

# Smart Cities in Practice: Future-Proofing Resilience in Wellington

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# Problem

- Limited innovation in traffic technology
- Reactive operational model
- Aging infrastructure
- Critical network assets approaching end of life



# Solution

- Conducting trials of new traffic technologies to test and adopt innovative solutions.
- Developing an operating framework for smarter network management.
- Prioritising Asset Renewals to improve reliability and resilience.
- Investing in fibre connectivity to enable integrated intelligent transport systems.



# IMD Smart City Index

The IMD Smart City Index ranks cities based on how effectively they are at integrating technology and infrastructure to improve urban life.

The index does not only delve into traffic congestion but the whole way of living in a city.

Based on the index, one of the priority areas that Wellington needs to focus on is road congestion which ranks top 5.

**2023** **23<sup>rd</sup>**  
Rank in the world

**2024** **28<sup>th</sup>**  
Rank in the world

**2025** **30<sup>th</sup>**  
Rank in the world

# Overall performance trend

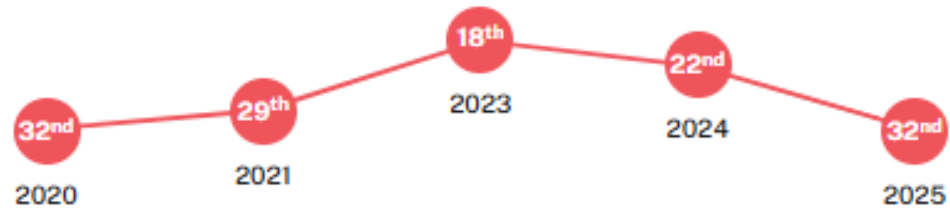
 Wellington Group 1



 Auckland Group 1



 Sydney Group 1



 Melbourne Group 2



# Wellington

SMART CITY RANKING

**30**

Out of 146



28 In 2024

Out of 142

SMART CITY RATING

**A**

BBB In 2024

FACTOR RATINGS

**A**

STRUCTURES

**BB**

TECHNOLOGIES

GROUP

**1**

All ratings range from AAA to D

## BACKGROUND INFORMATION

### City

Population 380,000  
(UN World Urbanization Prospects)

HDI 0.969  
(Global Data Lab)

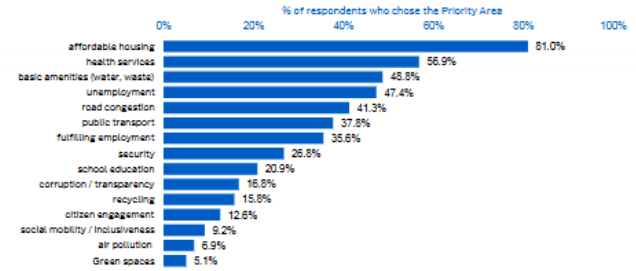


### Country

	2019	2020	2021	2022	1 yr change
New Zealand					
HDI	0.933	0.935	0.935	0.936	+0.001
Life expectancy at birth	82.6	82.7	82.5	83.0	+0.6
Expected years of schooling	19.5	19.2	19.7	19.7	+0.0
Mean years of schooling	13.0	12.9	12.9	12.9	+0.0
GNI per capita (PPP \$)	42,210	41,225	42,850	43,665	+816

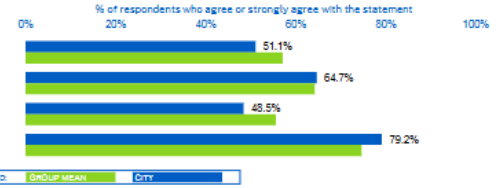
## PRIORITY AREAS

From a list of 15 indicators, survey respondents were asked to select 5 that they perceived as the most urgent for their city. The higher the percentage of responses per area, the greater the priority for the city.



## ATTITUDES

You are willing to concede personal data in order to improve traffic congestion  
 You are comfortable with face recognition technologies to lower crime  
 You feel the availability of online information has increased your trust in authorities  
 The proportion of your day-to-day payment transactions that are non-cash (% of transactions)



# What we have done so far



**SWARCO ITC-3  
controllers**



**VivaCity  
Sensors**



**Electronic  
VSL signs**



**Preformed  
Induction Loops**

# Next-Gen Signal Control: SWARCO ITC-3

- ITC-3 is the first Traffic Controller developed for the world market. With this controller, it is possible to connect all major traffic systems with built-in traffic algorithms and protocols like SCATS.
- A fully group-based algorithm that does not only ensure maximum traffic flow, but also handles other safety aspects like trucks, main road priority securing dilemma zone, and more.
- Makes use of deep learning and works with any detector system as input.
- Trialling 1 controller in the Wellington City.



