

# Auckland Transport's Energy Story

## Delivering on our Sustainability Framework

August 2018

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## Executive Summary

AUCKLAND TRANSPORT IS THE LEAD AGENCY RESPONSIBLE FOR THE PLANNING, DEVELOPMENT, AND MANAGEMENT OF AUCKLAND'S TRANSPORT SYSTEM. THIS INCLUDES ROADS AND FOOTPATHS, CYCLING AND WALKING INFRASTRUCTURE, PARKING FACILITIES, AND PUBLIC TRANSPORT AMENITIES (SUCH AS PARK AND RIDES, STATIONS, FERRY TERMINALS, AND SHELTERS).

With responsibility for such a large and growing network, Auckland Transport is considered a large energy user. Auckland Transport consumes over 108 million kWh (kilowatt-hours) of electricity each year to power everything from streetlights to electric trains and everything in between. Auckland Transport spends over \$20 million on electricity bills each year and therefore, is committed to managing energy efficiently and sustainably.

In 2016, Auckland Transport published its first Sustainability Framework. Within the Framework, four over-arching goals and seven key focus areas were developed to guide Auckland Transport toward a more sustainable future. Energy efficiency and low-emission transport options are among the key focus areas for Auckland Transport.

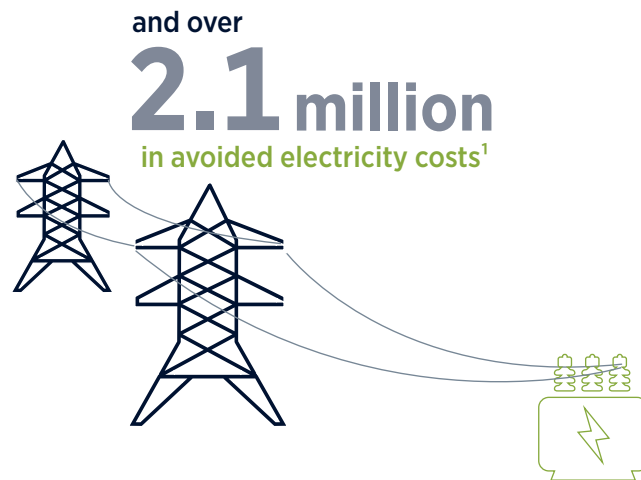


In addition to the Sustainability Framework, Auckland Transport has partnered with the Energy Efficiency Conservation Authority (EECA) where a 2.85 gigawatt-hour (GWh) electricity savings target has been set to be achieved by January 2019. Furthermore, EECA provides project support and funding opportunities for Auckland Transport to deliver energy savings as well as to pilot innovative energy and low-carbon initiatives.

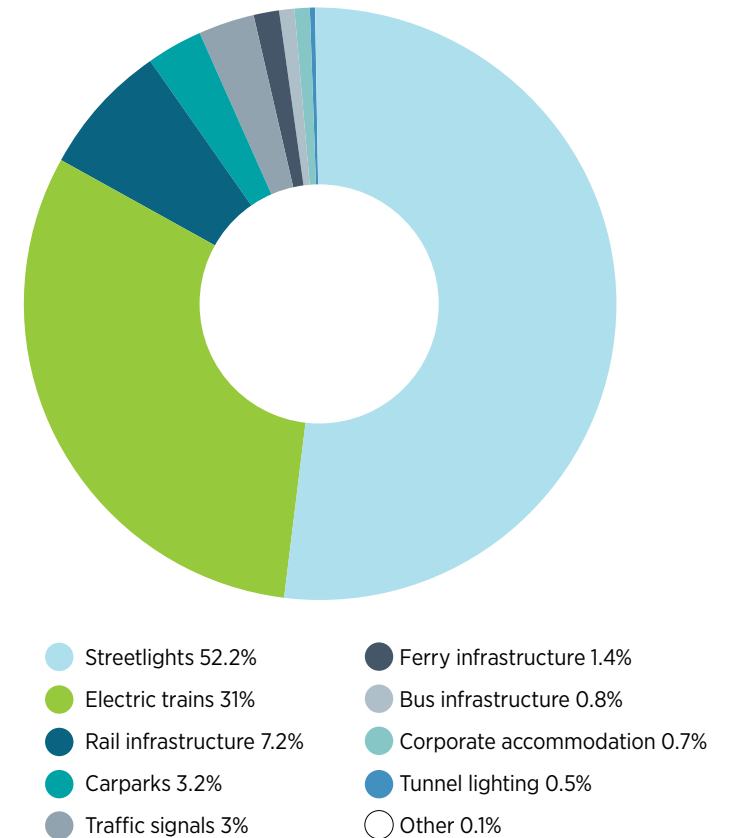
This report highlights Auckland Transport's energy journey thus far, capturing projects that deliver environmental and economic benefits across the network and in corporate operations.

