

# Beyond Fuel Tax. A fairer way to fund tomorrow's transport

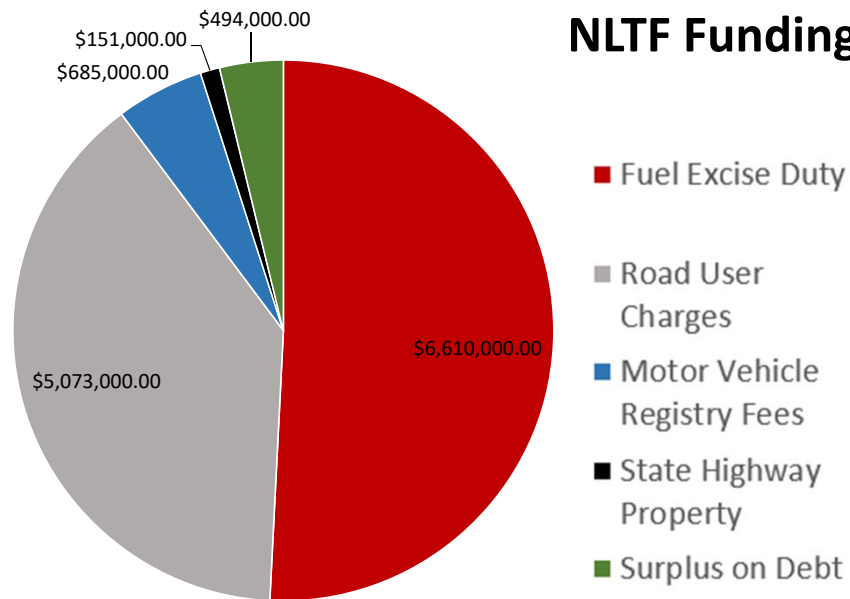
The logo for Abley, featuring a stylized red and white 'A' icon followed by the word 'abley' in a bold, black, sans-serif font.

Jo Draper  
Principal Transportation Planner

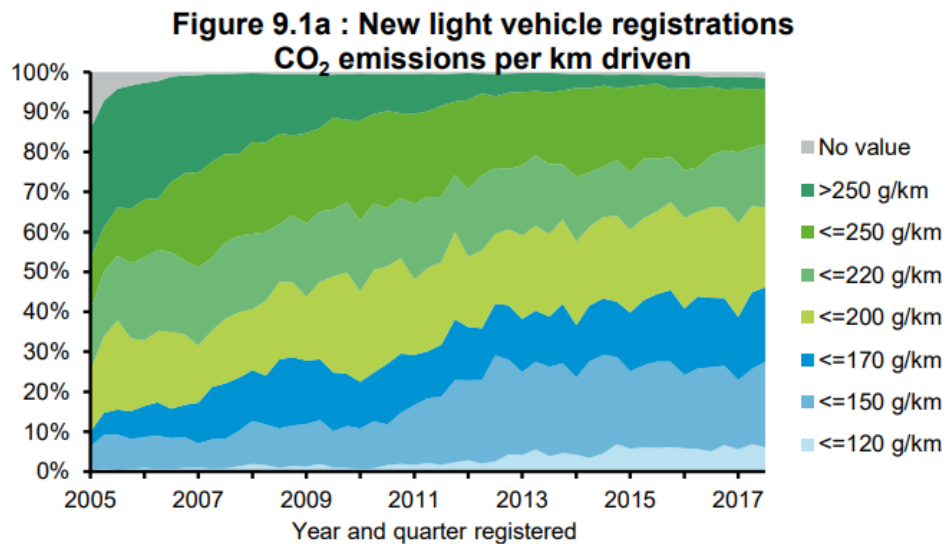
Photo by [Mahkeo](#) on [Unsplash](#)

Insightful solutions.  
Empowering advice.

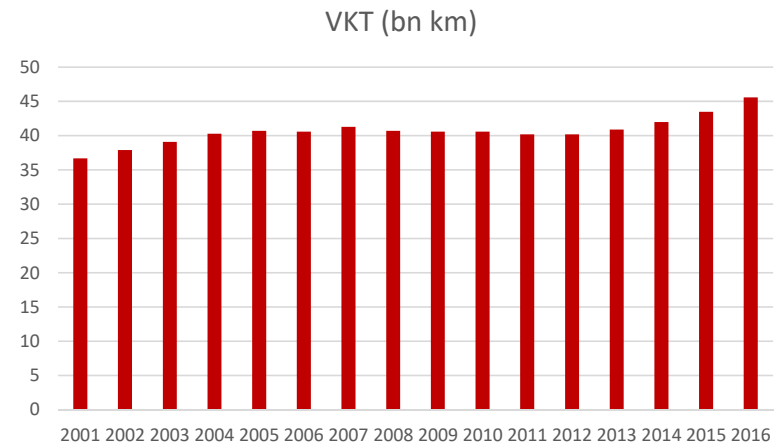
# The future funding crisis



# Trends in Fuel Use

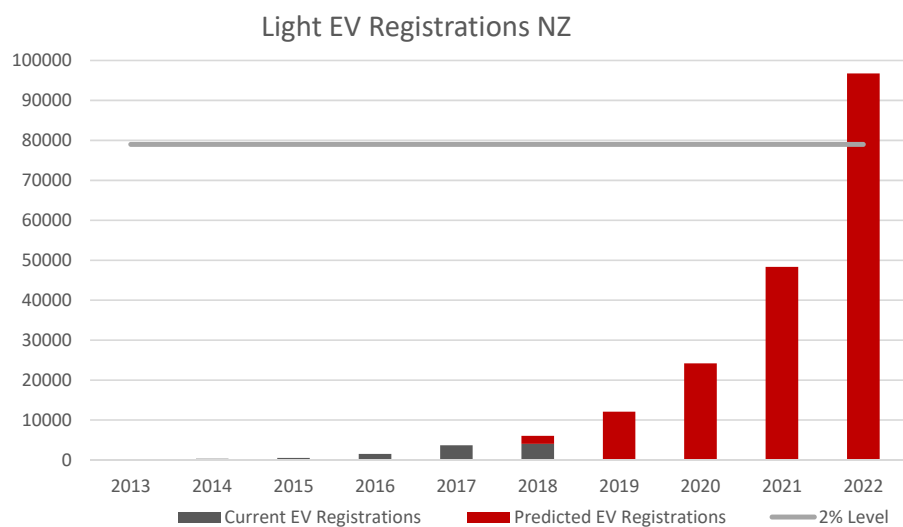


Source: Ministry of Transport Annual Fleet Statistics 2017



Source: Ministry of Transport Transport volume

# The future of fuel



- Current Exemption for RUC for EVs until end 2021 (2% light vehicle fleet)
- Light vehicle fleet around 3.9m
- EV Registrations following Moore's Law\*
- Will reach 2% sometime in 2022
- Lost revenue ~\$44m in 2021
- How should revenue from EVs be collected?