# VivaCity Sensors

- Provides multi-modal movement data
- Enables real-time monitoring of network performance
- Creates a baseline dataset for long-term mobility trends
- 91 sensors installed across Wellington.
- Compatible with signal controllers such as SWARCO.



# Electronic VSL Signs

- Electronic speed limit signs allow dynamic speed management during school travel periods.
- Improves safety outcomes for children and vulnerable road users.
- Integrated RADAR detection provides vehicle speed data for monitoring compliance and understanding corridor behaviour.
- This amendment is required under national regulation, which mandates that Councils must implement variable school speed limits by July 2026.



# Lambton Quay Super Week

A coordinated programme delivering multiple infrastructure works during a single corridor closure.

Works delivered include:

- Fixing leaks and water maintenance
- Streetlighting repairs
- Utility reinstatements
- Tree trimming
- Underground investigations
- Street cleaning and Graffiti removal
- Road and street furniture maintenance
- Re-surfacing and line marking



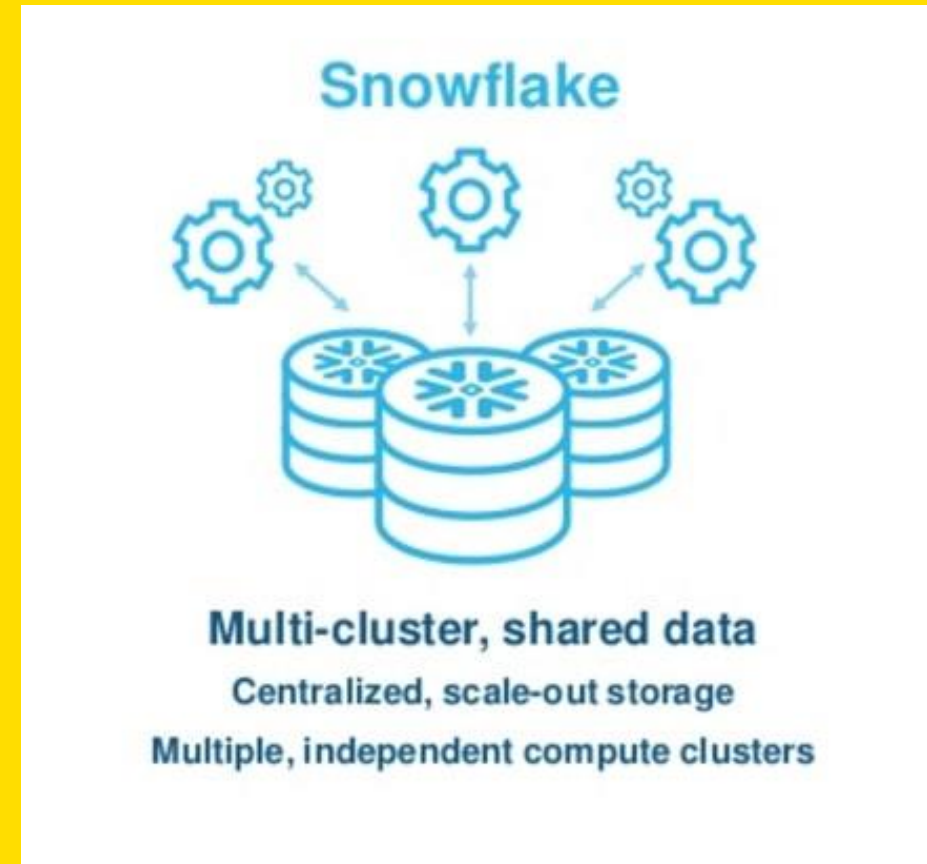
# Pre-formed Induction Loops

- Designed for direct installation within hot asphalt paving
- Minimises pavement damage compared to traditional saw-cuts
- Reduces installation time and extends pavement life
- Successfully deployed during Super Week re-surfacing works.



# Data Warehouse

- Multiple detection technologies generate valuable operational data
- A centralised data warehouse (Snowflake) enables advanced analytics and system integration
- Integrating additional datasets such as bus operations and weather data allows more comprehensive network analysis
- Enables shift toward predictive traffic operations



**Ngā mihi**  
**Thank you**