Energy efficiency projects completed at AT have a combined total projected annual savings of 14 GWh

**1,715 tonnes**  
CO<sub>2</sub>-e  
reduced carbon emissions



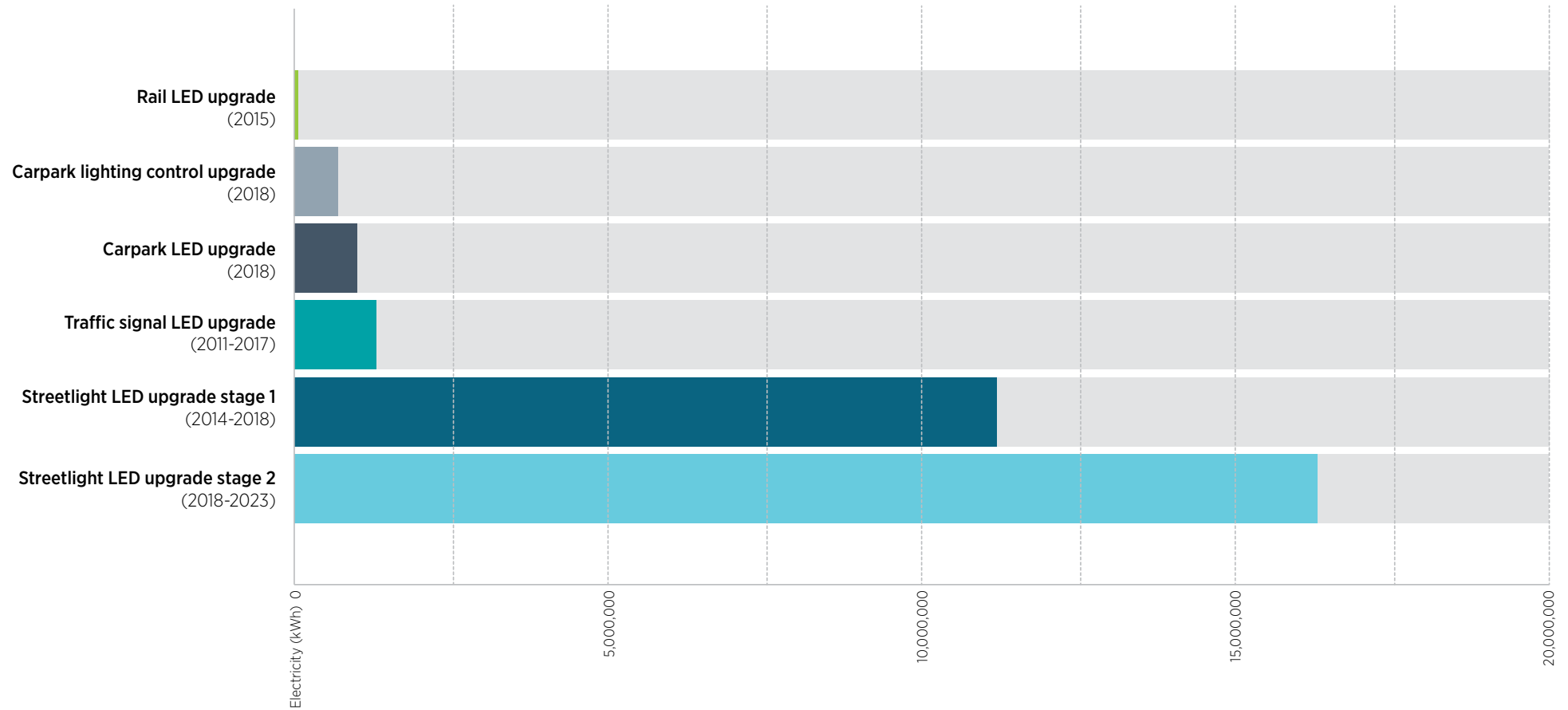
### Annual Electricity Consumption Financial Year 2016-2017



**Figure 1:** Annual electricity consumption sourced from retailer invoices for financial year 2016/2017 by asset type.

<sup>1</sup> These figures capture savings attributed to the 2015 Rail Light-emitting Diode (LED) Upgrade, Traffic Signal LED Upgrade, 2018 Carpark LED Upgrade, Stage 1 Streetlight LED Upgrade and Solar PIDs, Solar Bus Shelters, and Solar Bus Lights. Stage 2 of the Streetlight LED Upgrade will add an additional 16 GWh of electricity savings, \$2.6 million in cost savings, and 1,939 tonnes of reduced carbon emissions.