\***Moore's law** is the observation that the number of [transistors](#) in a dense [integrated circuit](#) doubles about every two years. The observation is named after [Gordon Moore](#), the co-founder of [Fairchild Semiconductor](#) and [Intel](#), whose 1965 paper described a [doubling every year](#) in the number of components per integrated circuit,<sup>[2]</sup> and projected this rate of growth would continue for at least another decade.

Source: Ministry of Transport Annual Fleet Statistics

# What factors affect the cost of driving?

**Petrol Car Operating Costs 2013**

For 2013, Running Costs for petrol vehicles changed very little from the previous year.

The running cost schedule is separated into four main categories:

- Small:** Smaller hatchbacks and the like.
- Medium:** Heavy single seated sedans, hatchbacks or wagons.
- Compact:** Family oriented vehicles, mid-sized SUV's and Crossovers.
- Large:** Larger capacity and more powerful SUV's.

The chart on page one indicates the average annual ownership costs based on an average distance travelled of 14,000km per year. The chart on page 2 can be used to calculate reimbursement rates for the actual annual distance travelled from 5,000km to 30,000km per year.

Locate your TOTAL (work related + personal) distance to identify how much the vehicle costs to operate over that period. That figure can be applied to your work related distance for a suitable reimbursement rate. As these calculations are based on 5 years of a new vehicle's life, be realistic; if your vehicle is older, older vehicles have depreciated significantly, so the depreciation fixed costs will be minimal.

Employees/employers may be needed to determine the rate for older vehicles if these figures are used for reimbursement purposes. For example, the fixed costs may need to be adjusted downward while the day-to-day running costs may require an increase due to unforeseen mechanical repairs. The result may however reduce the overall running cost, which is the influence depreciation has.

Insurance cover for an older male driver with full no claims bonus, a fully comprehensive policy, third party cover and excludes drivers under 25.

The operating cost calculations are a combination of two components; the fixed costs (depreciation, interest, wear and tear, finance and depreciation) and the running costs (fuel, oil, tyres, repairs and maintenance).

**PETROL DRIVEN VEHICLES ESTIMATED ON 14,000KM PER YEAR FIRST FIVE YEARS OF OWNERSHIP**

CATEGORY	Small 0 - 1500cc \$19,000	Compact 1500cc - 2000cc \$24,000	Medium 2001cc - 3500cc \$40,000	Large 3501cc + new to \$75,000
Average value of vehicle surveyed	\$29,077	\$34,284	\$47,500	\$66,893
<b>FIXED COSTS</b>				
Average value at start of third year	\$15,992	\$18,385	\$29,245	\$38,290
Annual releasing	\$288	\$288	\$288	\$288
Insurance - Comprehensive, No Claims	\$705	\$780	\$779	\$1,102
Warrent of Fitness (annually for the first 6 years)	\$49	\$49	\$49	\$49
<b>Total Outlay</b>	<b>\$17,033</b>	<b>\$19,501</b>	<b>\$30,413</b>	<b>\$39,647</b>
Interest on outlay	\$799	\$803	\$1,253	\$1,630
<b>Capital Cost (Outlay + Interest)</b>	<b>\$17,732</b>	<b>\$20,305</b>	<b>\$31,666</b>	<b>\$41,333</b>
Depreciation at third year	\$2,719	\$3,635	\$4,725	\$7,078
Depreciation Value	\$13,273	\$14,750	\$24,560	\$31,162
<b>Total Fixed Costs</b>	<b>\$4,461</b>	<b>\$5,555</b>	<b>\$7,106</b>	<b>\$10,162</b>
Fixed Costs per Day	\$12.22	\$15.22	\$19.87	\$27.90
<b>FLEXIBLE COSTS</b>				
Petrol - Litres used per 100km	6.4	7.54	8.95	11.17
Litres used over 14,000km	896	1065.6	1253	1564
Cost of fuel annually at \$2.20/litre	\$1,971.20	\$2,322.32	\$2,756.60	\$3,440.80
Cost of oil	\$79.33	\$79.33	\$79.33	\$79.33
Tyres cost per year	\$333.04	\$397.52	\$451.77	\$600.52
Repairs and Maintenance	\$596.84	\$633.82	\$635.35	\$60.47
<b>Total Running Costs</b>	<b>\$2,980.42</b>	<b>\$3,432.99</b>	<b>\$3,923.05</b>	<b>\$4,881.12</b>
Flexible (Running) Cost per Kilometre	21.3	24.5	28	34.6
<b>FIXED COST + FLEXIBLE COST = OPERATING COST *</b>	<b>\$7,441.86</b>	<b>\$8,988.15</b>	<b>\$11,029.32</b>	<b>\$15,013.32</b>
<b>OPERATING COST IN CENTS PER KM</b>	<b>53.2</b>	<b>64.2</b>	<b>78.8</b>	<b>107</b>
Previous year	52.9	63.9	79.1	106.3
Percentage difference over last year	0.5%	0.5%	-0.4%	-0.43%

- Fuel Price
- Engine Size
- Distance Travelled
- Age/efficiency of vehicle
- Vehicle Purchase Price
- Age/capability of driver
- Maintenance
- Fixed Overheads

# What factors affect the cost of driving?

- Delay
- Air Pollution
- Road space
- Severance
- Noise Pollution
- Vibration
- Crash Costs
- Blight
- Fuel Price
- Engine Size
- Distance Travelled
- Age/efficiency of vehicle
- Vehicle Purchase Price
- Age/capability of driver
- Maintenance
- Fixed Overheads

