

The Business Case for Walking



COUNTING WALKING
to
MAKE WALKING COUNT
in
AUCKLAND CITY CENTRE



Presented by Darren Davis,
Lead Transport and Land Use Integration Specialist, Stantec on behalf of
George Weeks, Principal Urban Designer – Transport and Land Use Integration
Auckland Design Office

Tāmaki Makaurau/ Auckland

Population 1.6 million or 33% of NZ's population

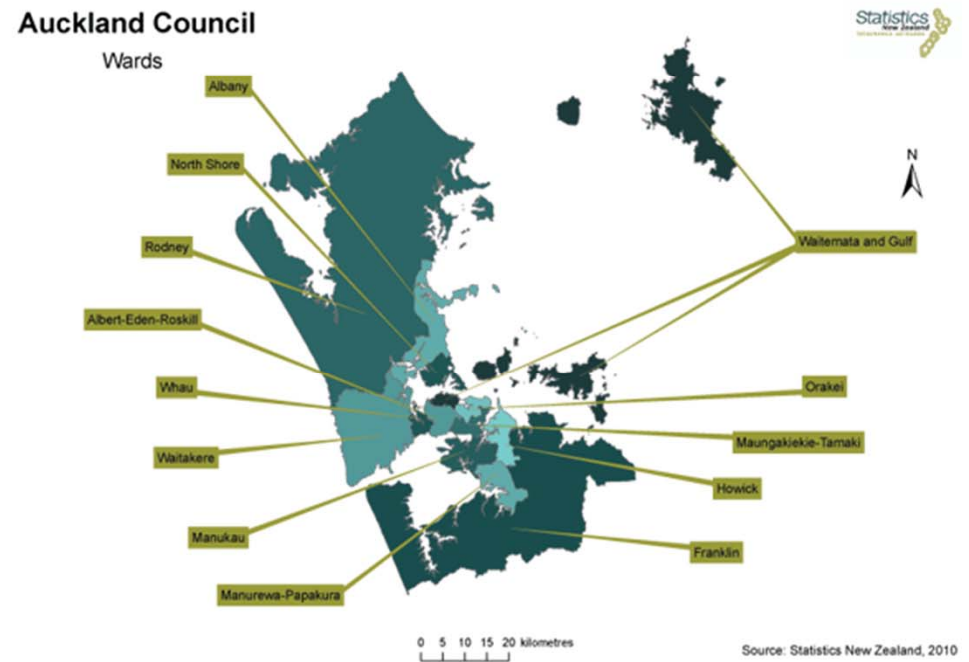
Projected to reach 1.9 million people by 2026.

Projected to have 60% of NZ's entire population growth to 2041.

Area 4,894 square kms.
1,102.9 square kms urban.

Unitary City: One local government combines local & regional functions.

Only 1.5 km wide at narrowest point.