## Projected Annual Electricity Savings from Energy Efficiency Projects





Furthermore, solar projects deliver additional cost savings as a result of avoided grid connection fees. Assuming all of the solar assets installed to date have resulted in an avoided connection fee, it is estimated that Auckland Transport has saved an additional \$3 million.

While celebrating progress to date, Auckland Transport recognises that sustainability and energy efficiency is an ever-evolving business. Technological advances and a changing policy landscape combined with a growing city means that Auckland Transport will continue to be an influential player when it comes to effectively managing energy and taking action to reduce emissions.

Auckland Transport looks forward to the opportunities that lay ahead to make a difference and lead by example, with a vision to redefine transport choices for a growing, vibrant Auckland.

## Energy Snapshot

**2010**

Auckland Transport (AT) is established as a Council-controlled organisation



**2012**

AT introduces solar powered passenger information displays at bus stops



# 2014

- Physical works begin on electrification of the rail network
- Energy and carbon reporting is included in AT's Annual Report
- Board approves Stage 1 of the LED Streetlight Retrofit, NZ's most ambitious LED replacement programme over five years



**C40**  
**CITIES**  
CLIMATE LEADERSHIP GROUP

# 2015

- AT joins the C40 Cities Climate Leadership Group in partnership with Auckland Council
- Six rail stations receive LED upgrades

## 2016

- AT signs 3 year partnership agreement with the Energy Efficiency Conservation Authority
- AT Energy Manager role is seconded internally
- AT receives 2 out of 5 stars for the One2Five Energy Management Assessment
- Auckland Transport's Sustainability Framework is approved
- AT introduces solar bus shelters to the network
- City Rail Link is awarded a Leading Infrastructure Sustainability Design rating for Contract 2 (including energy and carbon)



## 2017

- AT launches internal Sustainability Champions Programme
- AT undertakes energy audit of 15 highest energy consuming sites
- Traffic signal LED retrofit is completed
- Stage 1 streetlight LED upgrade is initiated
- AT receives 2 out of 5 stars for the One2Five Energy Management Assessment
- City Rail Link is awarded a Leading Infrastructure Sustainability Design rating for Contract 1 (including energy and carbon)
- AT corporate offices are consolidated into 20 Viaduct Harbour
- Low Emissions Roadmap for AT's corporate fleet is developed
- Study commissioned in partnership with C40 to understand impacts to the local electricity grid for roll out of electric buses



# 2018

- AT purchases 20 electrical vehicles (EVs) for corporate fleet
- AT appoints 2 dedicated energy efficiency positions
- AT launches electric bus trial, adding 2 electric buses (e-bus) to its fleet
- LED upgrades take place in 4 large carpark buildings
- AT receives funding to support the deployment of up to 60 public electric vehicle chargers in AT facilities
- Stage 1 of the LED Streetlight retrofit is completed, replacing 43,000 streetlights
- AT installs 2 Smart Poles in Devonport
- Stage 2 Streetlight LED upgrade is approved





## THE EXISTING NETWORK

Make better use of what we already have.

Improve sustainability outcomes from the existing network.

# Streetlight LED Upgrade

**Project Sponsor and Delivery:** Road Corridor Delivery

**Project Date:** Stage 1: October 2014 – August 2018

**Sustainability Framework Focus Area:**

The Existing Network

- Make better use of what we already have.
- Improve the sustainability outcomes from the existing network.