# Costs differ with time and geography.



**Fuel Tax isn't fair.  
Nor is RUC....**

**We can do better.**



# PT Richness Measure

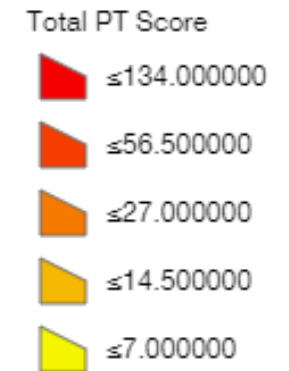
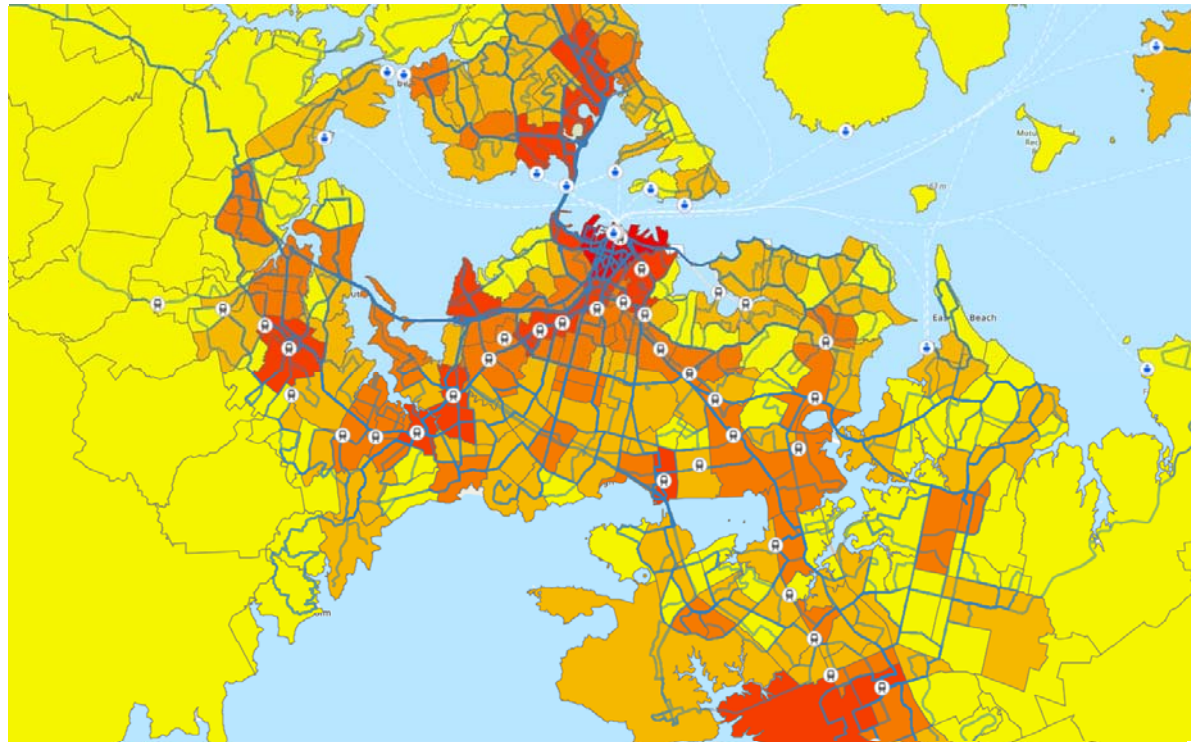


Richness Score:

- Train Station: 5
- Ferry Port: 5
- Busway: 4
- Frequent Bus: 3
- Connector/Peak Bus: 2
- Local Bus: 1

