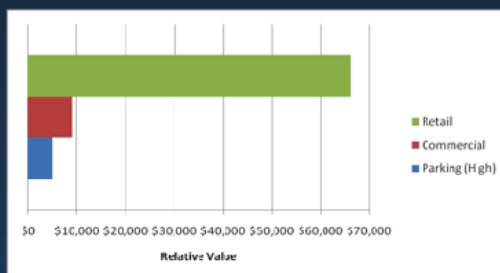
Many town centres have 20 - 30% of their valuable land tied up in off-street parking.

It may be the single biggest trigger of resource consents.

Managing parking will require more council staff - but will be much cheaper than forcing developers to provide an oversupply.

We estimate that the BCR for parking reform and management is 30:1

The single most effective thing local govt can do to revitalise towns centres and achieve their transport goals.



Prezi.com

Properties without parking yield 15-60% more in rates for Councils, per sq/m, because their used more intensively





\$10b a year?

Minimum Parking Requirements

District plan rules force there to be an oversupply of parking

This is the single biggest subsidy to car trips - and creates an environment that is inhospitable to walking

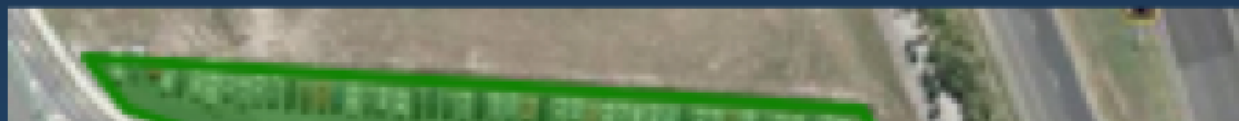
Many town centres have 20 - 30% of their valuable land tied up in off-street parking.

It may be the single biggest trigger of resource consents.

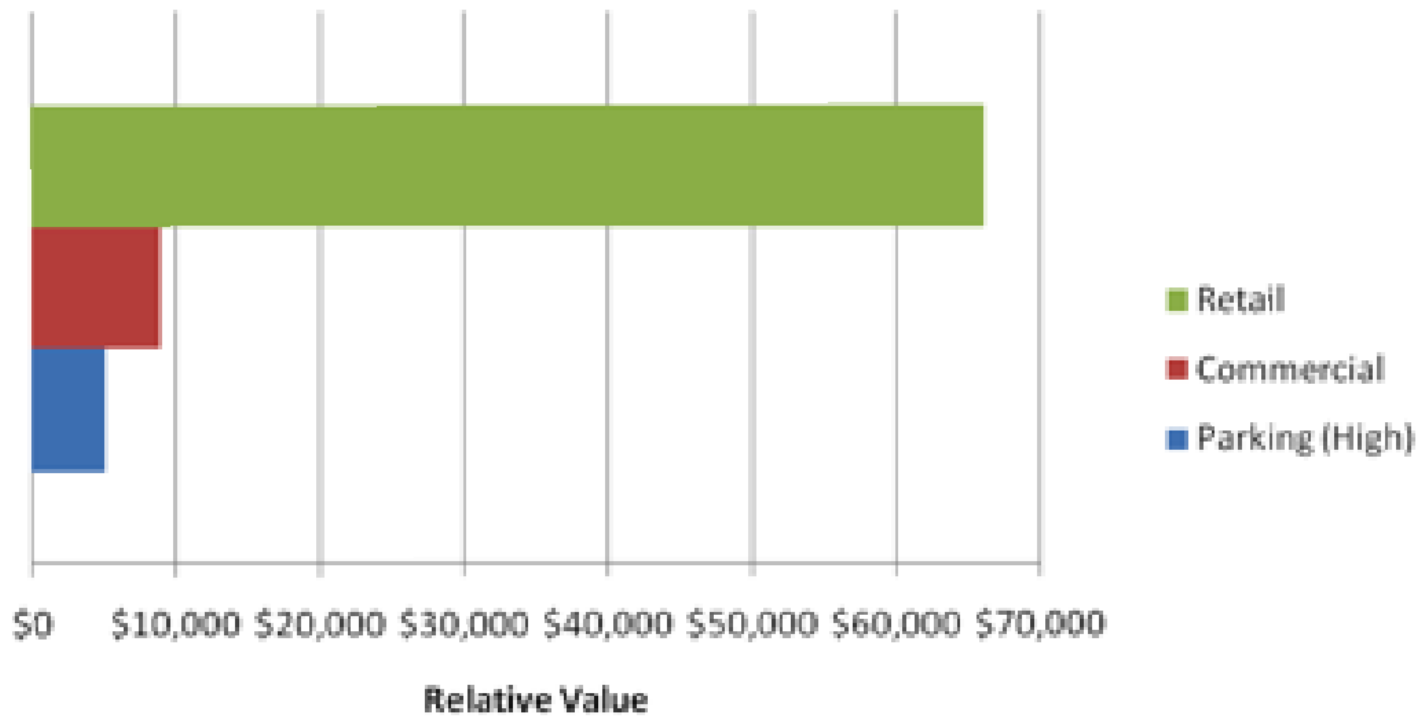
Managing parking will require more council staff - but will be much cheaper than forcing developers to provide an oversupply.