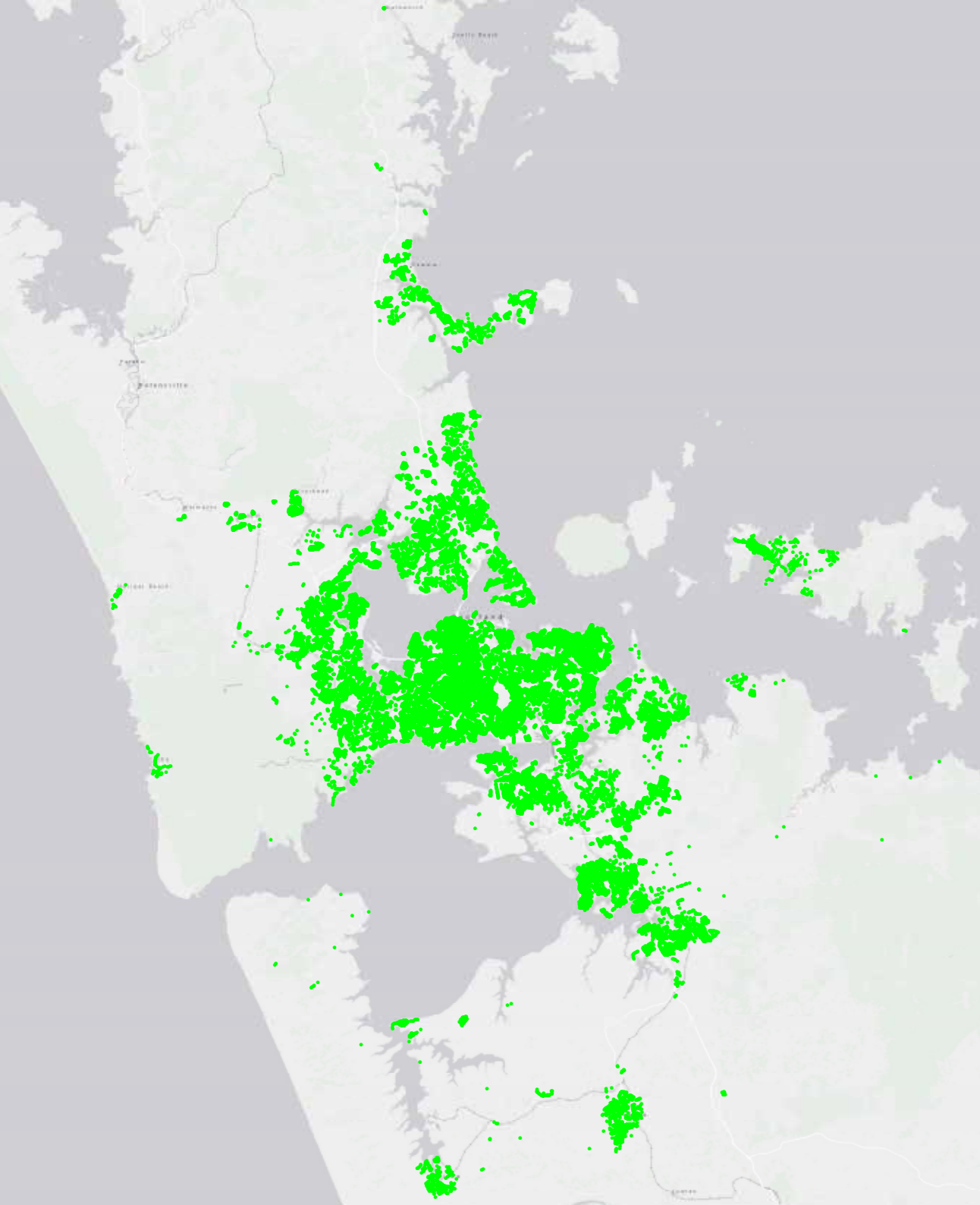
## Project Background:

Streetlights are an important piece of city infrastructure and are responsible for lighting public roads and accessways for traffic and pedestrian safety purposes. Auckland Transport maintains more than 110,000 city streetlights, the largest source of direct electricity consumption of all Auckland Transport's assets.

In October, 2014 **Stage 1** of the lighting renewals programme was approved. The programme identified 43,000 high-pressure sodium lamps on residential roads to be converted to LED over a period of five years. Stage 1 of the streetlight retrofit will provide 11.2 GWh of energy savings, an estimated \$1.7 million reduction in our electricity bills each year. In addition to energy and cost savings, the LED lights will save Auckland Transport approximately \$1.2 million dollars per year in maintenance costs due to the longer life of the LEDs and reduction in reactive maintenance.