Services on boundaries split between area units

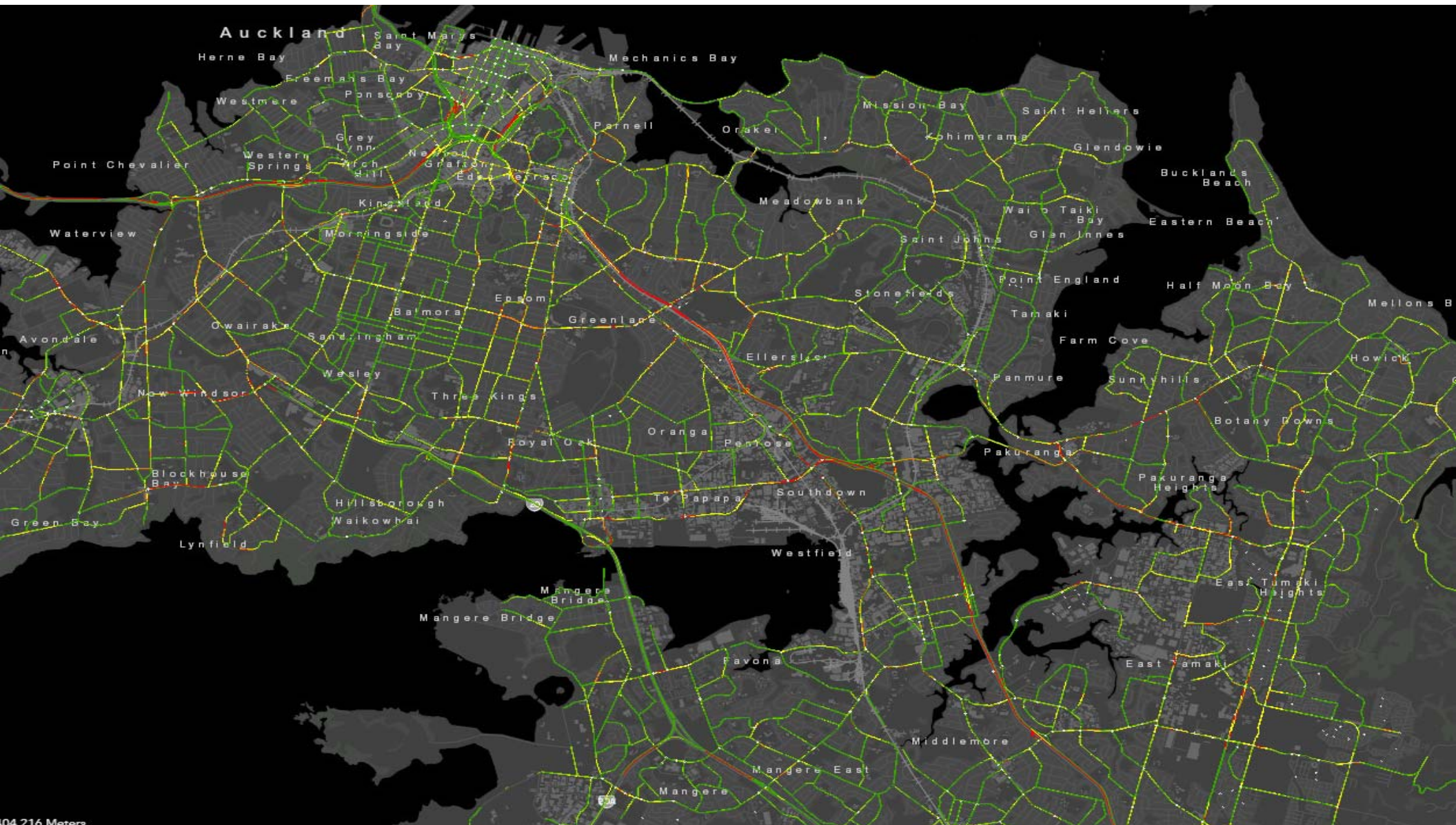
# PT Richness



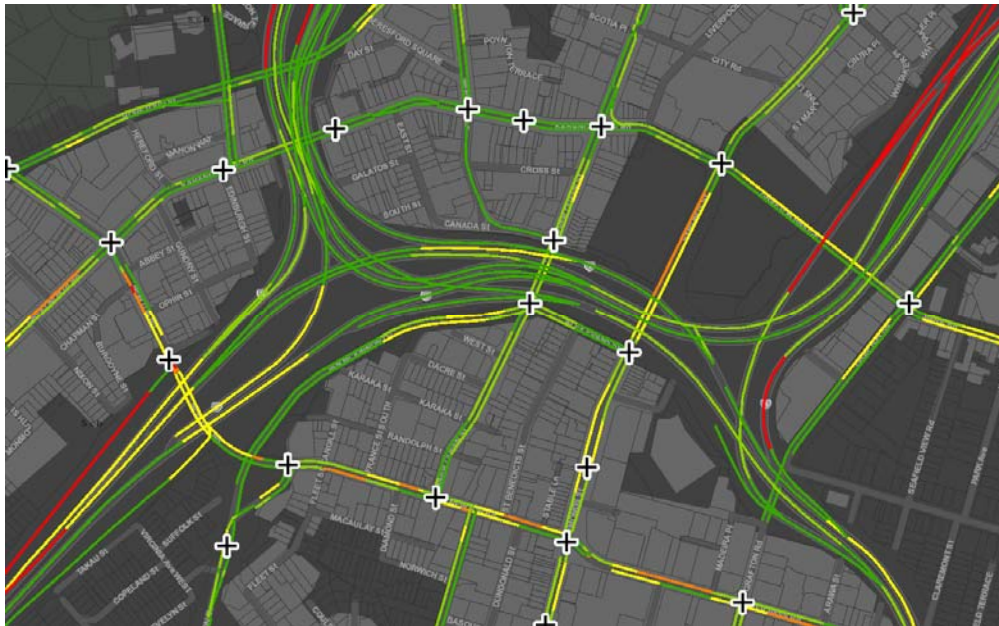
# Congestion

- TomTom data Tuesday and Thursday
- AM, IP and PM peaks.
- Delay calculated: operating speed minus freeflow (night)
- Colours represent km/h below freeflow

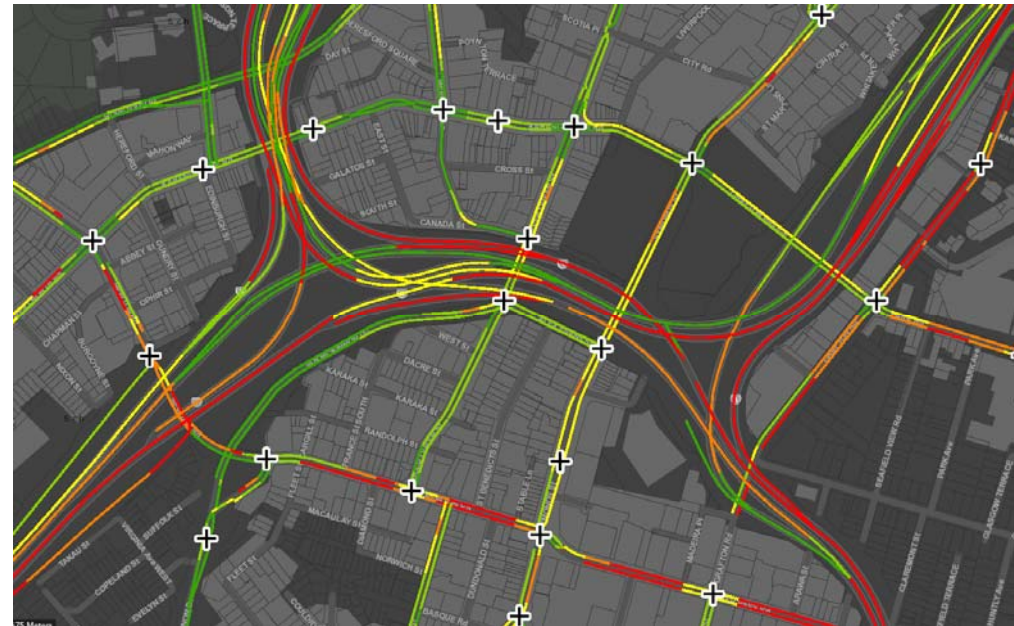




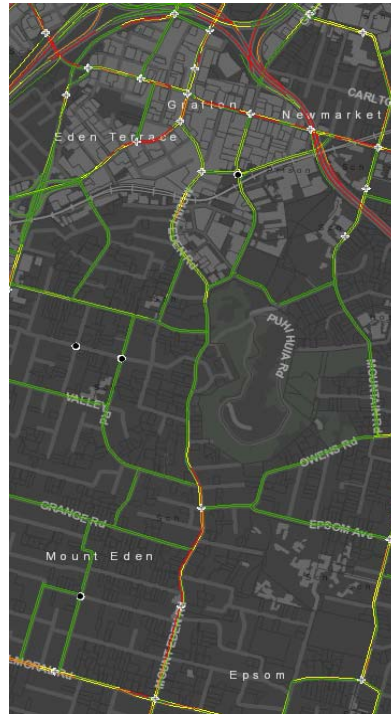
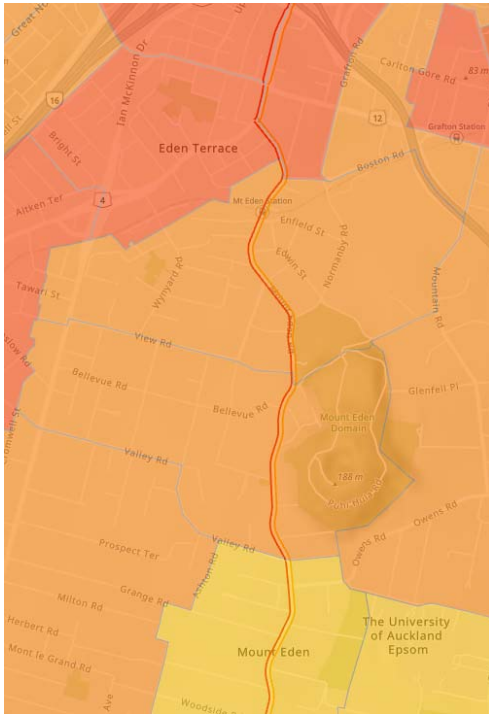
# AM Congestion