Tāmaki Makaurau/ Auckland

City Centre

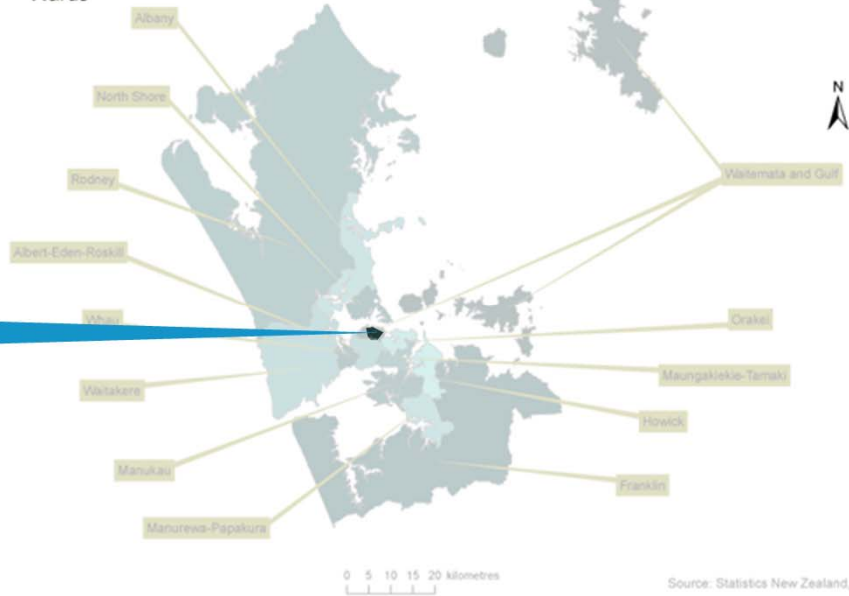
\$16bn

20%

7.4%




Auckland Council
Wards



110,000 city centre jobs 

 50,000 residents

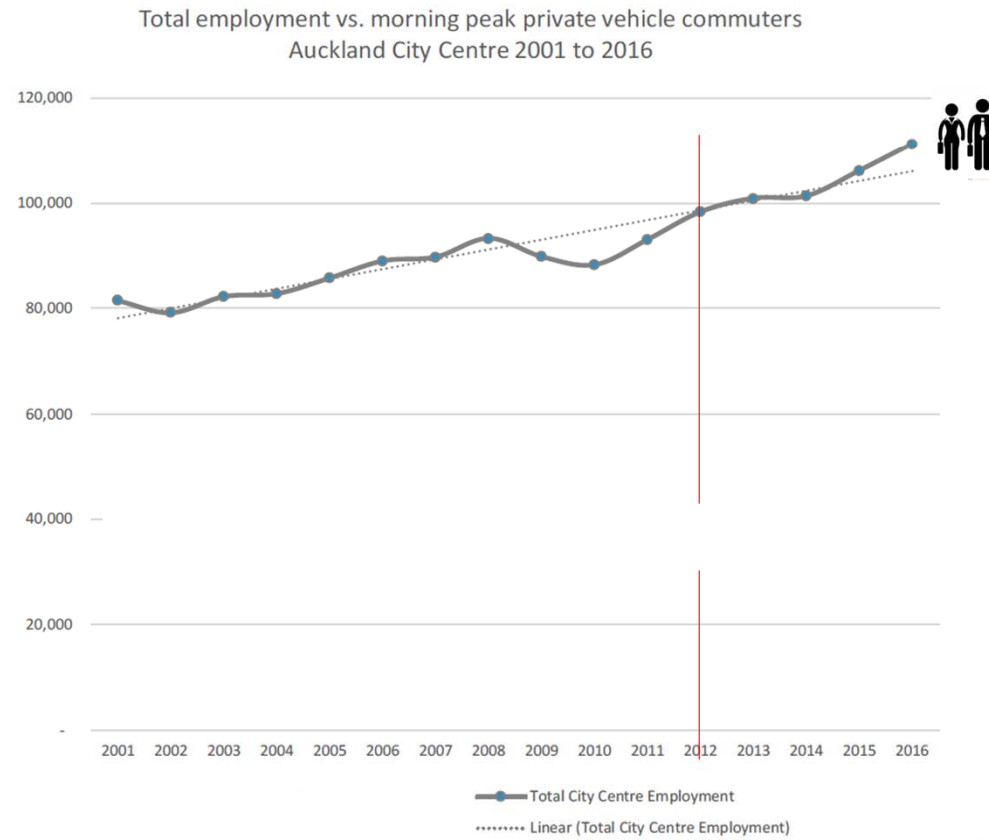
68,000 students  

 15,000 visitors

150,000 people

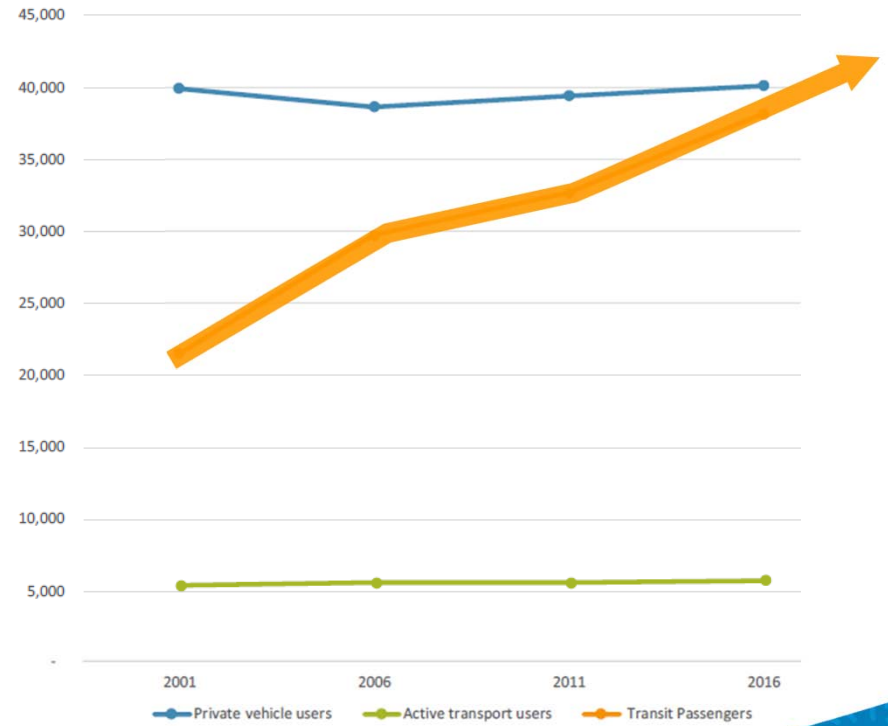
(conservative estimated total daytime population)

Jobs





Auckland City Centre Morning Peak Modeshare
People via Traffic, Active and Transit: 2001 to 2016





► INCREASE IN
WALKING

PEDESTRIANS ON QUEEN STREET
HAVE **DOUBLED** SINCE 2012*

+34% INCREASE IN PEDESTRIANS ACROSS
THE CITY CENTRE**

*Heart of the City pedestrian counters

**Public Life Survey 2010 vs 2015

Walking as a transport mode

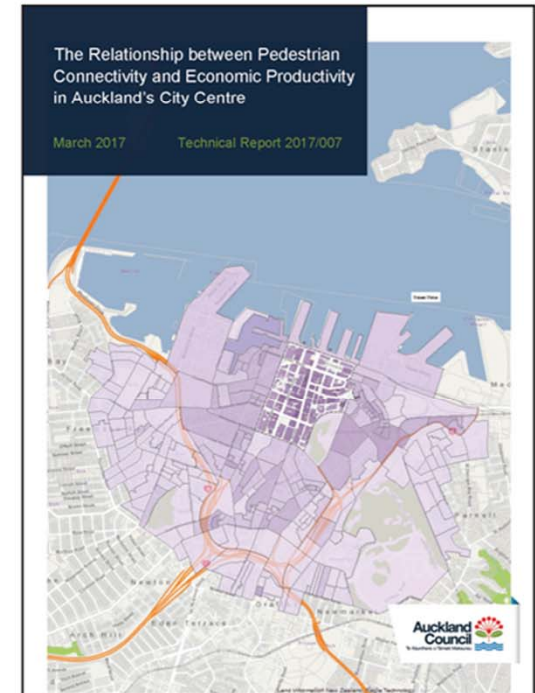
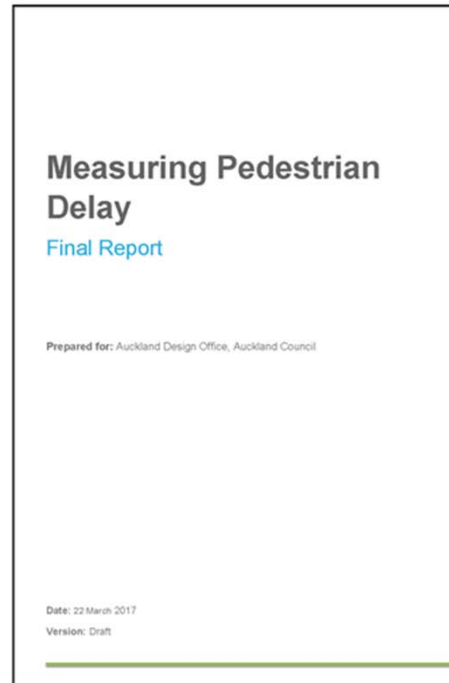


There are an estimated **500,000** internal walking trips per day
(100 times the walking trips captured in the screenline survey)



Counting Walking to Make Walking Count in Auckland City Centre

Three major pieces of work + estimating future walking (in progress)



Transport economics







MAYOR OF LONDON



roduction

Urban Realm Toolkit (VURT) has been developed by Transport for London (TfL) to provide evidence-based justifications for improvements in the public realm. In monetising the tangible benefits of better public realm, VURT enables them to be compared in equal terms with conventional transport and other benefits, both in terms of cost and when building the Business Case for implementation.

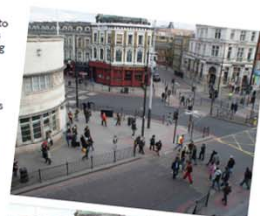
Development work has been in progress since 2010. The outputs that are the most useful are those from the three phases of related work undertaken between 2006 and 2016, which are also what users of the toolkit have identified as the most useful to the work they do, are:

• **Space** (which values people say they give to the public realm, in terms of quality); and
 • **Property** (which measures increases in residential prices).