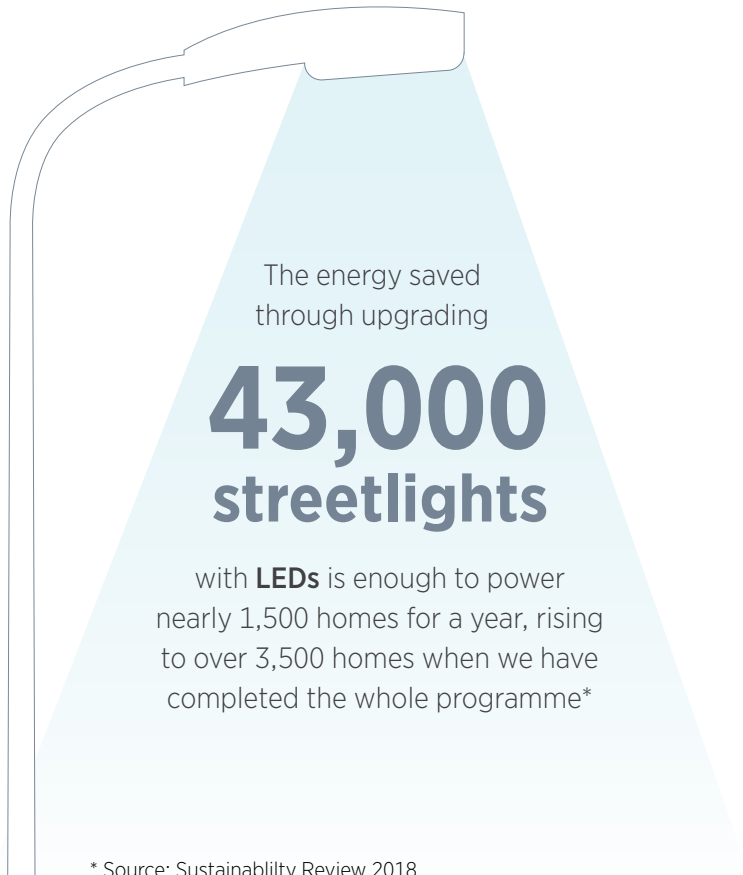
View of Auckland demonstrates some areas of the retrofit depicted by the white lights.



**Stage 2** of the streetlight retrofit was approved in April 2018 and will replace an additional 49,000 high-pressure sodium lights over the next five years. This next stage of upgrades is expected to deliver an additional 16.3 GWh of savings, resulting in a cost reduction of \$2.6 million per year. Maintenance costs will further reduce by \$1.3 million per year.

All of the LED streetlights are connected to a central management system (CMS). This system will be able to provide a daily report to contractors advising of any problems on the network, reducing the number of calls to our call centre. Additionally, the CMS has the ability to decrease light levels with dimming functions to allow for reduced nightglow and further energy savings during off-peak hours.

CMS view showing lights under control.