# PM Congestion



# Sample Journeys - Methodology



- Revenue Neutral
- AM Peak
- Distance
- PT Penalty
- Congestion Penalty

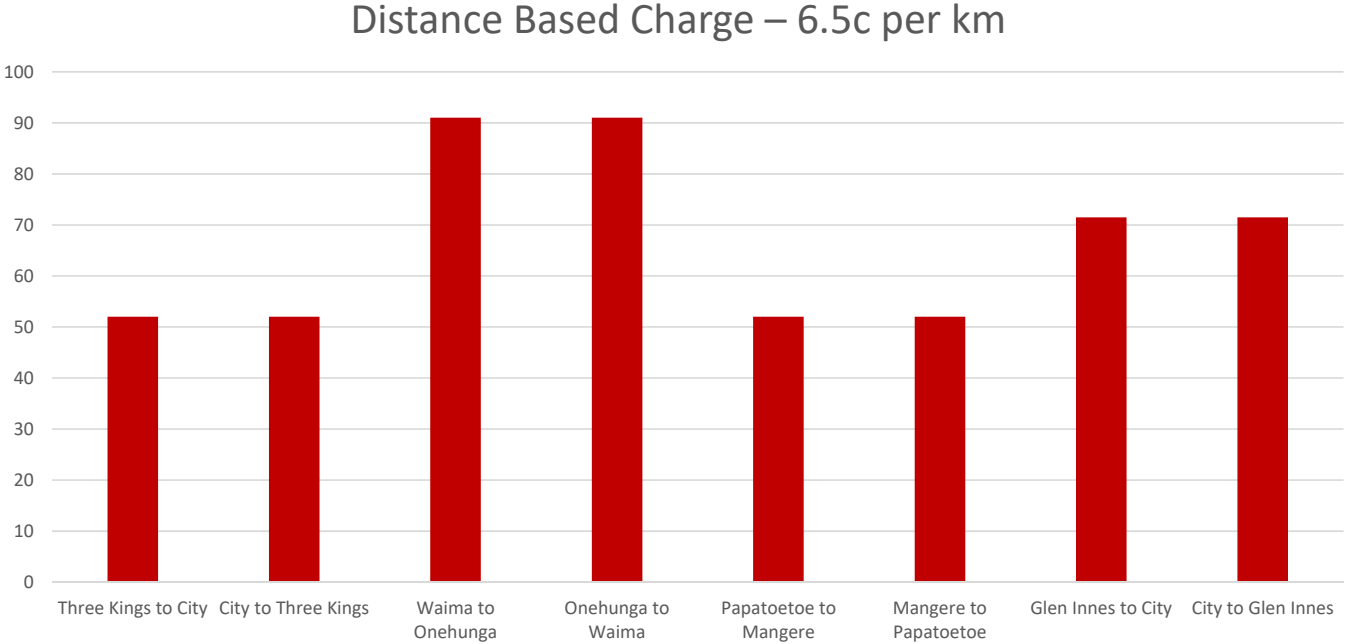
# Sample Journeys



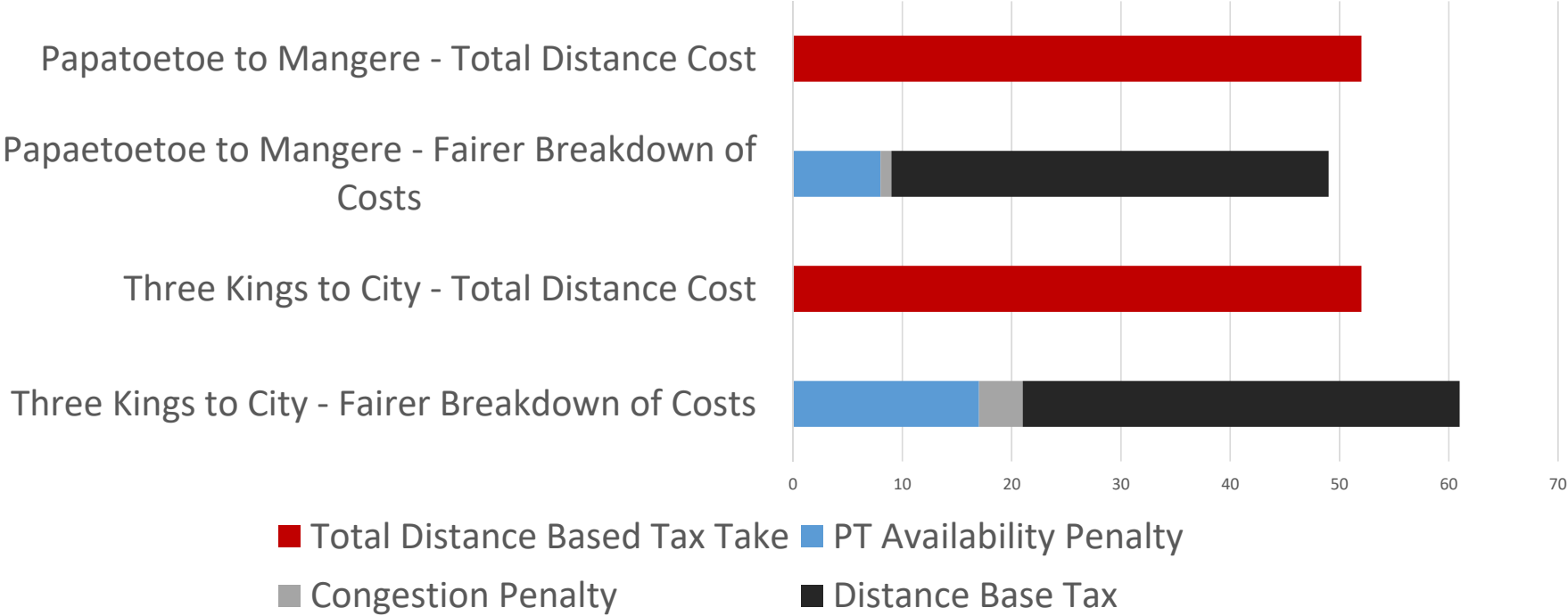
- Red is more congested direction of travel