During the consideration of the toolkit to date, VURT 2016 has been developed. It does so in a way that is user-friendly, and it directly feeds into the hands of those who use it. VURT 2016 supercedes VURT 2010 and replaced the previous version of the toolkit.

One of the ways in which users can benefit from the toolkit is through the use of low inputs are related to the toolkit. It is designed to explore their own experiences.

The toolkit is a user-friendly manual that provides a step-by-step guide to using the toolkit. It is designed to be used instead of a manual, and for evaluating the benefits of the toolkit.



VURT and PERS

The monetised urban realm value (MURV) is derived from a PERS-based comparison of Scenario streetscape quality. This is then converted into user willingness-to-pay (WTP) uplift which used PERS points differences in streetscape quality.

Two sets of streetscape attributes relate primarily to the experience of a street/space, while Space Attributes primarily to the experience of a space. Usually, scores for attributes are assessed for any given street. It is not essential to have high movement on a street where there is no specific attributes. For example, on a street where there is no specific attributes, it may be reasonable to be rigorous, bearing in mind that the scores are the basis for producing. Up to 11 Link Attributes can be assessed.

Space Attributes

Attributes relating to the space include: personal safety, comfort, quality of place, and opportunity for activity.

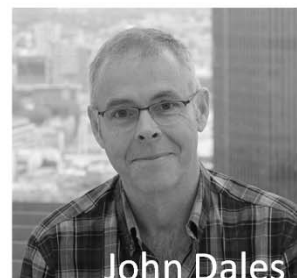
PERS Value Tables showing the WTP ppm and percentage uplift values used by VURT are presented in the Appendix. The Appendix also provides details of the core VURT attributes and enabling users to play with the toolkit, and understand how changes of different attributes can affect the overall value of a scheme. Understanding the impact that changes to different PERS attributes have on scheme value can be very helpful in two particular respects, described overleaf.

For User Benefits. VURT assigns a willingness-to-pay (WTP) amount in pence per minute (ppm) to each point on the scale for each attribute. A score of -3 is always assigned zero ppm, and increases in urban realm quality from -2 to +3 are assigned an increasingly positive ppm value.

For Property Benefits, the research found a robust relationship between an uplift in retail/ and residential property values and improvements in the following 4 of the 11 PERS Link attributes:

- lighting
- personal security
- quality of environment
- maintenance.

A given percentage uplift in residential prices and retail rateable values occurs for each PERS attribute. So, for example, if the uplift figure for one attribute is 1.2%, and the PERS score for that attribute goes from -1 in the Baseline case to +1 in the Scenario case (i.e. increases by two PERS points), the value uplift associated with that change is 2.4%.



John Dales



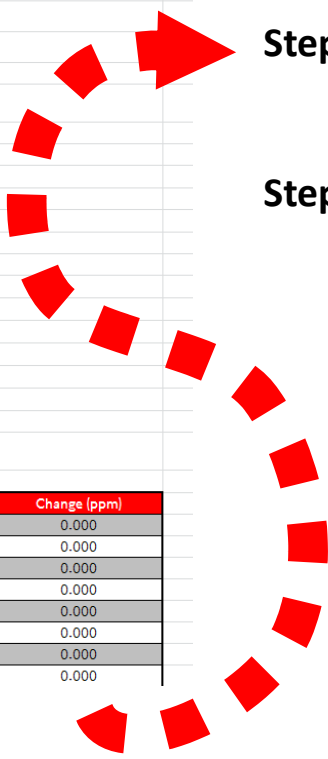
Valuing Urban Realm Toolkit



User Benefits - Step One



Scheme Name						
Section Number						
Base Input Data						
Pedestrians Moving		Baseline	Scenario	Change (S-B)		
Number (per hour)				0		
Average Walk Distance (m)						
Average Walk Speed (m/s)		1.33	1.33			
Static Users		Baseline	Scenario	Change (S-B)		
Number				0		
Average Dwell Time (mins)						
Time Period of Analysis						
Weekday Scaling Factor						
Annualisation Scaling Factor		0				
PERS Changes						
PERS Link Attributes	Baseline	Scenario	Change (S-B)	Baseline Value	Scenario Value	Change (ppm)
Effective width			0			0.000
Dropped kerbs			0			0.000
Obstructions			0			0.000
Permeability			0			0.000
Legibility			0			0.000
Lighting			0			0.000
Personal security			0			0.000
Surface quality			0			0.000



Step 1: Annual benefits

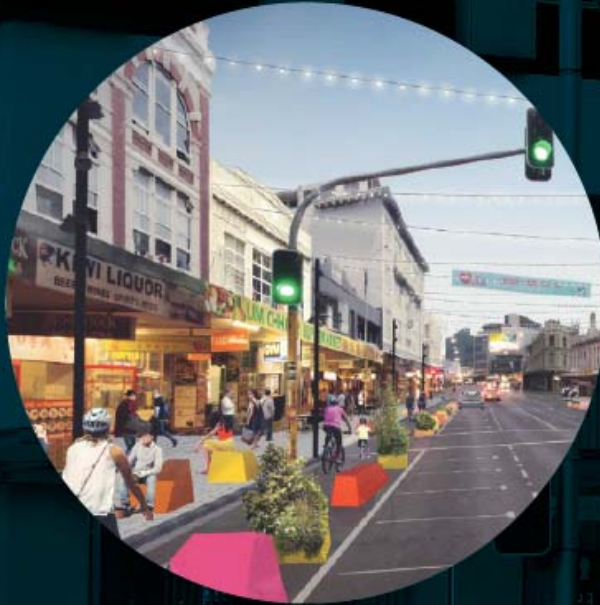
Step 2: Lifetime benefits

Auckland Case Studies

Boffa Miskell



- Queen Street
Future Light Rail
Transit Mall



- Karangahape Road
Cycleway Project
 - » Scenario 1 - Existing
Footpath Widths
 - » Scenario 2 - Widened
Footpaths



- O'Connell Street
Existing Shared
Space (2014)

Auckland Case Studies

Boffa Miskell



Queen Street

Wyndham and Victoria Streets

210m



Karangahape Road

Queen and Pitt Streets

195m



O'Connell Street

Shortland St to Freyberg Square

105m



Karangahape Road Scenario 1

- Retain existing footpath width
- 150% growth footfall
- NZ\$76,000 annual benefits
- NZ\$1,640,000 lifetime benefits

Boffa Miskell





Karangahape Road Scenario 1A

- Retain existing footpath width
- 320% growth footfall
- NZ\$73,000 annual benefits (-4%)
- NZ\$1,600,000 lifetime benefits

Boffa Miskell



What Does This Tell Us?