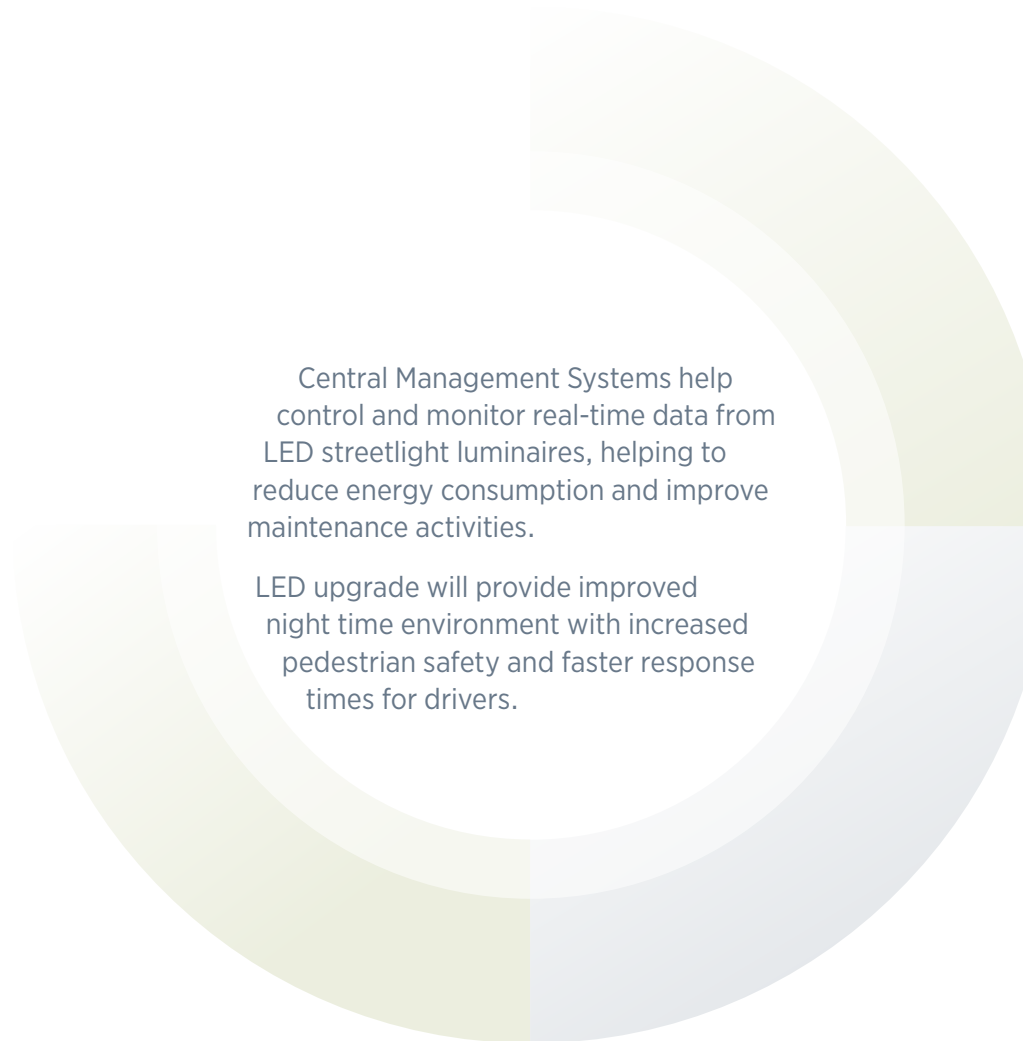


The energy saved through upgrading

# 43,000 streetlights

with **LEDs** is enough to power nearly 1,500 homes for a year, rising to over 3,500 homes when we have completed the whole programme\*

\* Source: Sustainability Review 2018



Central Management Systems help control and monitor real-time data from LED streetlight luminaires, helping to reduce energy consumption and improve maintenance activities.

LED upgrade will provide improved night time environment with increased pedestrian safety and faster response times for drivers.

## OUTCOMES

### Stage 1:

- 11.2 GWh expected savings per year
- \$1.7 million in cost savings per year
- \$1.2 million in reduced maintenance costs per year
- 1,332 tonnes of CO<sub>2-e</sub> reduction per year

### Stage 2:

- 16.3 GWh additional energy savings per year
- \$2.6 million additional cost savings per year
- \$1.3 million in reduced maintenance costs per year
- 1,939 tonnes of CO<sub>2-e</sub> reduction per year

### Combined Stage 1 & 2 Outcomes:

- 27.5 GWh of expected energy savings
- \$4.3 million expected cost savings
- \$2.5 million in reduced maintenance costs expected
- 3,271 tonnes of CO<sub>2-e</sub> reduction per year





# Carpark LED Upgrade

**Project Sponsor:** Transport Services Development

**Project Delivery:** Metro and Facilities Management

**Project Date:** July 2017 – Present

**Sustainability Framework Focus Area:**

The Existing Network

- Make better use of what we already have.
- Improve the sustainability outcomes from the existing network.

**Project Background:**

In 2017, Auckland Transport initiated a series of LED lighting retrofits in four large carpark buildings. Over 4,000 lighting fixtures were upgraded to LEDs in Ronwood, Downtown, and Civic carparks. LED stands for “light emitting diode” and are considered high performance, long-lasting lights which help reduce energy consumption and maintenance needs.

In addition to upgrading the lighting fixtures, lighting control systems have been commissioned in both Ronwood and Civic Carparks as well as Te Horeta Road Tunnel. Lighting control systems utilise automatic timers and daylight sensors to maximize energy savings by ensuring that the lights operate only when needed. Optimising this system has already resulted in over 218,000 annual kWh savings at Ronwood Carpark and is projected to save 270, 000 kWh annually at Civic Carpark.



Victoria Carpark post-retrofit.

## OUTCOMES

- **LED upgrades** at Ronwood, Civic, Downtown, and Victoria carpark are expected to achieve **over 1 GWh of energy savings annually**.
- **Lighting control systems** installed at Ronwood Carpark, Civic Carpark, and Te Horeta Road tunnel are projected to **save over 700,000 kWh savings annually**.
- Together, these conservation measures are estimated to **reduce our electricity bill by \$207,000 each year**
- **205 tonnes of CO<sub>2</sub>-e** reduction per year



Te Horeta Road tunnel.

# Traffic Signal LED Retrofit

**Project Delivery:** Auckland Transport Operations Centre

**Project Date:** 2011 – 2017

**Sustainability Framework Focus Area:**

The Existing Network

- Make better use of what we already have.
- Improve the sustainability outcomes from the existing network.

**Project Background:**

Auckland Transport is responsible for the operation and maintenance of over 20,000 traffic signal lanterns across the region. Over the last several years, Auckland Transport has invested in switching the traffic signals from incandescent and halogen quartz light bulbs to more efficient LED light bulbs.

From 2011 to 2017, Auckland Transport undertook LED upgrades for traffic signals across the network. The retrofit consisted of swapping over 5,600 lights to LEDs. As a result, Auckland Transport is expected to save 1.37 GWh on annual electricity consumption based on 24 hours of operation.