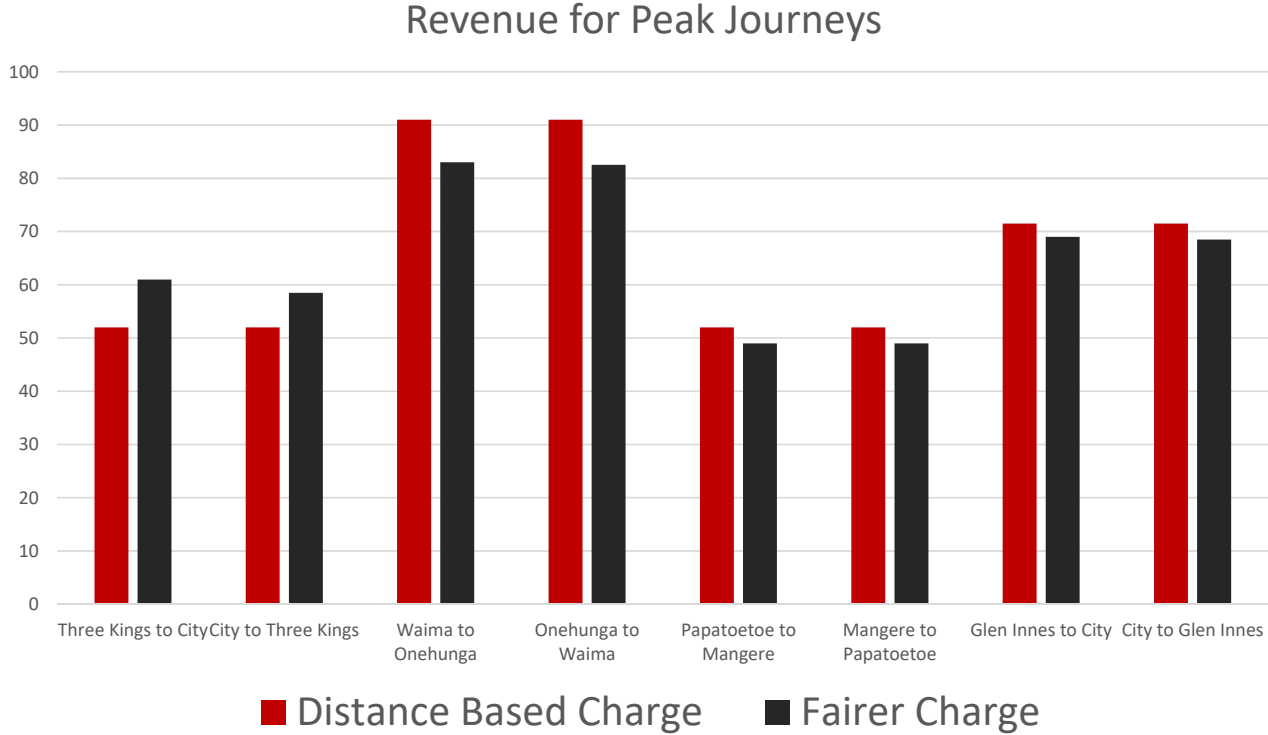
# Sample Journeys – Distance Charge



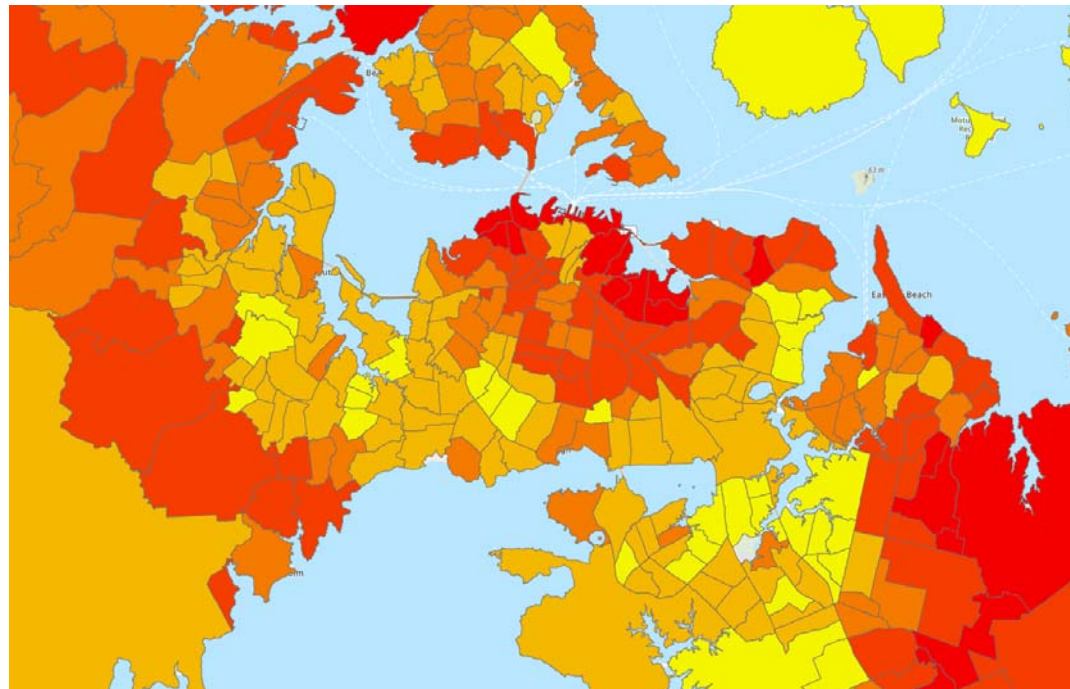
# Sample Journeys – Results Breakdown