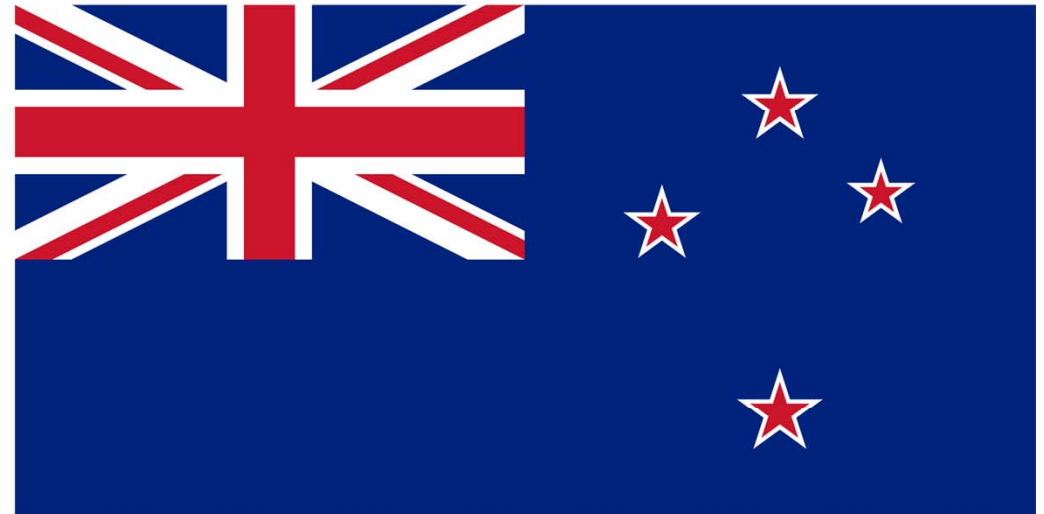
- Two main ways to add value to public realm:
 - » Growth in number of users
 - » Improve quality of user experience
- Measuring both allows us to add a value to both movement and place
- Able to differentiate between benefits to movement and place
- Able to differentiate relative value of design options

Transport for London
Valuing Urban Realm Toolkit 2016
User Guide
November 2016



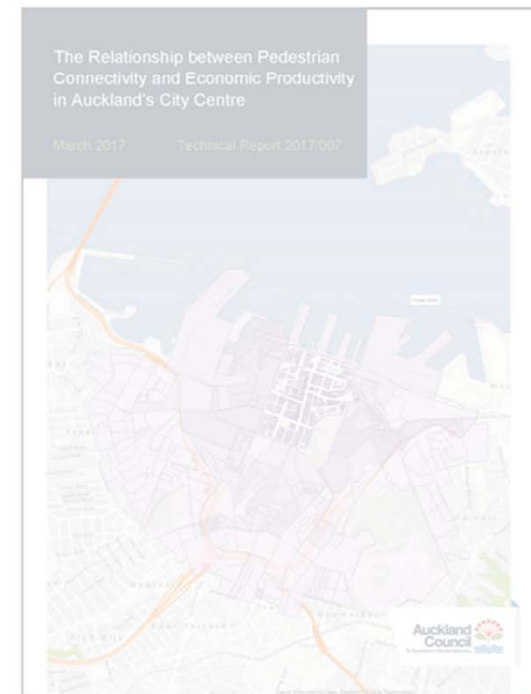
MAYOR OF LONDON

Transport for London 

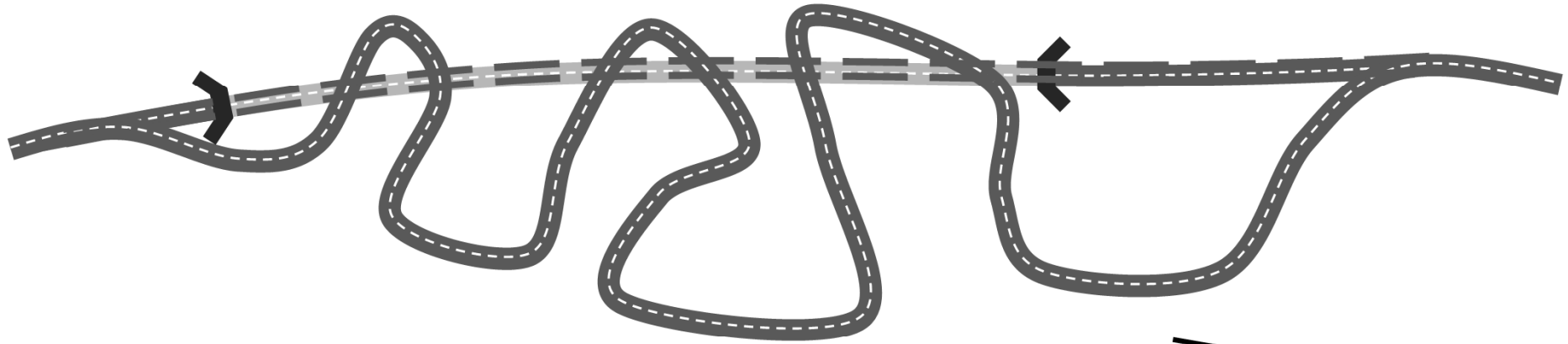


KiwiVURT

2. Measuring Pedestrian Congestion



Journey time savings



~~25 minutes~~
10 minutes

Transport assessment is largely based on the user benefits (or disbenefits) of **changes in travel time**

Delay measurement typically estimates **vehicle delay**...