We estimate that the BCR for parking reform and management is 30:1

The single most effective thing local govt can do to revitalise towns centres and achieve their transport goals.







Properties without parking yield 15-60% more in rates for Councils, per sq/m, because their sites are used more intensively

Environmental

Air pollution -- major problem in Auckland

Water

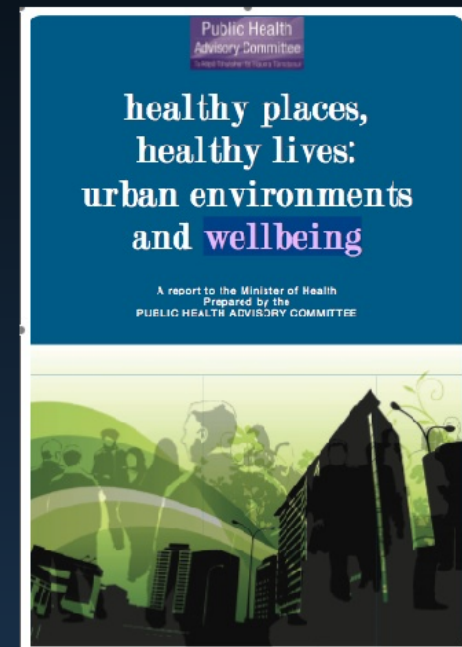
Greenhouse Gas Emissions

Noise

Health

Direct & Public Costs

- Cardiovascular Disease
- Cancer (colon, breast and lung)
- Type 2 diabetes
- Depression



Valuing the Health Benefits of Active Modes
\$ 3,100 per year

Other benefits

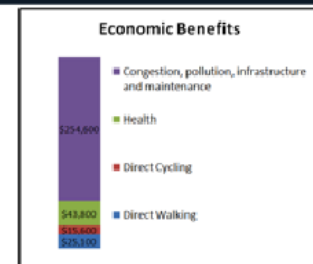
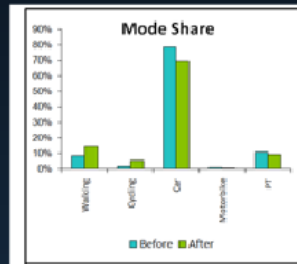
Difficult to Quantify

- GDP -- reduce imports
- Employee productivity
- Crime & social cohesion

Benefit Assessment Tool

Auckland City

	Walking	Cycling	Car	Motorbike	PT	Total
Before						
Daily Trips to Work	13,333	2,487	124,635	1,331	16,932	158,538
Mode Share	8.4%	1.6%	78.6%	0.7%	10.7%	100.0%
% increase after intervention						
	75%	150%				
After						
Daily Trips to Work	23,368	8,705	110,457	1,002	35,006	158,538
Mode Share	14.7%	5.5%	69.7%	0.6%	9.5%	100%



Daily Benefits	\$319,000
Annual Benefits	\$123,819,750
Per resident per year	\$781

- Uses values from Economic Evaluation Manual (NZTA)
- Estimates the benefits of shifting mode share
- Developed by Tim Hazledine at the University of Auckland

Auckland City

Before

	Walking	Cycling	Car	Motorbike	PT	Total
Daily Trips to Work	11,353	2,487	124,635	1,131	16,932	158,538
Mode Share	8.4%	1.6%	78.6%	0.7%	10.7%	100.0%

	Walking	Cycling
% increase after intervention	75%	250%

After

	Walking	Cycling	Car	Motorbike	PT	Total
Daily Trips to Work	23,368	8,705	110,457	1,002	15,006	158,538
Mode Share	14.7%	5.5%	69.7%	0.6%	9.5%	100%