# Sample Journeys – Results

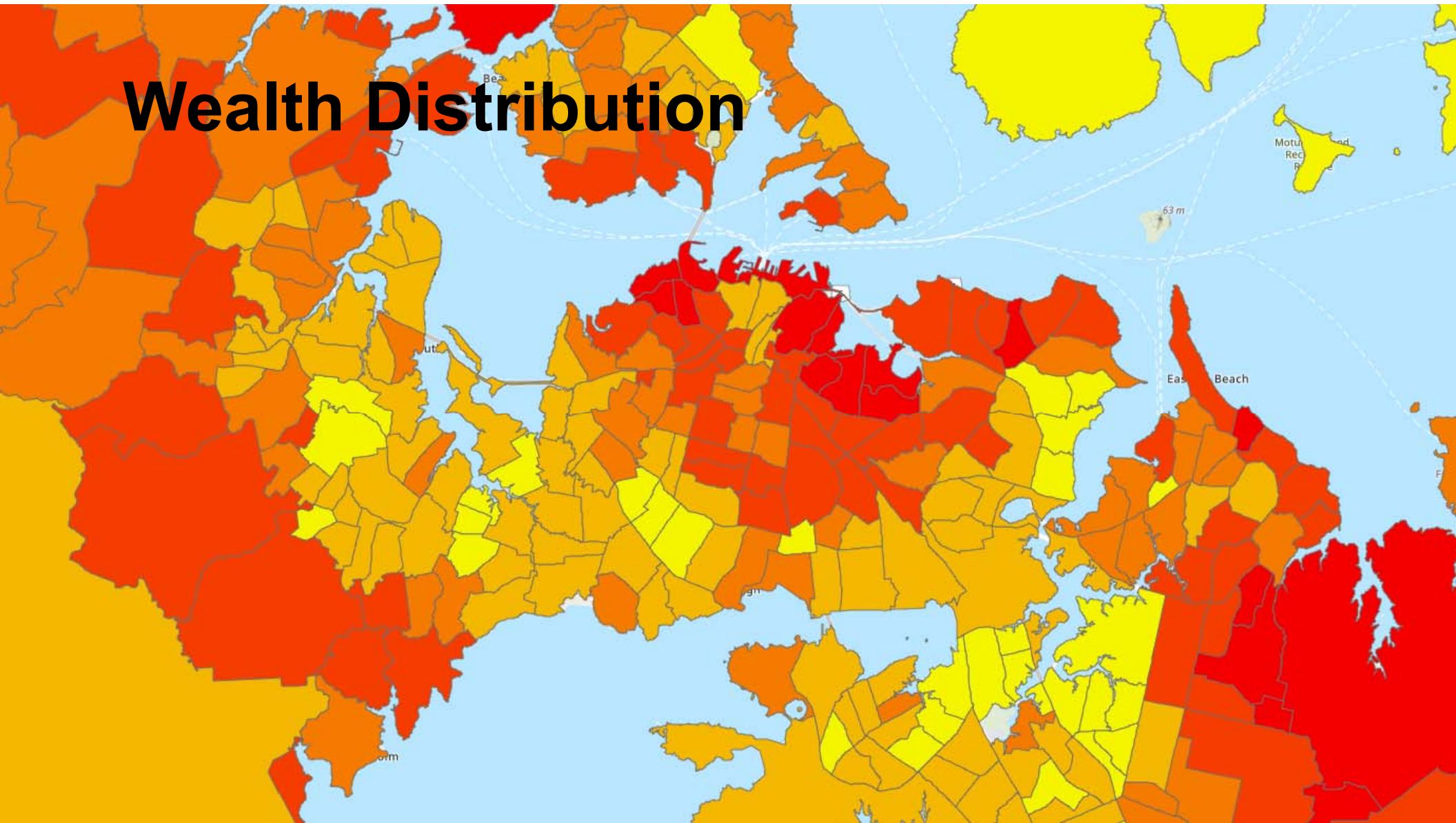


# Wealth Distribution

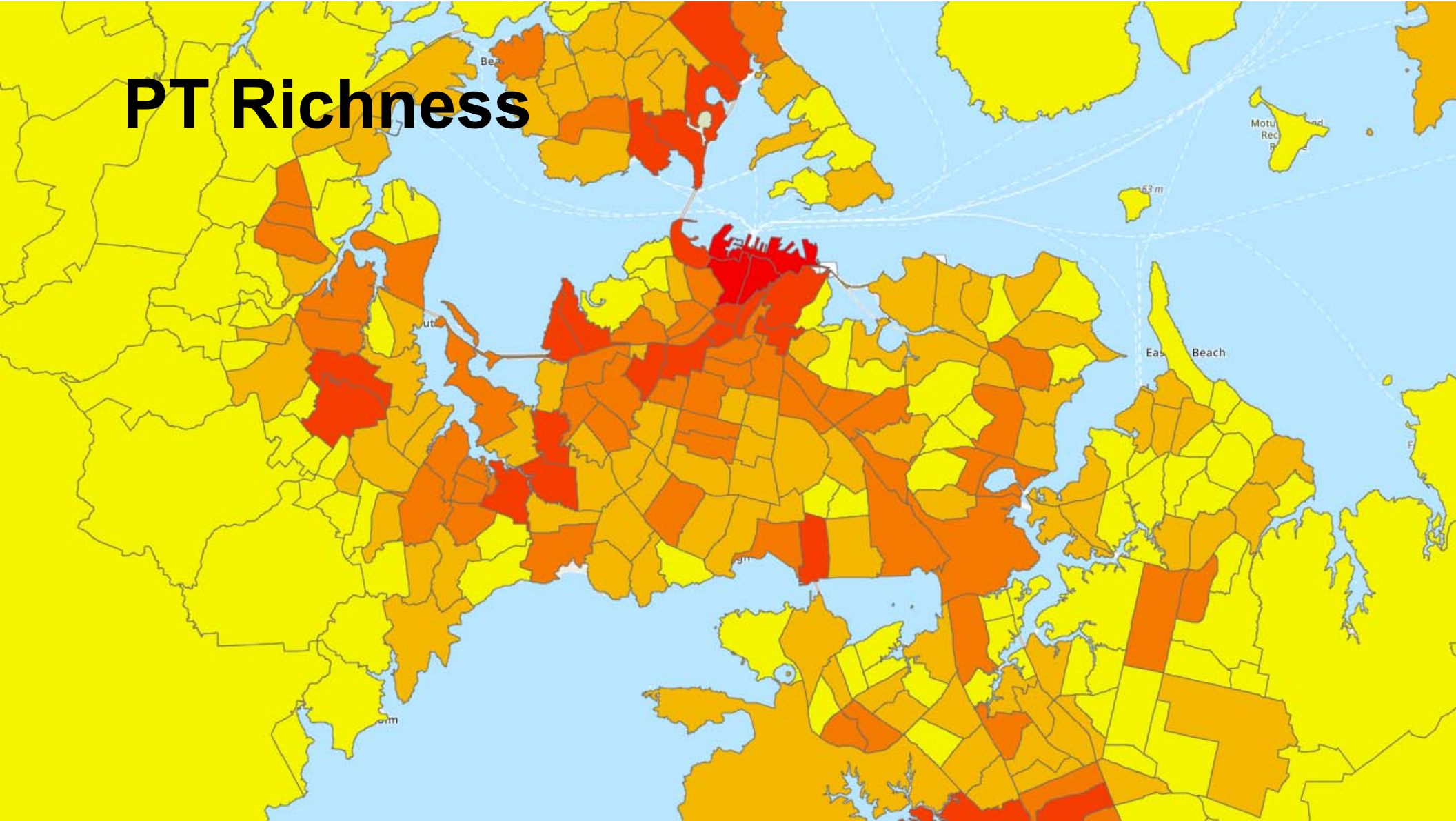


Median Income (2013)