2. Measuring Pedestrian Congestion



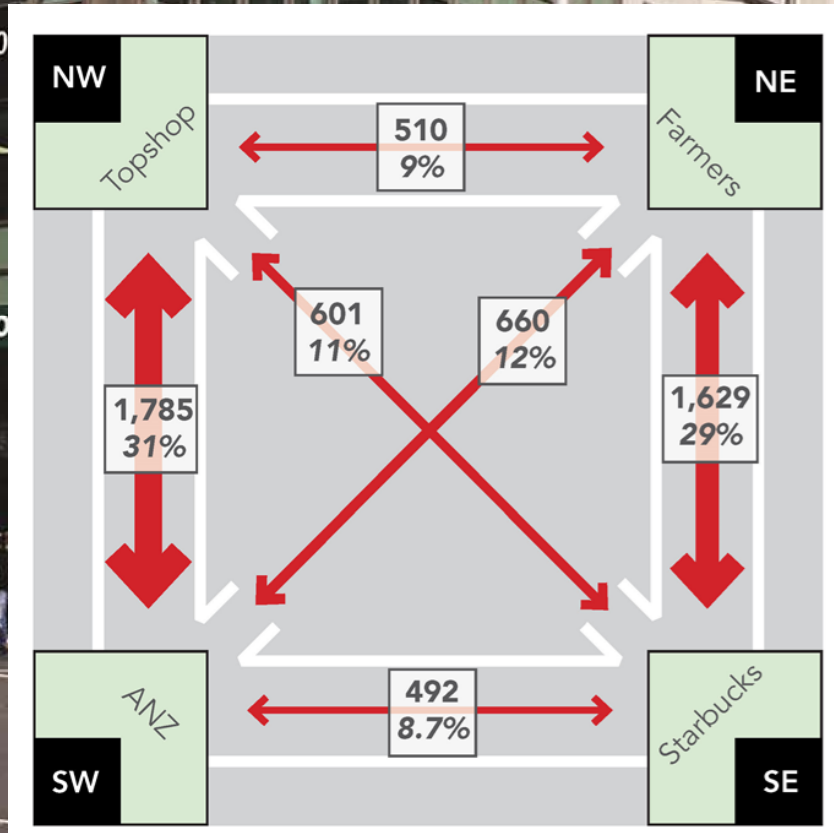
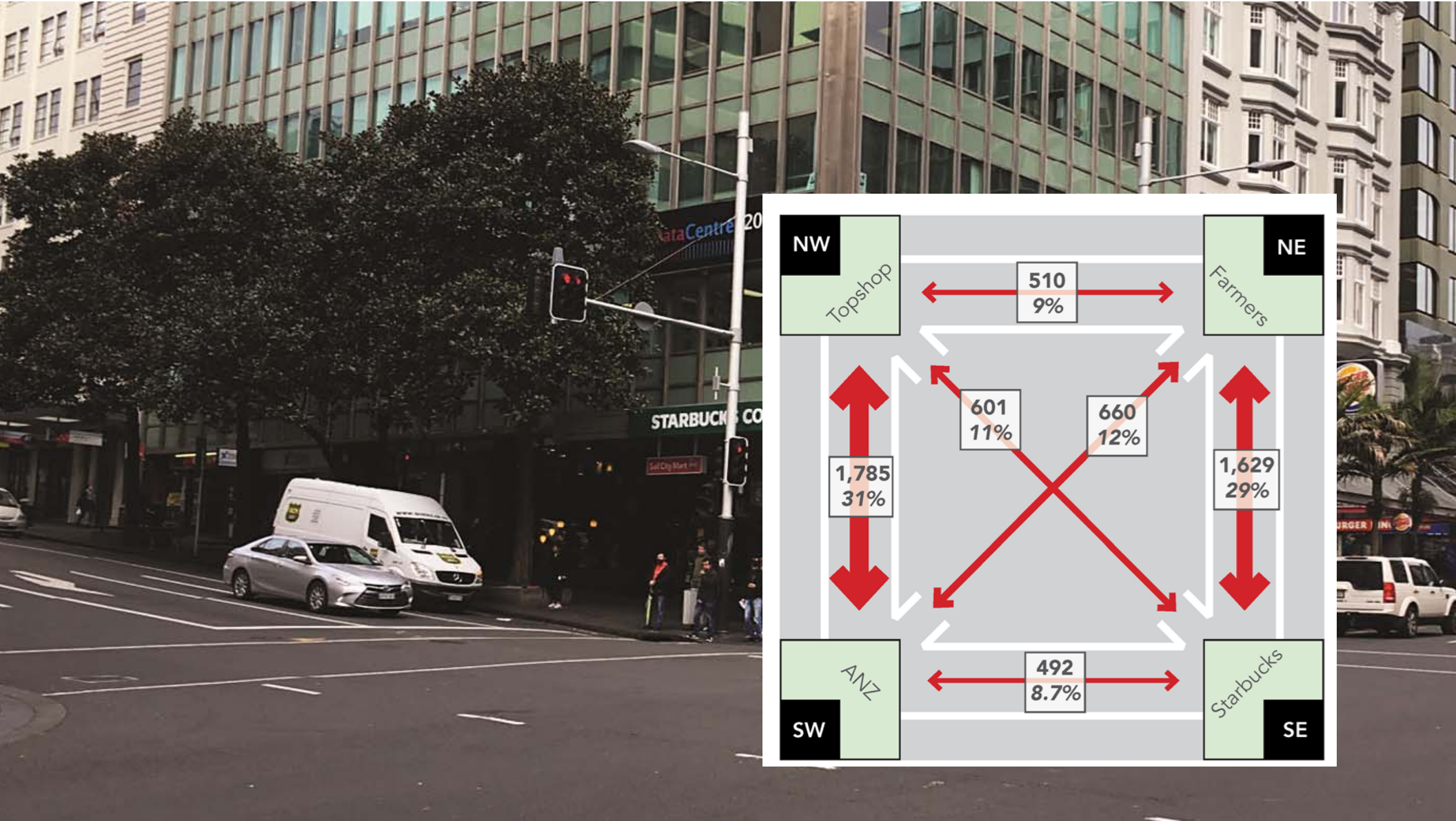
13x

*pedestrians as vehicles on
High Street all day*



4x

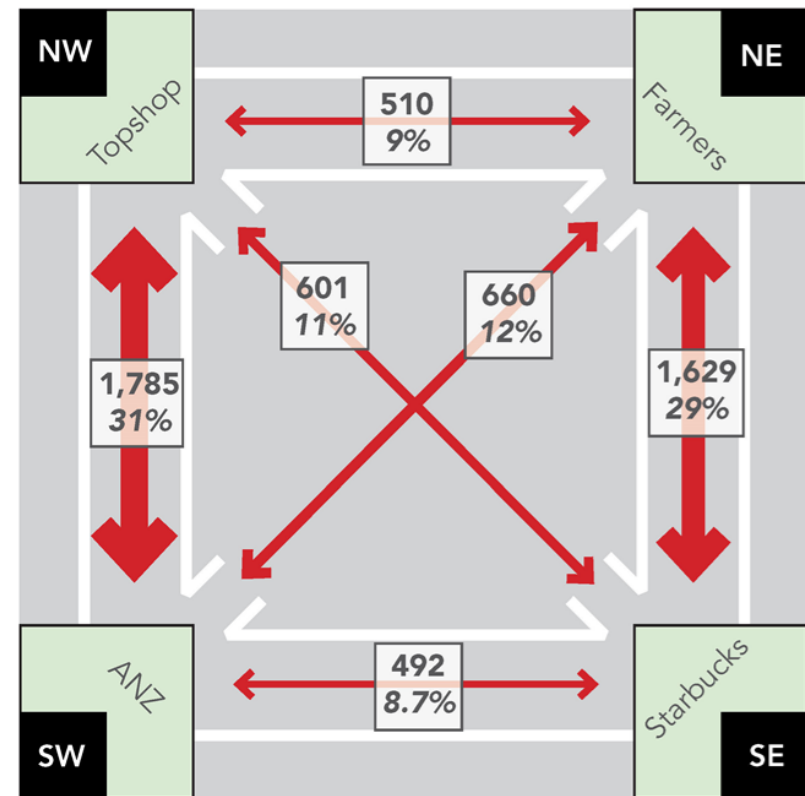
*pedestrians as vehicles on
Queen Street all day*