All new traffic signals that are added to the network are fitted with efficient LED lighting as per Auckland Transport's Code of Practice. Fitting these new intersections with LEDs results in 0.78 GWh of avoided energy consumption; compared to if less efficient lighting such as incandescent or halogen quartz bulbs were originally installed.

**162 tonnes**  
**CO<sub>2</sub>-e**  
reduction  
per year

**OUTCOMES**

The LED traffic signal retrofit is expected to save **1.37 GWh** annually

These savings are expected to save **\$260,100** on annual electricity bills

97% of Auckland Transport's traffic signal lanterns are fitted with LEDs

# Rail Station LED Upgrade

**Project Sponsor:** Transport Services Development

**Project Delivery:** Metro and Facilities Management

**Project Date:** 2015

## Sustainability Framework Focus Area:

The Existing Network

- Make better use of what we already have.
- Improve the sustainability outcomes from the existing network.

## Project Background:

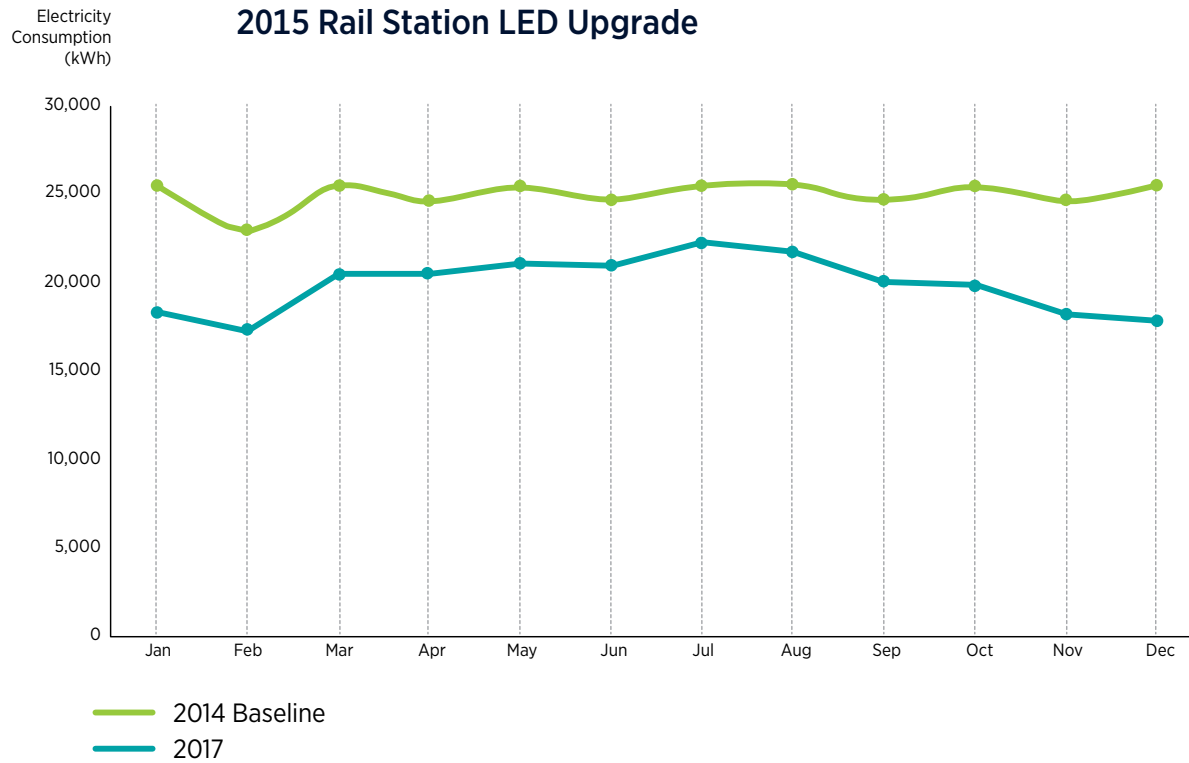
In 2015, six rail stations were selected for LED upgrades to improve lighting for safety standards and energy efficiency. Retrofits took place at Henderson, Manurewa, Orākei, Glen Innes, Glen Eden, and Rānui rail stations.

The entire retrofit project for all six stations combined are delivering an annual reduction in electricity consumption of 60,900 kWh per year. This is an annual cost savings of \$11,500 and greenhouse gas emissions reduction of 7 tonnes of CO<sub>2-e</sub> per year.

The Rail Delivery team is now exploring options to upgrade lighting in all of the rail stations to LEDs by 2020. The lighting standard for new stations and upgrades specify LED, such as the Pukekohe Station upgrade.



New Pukekohe Station upgrade.