Mode Share



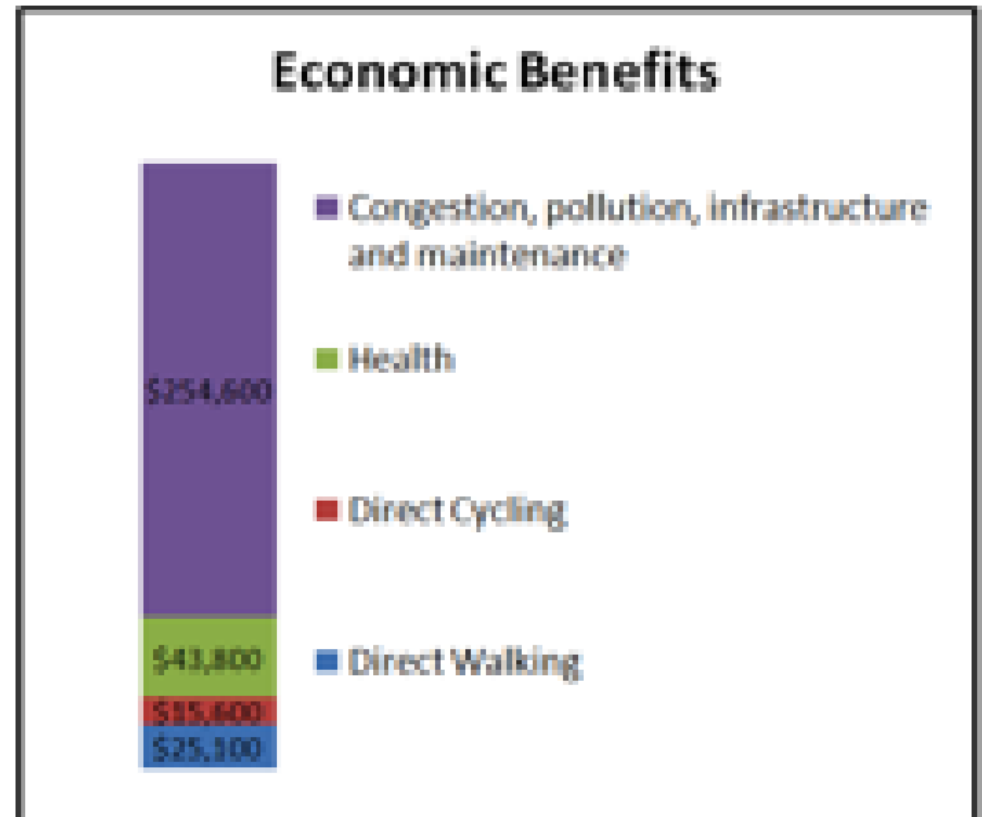
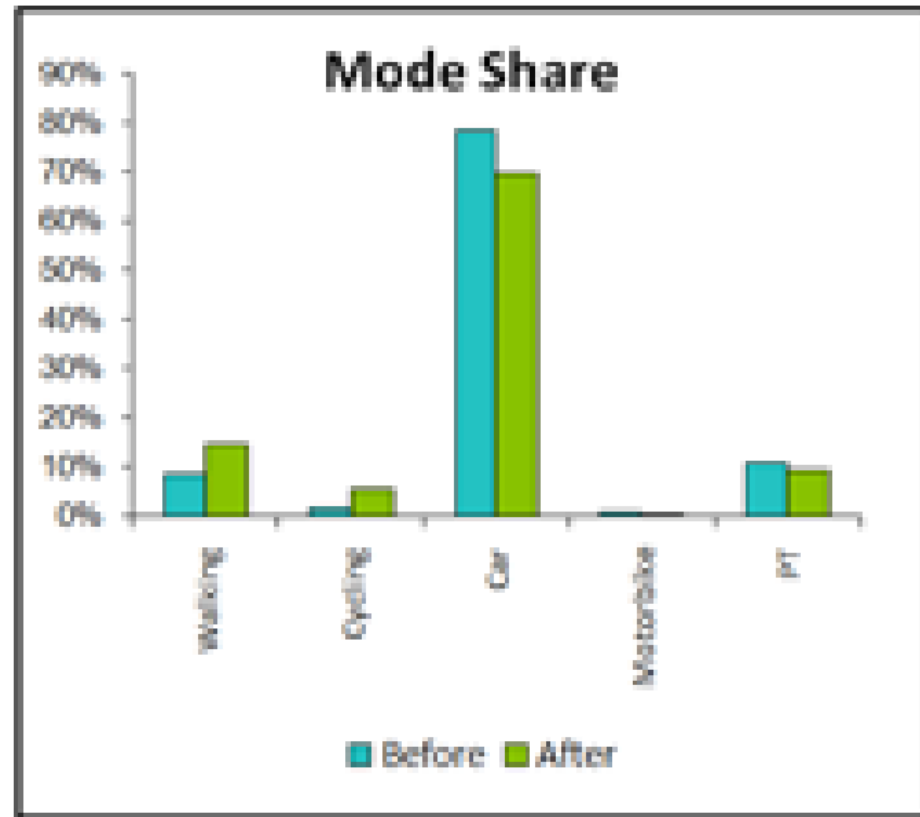
Economic Benefits



Daily Trips to Work

Mode Share

23,368	8,705	110,457	1,002	15,006	158,538
14.7%	5.5%	69.7%	0.6%	9.5%	100%



Daily Benefits **\$339,000**

Annual Benefits **\$123,819,750**

- Uses values from Economic Evaluation Manual (NZTA)
- Estimates the benefits of shifting mode share
- Developed by Tim Hazledine at the University of Auckland

Daily Benefits	\$339,000
Annual Benefits	\$123,819,750
Per resident per year	\$781

Cities and towns are places of exchange.

The less we spend on moving to achieve that exchange, the more we benefit.

Transport planning has prioritised privately owned vehicles even though they are very costly – take up lots of valuable space.

Walking and cycling settlements will be great for New Zealand, but we need radical policy and funding changes at the local and central govt level to achieve them