2. Measuring Pedestrian Congestion

- Over 7,700 pedestrians moved through the intersection in 1 hour
- 1,200 cars passed through the intersection in same hour
- Average delay per pedestrian 27 seconds
- 161,115 hours of annual delay to pedestrians
- Annual wasted time due to delay “costs” \$2.2 million
- NPV is \$36 million for free flow conditions*

*based on a 40 year period with 6% discount rate



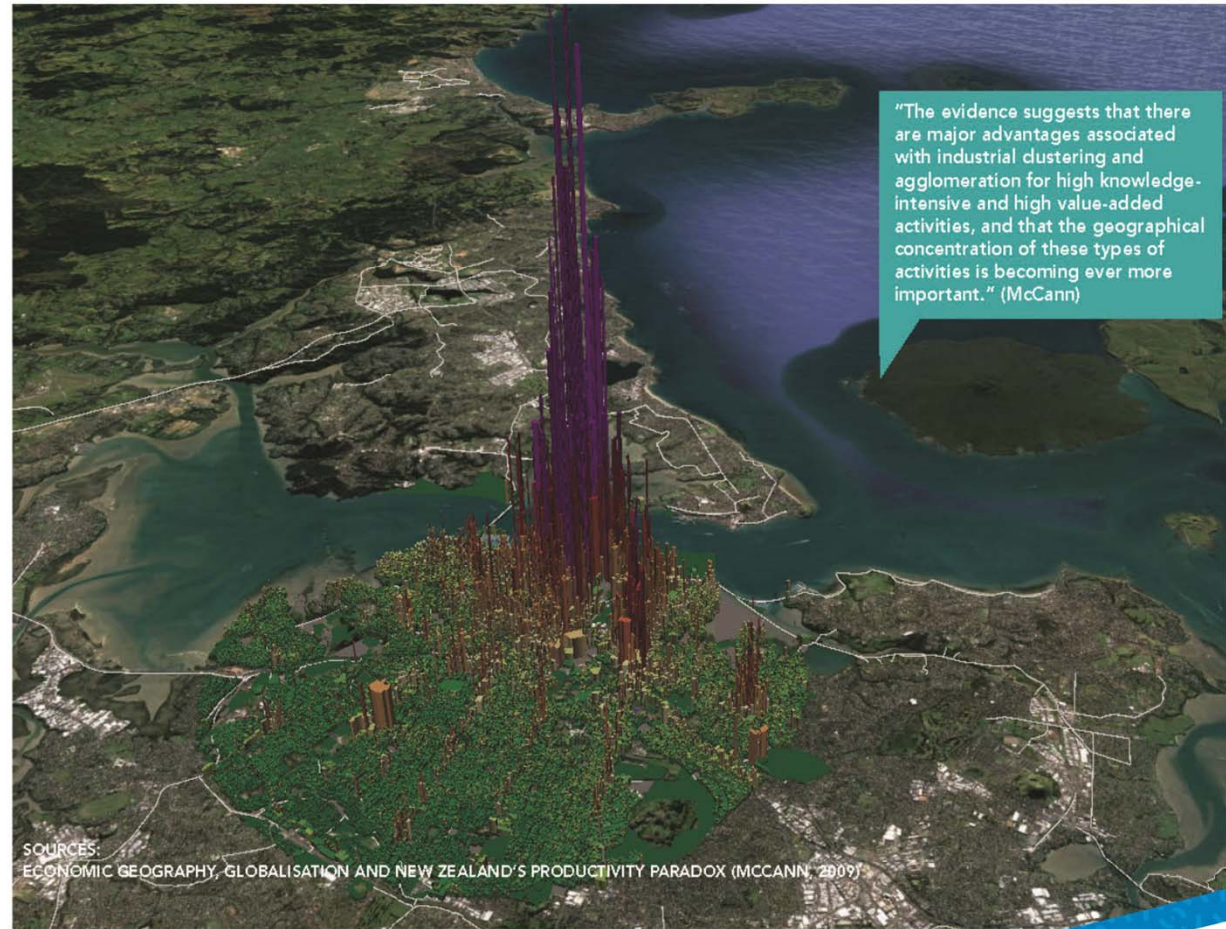
Cross Street Name	Intersection Type	Estimated Cost of Delay/Year
1. Quay Street	Barnes Dance, Midblock Crossing, Very High Ped Volumes.	~\$2M
2. Customs Street	Barnes Dance, T-Intersection, Very High Ped Volumes.	~\$2M
3. Fort Street	Barnes Dance, Midblock Crossing, High Ped Volumes.	~\$.5M
3. Shortland Street	Barnes Dance, T-Intersection Crossing, High Ped Volumes.	~\$.9M
4. Wyndham Street	Barnes Dance, T-Intersection Crossing, High Ped Volumes.	~\$.9M
5. Victoria Street	Barnes Dance, X-Intersection, High Ped Volumes.	\$2.2M
6. Wellesley Street	Barnes Dance, X-Intersection, High Ped Volumes.	~\$2.2M
7. Wakefield Street	Barnes Dance, T-Intersection, Med Ped Volumes.	~\$.5M
8. Mayoral Drive	Phased, X-Intersection, Med Ped Volumes.	~\$.7M
9. Karangahape Road	Phased, X-Intersection, Med Ped Volumes.	\$.7M

Annual ~\$11.7M

NPV = ~\$186M



Rates per m²



Drivers of Business
Location in the Auckland
CBD



gravitas

Research Report Prepared for
Auckland Council

23 November 2011

Gravitas Research and Strategy Limited
Level 12, Wellesley Centre,
44-52 Wellesley St, Auckland
PO Box 3802, Shortland St, Auckland
tel. 09 356 8842, fax. 09 356 5767
e-mail. info@gravitas.co.nz

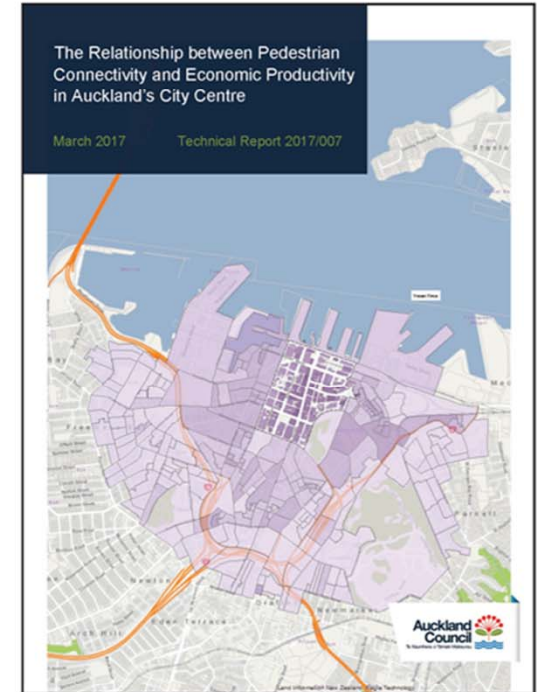
Fifty percent of our customers are corporate so being in the city is actually very good for us. Our first floor is sales and marketing. A lot of them can walk to their clients from here - and they do.