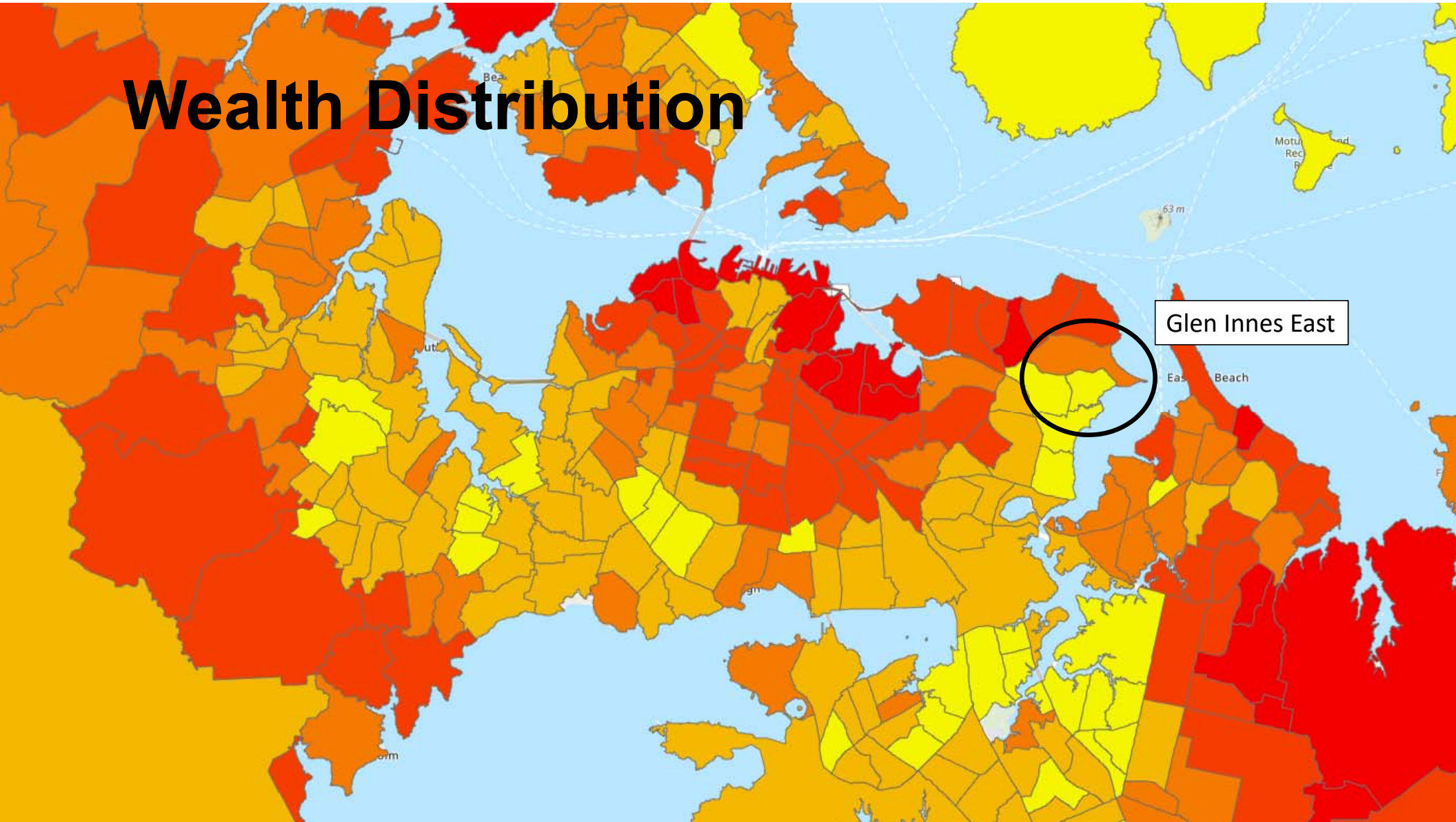
# Wealth Distribution



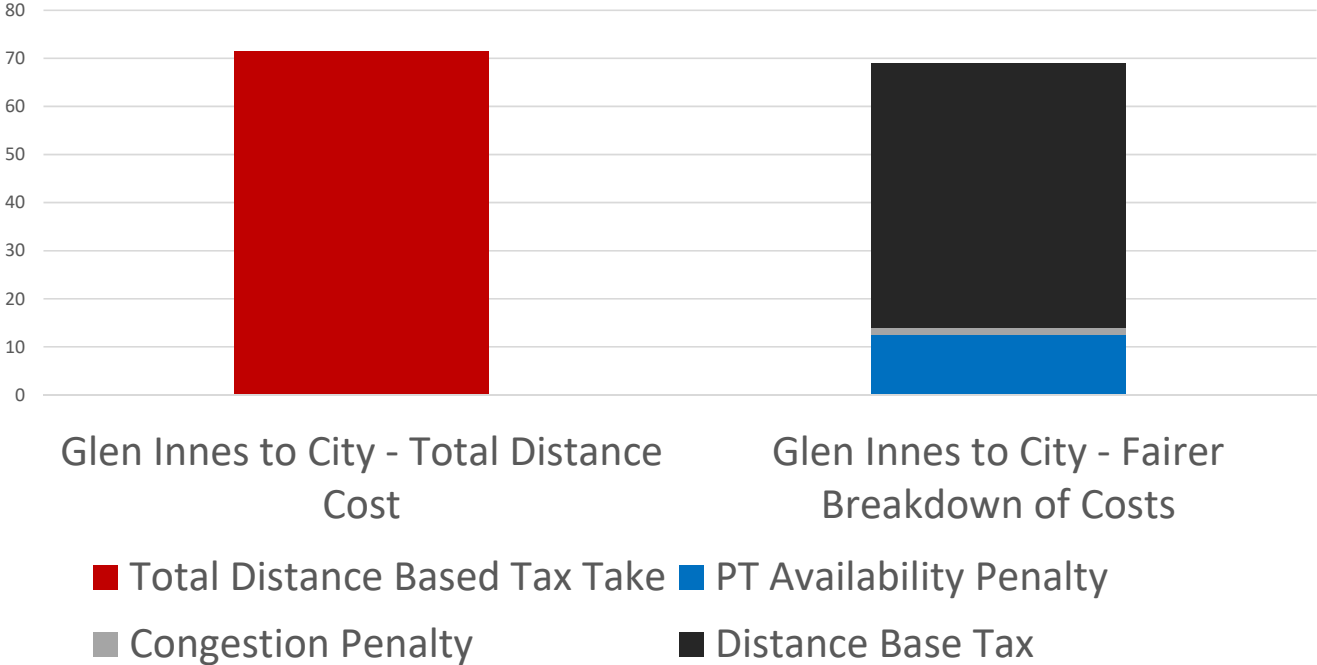
# PT Richness



# Wealth Distribution



# Glen Innes to City – Results





**Where to from here?**



**Oregon has trialed GPS road user revenue to combat falling revenue. Why stop at distance charging – utilising technology we can make the right people pay.**

# Is it fair that drivers in both these places pay the same?