We want to be in the vibrant CBD where you're running into, bumping into your clients basically,

Transactions are most negotiated at meetings. That's why we all tend to be clustered together in the CBD, because we are interacting with one another all the time.



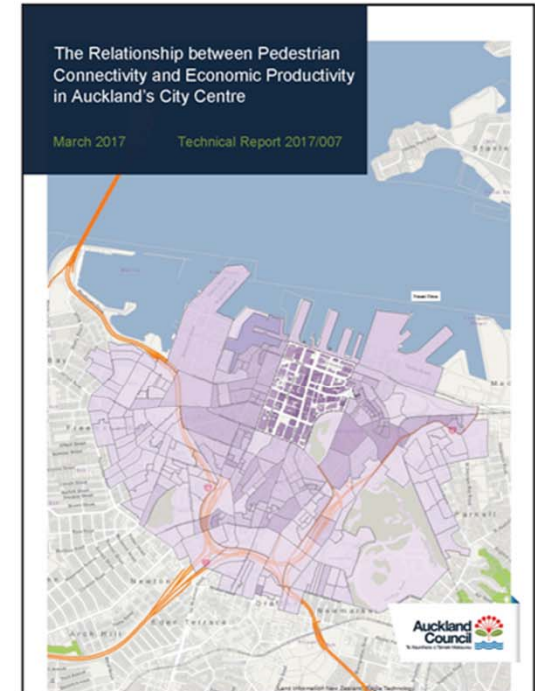
3. Productivity = $f(\text{Pedestrian Connectivity})$

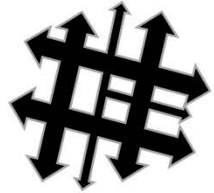


3. Productivity = $f(\text{Pedestrian Connectivity})$



- Personal networking
 - Platform for business
 - Exchange of ideas
 - Face-to-face contact
 - Proximity to clients
 - Spontaneous interactions
- = CONTRIBUTION TO PRODUCTIVITY





A pedestrian network was developed based on the existing road network in the study area.



Pedestrian links were assigned values based on their speed



'Network analyst software' was run to estimate the travel time between each origin and destination point.

Walking network within the study area



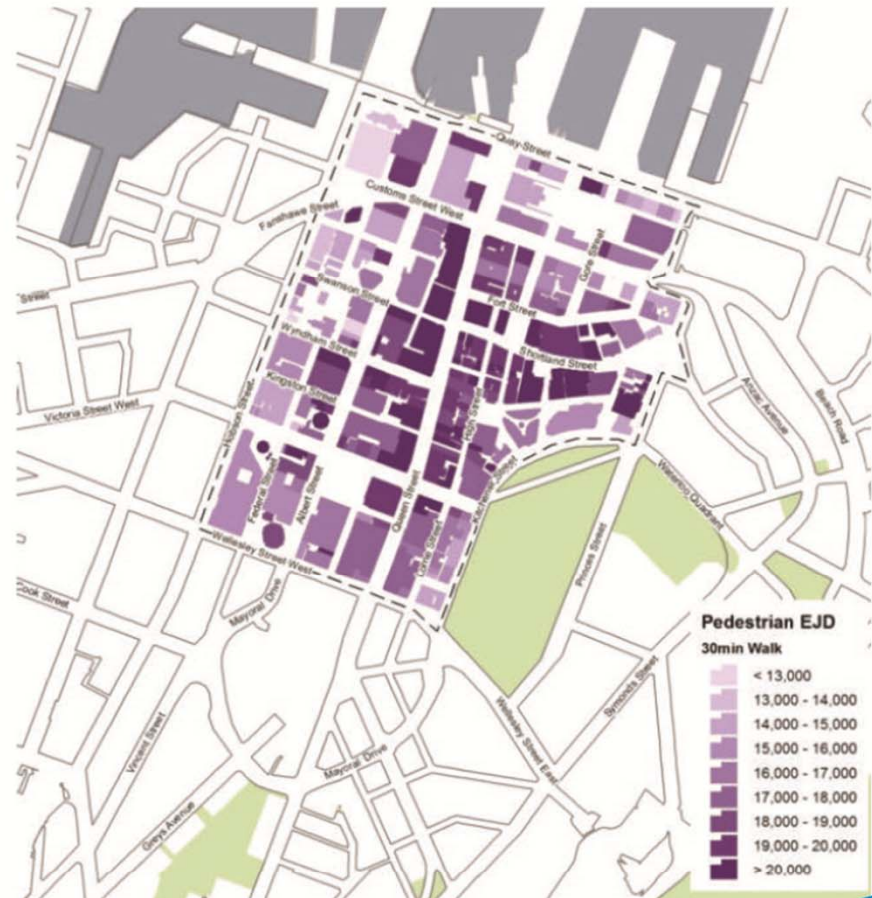
Pedestrian travel time matrices

COMBINED WITH

Detailed estimates of employment

= a measure of the Effective Job Density (EJD)
by walking in all buildings within the study area.

Agglomeration economics literature suggests a
positive and causal relationship between EJD
and productivity...



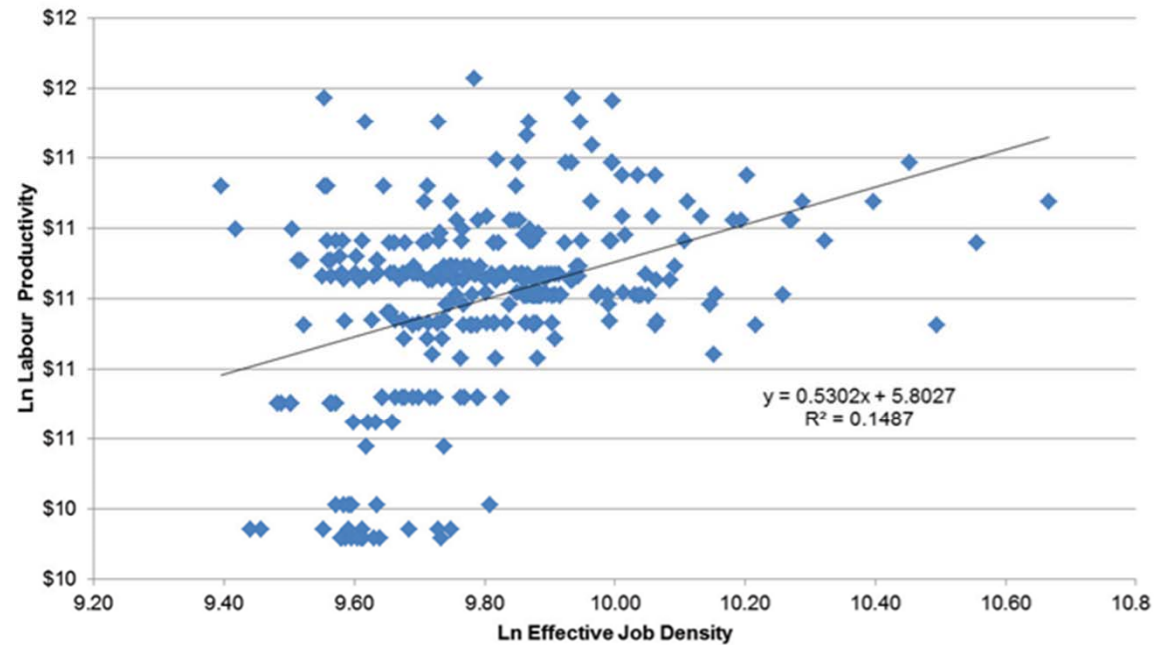
- Proxy measure for labour productivity was estimated based on detailed data on average annual wages from Statistics NZ's Data (2015).

- The point estimate suggests that:

A 10 per cent increase in walking EJD is associated with a 5.3 per cent increase in productivity.

- This means that a **1% increase** in walking EJD will increase the value of economy of the study area by 0.53% or approximately **\$42 million based** on the authors' estimate of \$8.01 billion GDP for the study area.

Figure 19: The association between walking EJD and labour productivity



Source: Authors' estimates

What does this mean?

**We can consider how
urban design affects
wealth and productivity**

Design implications



- Through-block links
- Completed laneway network,
- Improved Shortland Street crossings.

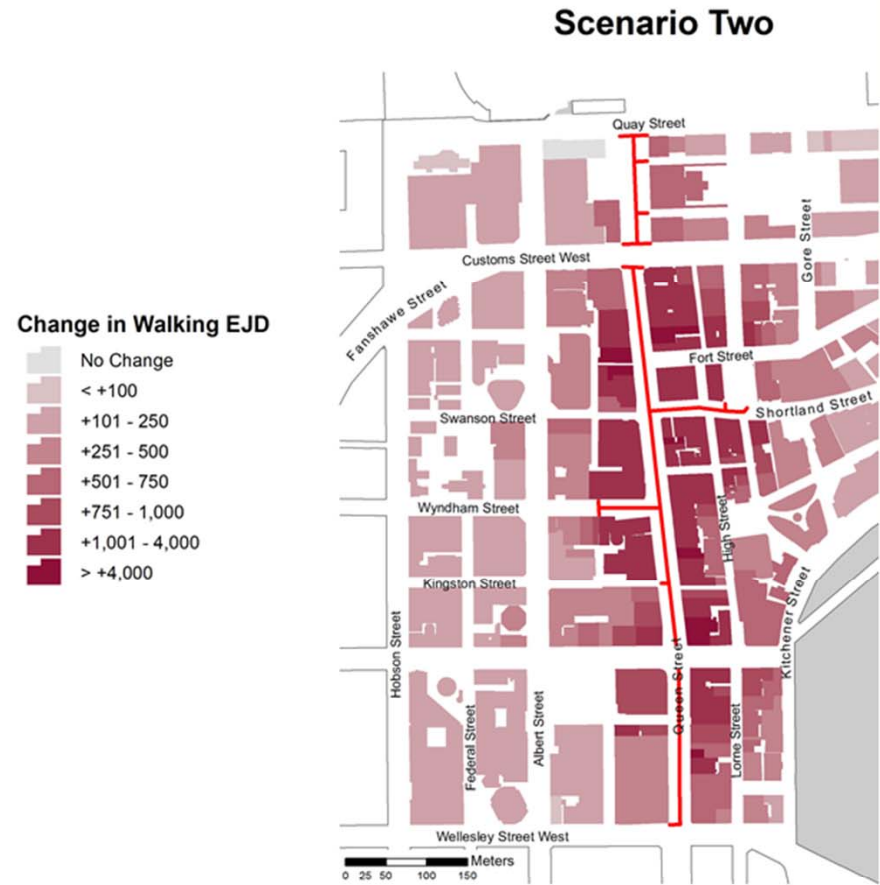
Together the above interventions would:

- Increase effective job density by 1.43%,
- Increase productivity by \$69 million

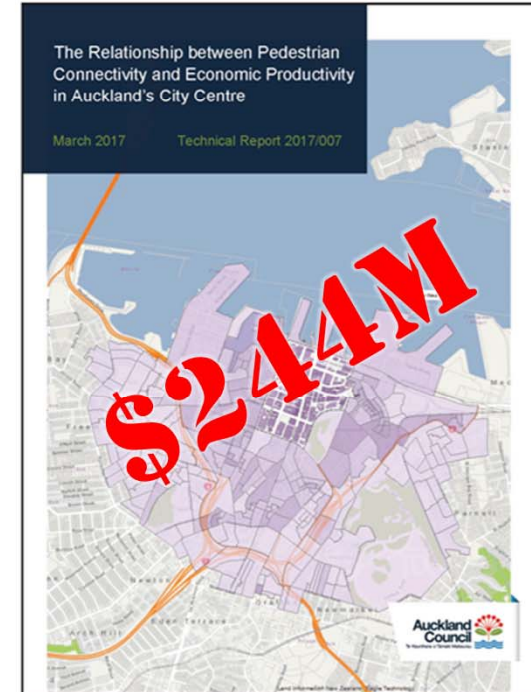


- A light rail transit mall scenario with improved walking facilities was also tested.
- This scenario increased effective job density by 5.9% or \$244 million.
- This is **IN ADDITION TO** the transport benefits of bringing thousands more people into the city centre

(which in turn relates to VURT and Ped delay, which both depend on user numbers.)



Business Case for Walking: Summary





WHAT IS THE MOST IMPORTANT THING IN THE WORLD?
IT IS PEOPLE, IT IS PEOPLE, IT IS PEOPLE

*"HE AHA TE MEA NUI O TE AO?
HE TANGATA, HE TANGATA, HE TANGATA" – Māori Proverb*

Questions?

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