## OUTCOMES

- Annual energy savings of 60,900 kWh
- Annual cost savings of \$11,500
- Annual emissions savings of 7 tonnes of CO<sub>2</sub>-e



## LOW EMISSION TRANSPORT CHOICES

Integrated walking, cycling, and public transport into our daily lives so they become the norm.

Encourage the uptake of low emission vehicles and intelligent mobility.

# Electric Buses

**Project Sponsor and Delivery:** Transport Services Development

**Project Date:** May 2018 - Present

**Sustainability Framework Focus Area:**

Low Emission Transport Choices

- Integrated walking, cycling, and public transport into our daily lives so they become the norm.
- Encourage the uptake of low emission vehicles and intelligent mobility.

**Project Background:**

In May 2018, Auckland Transport added two electric buses (e-bus) to the bus fleet. The two e-buses support the objectives in Auckland Transport's Low Emission Bus Roadmap. The e-buses also contribute toward the Mayor's pledge to the C40 Fossil Fuel Free Streets Declaration, which includes a commitment to only purchase zero-emission buses from 2025.

The e-bus trial is partially funded by Energy Efficiency Conservation Authority (EECA), who provided \$500,000 through their Low Emission Vehicles Contestable Fund to support the purchase of two electric buses and two chargers. The intent of the trial is to better understand true operational context of e-buses as well as inform on the impacts to the electrical network when it comes to implementing charging infrastructure. The e-buses are currently operating on the City Link service from 6am to



Electric bus operating on the City Link service route.



9pm each day and are charged overnight at the bus depot where the chargers have been installed.

Since their launch in May, the e-buses have already received positive feedback from both customers and drivers and are performing well. The learnings so far suggest that the buses only use on average 60% of their battery power after a day's work and cost approximately 59 cents less per kilometre travelled compared to conventional diesel buses on the same City Link route.

By the end of the trial, Auckland Transport is hoping to understand the fundamentals of operating e-buses and charging infrastructure so that key learnings can be shared countrywide. These learnings will better equip Auckland Transport to expand the electric bus fleet. This includes having a clear understanding of applicable standards and compliance measures, the impacts of charging infrastructure, total capital and operational costs, vehicle performance, and how to frame future tendering and supply contracts.

## OUTCOMES

- On average, the e-buses cost **59 cents less per km** travelled to operate compared to conventional diesel buses on the same City Link route.
- Each e-bus can conduct **a day's service on a single charge** on the City Link route.
- Since their launch\*, the e-buses have avoided 1,880 litres of diesel and 4 tonnes of CO<sub>2</sub>-e

\* As of 30th July, 2018. As the trial progresses and more data becomes available, Auckland Transport will be able to report on additional metrics.

The Enviro200EV e-buses utilise regenerative braking to deliver additional driving range.

Lightweight aluminium body structure helps improve power and performance.

Efficient rapid charging within 4 hours for maximum productivity.

Reduced noise levels compared to diesel buses.



# Electric Vehicle Charging Infrastructure - Public Use

**Project Sponsor and Delivery:** Planning and Investment

**Project Date:** 2016 - Present

**Sustainability Framework Focus Area:**

Low Emission Transport Choices

- Integrated walking, cycling, and public transport into our daily lives so they become the norm.
- Encourage the uptake of low emission vehicles and intelligent mobility.

**Project Background:**

In 2016, Auckland Transport in partnership with ChargeNet were awarded match funding from the Energy Efficiency Conservation Authority to install 60 electric vehicle (EV) chargers in public parking and park and ride sites across the region. The purpose of the project is to raise awareness of electric vehicles by contributing to an expanding public charging network, provide priority parking for electric vehicles, and reduce range anxiety for drivers. The installation will also gather data and analytics to better understand charging behaviours and guide future investment. These learnings will help AT understand challenges and opportunities for wider implementation.



An example of a charger installed in Downtown Carpark.

Nearly half the chargers were installed in central Auckland with additional chargers installed in south, east, and west Auckland. All of the chargers are 7 kW Delta chargers with built in network capability to track charging behaviours. The chargers can be activated through the driver’s ChargeNet account and are currently free for the public to use.

**Chargers installed to date:**

Location	Number of EV Chargers
<b>Symonds Street Carpark</b> 226 Symonds Street	6
<b>Civic Carpark</b> Entry at Greys Ave and Mayoral Drive	6
<b>Downtown Carpark</b> 31 Customs St West	6
<b>Victoria Street Carpark</b> 30 Kitchener St	3
<b>Fanshawe Street Carpark</b> 72 Fanshawe St	6
<b>Pompallier Terrace Carpark</b> 2 Pompallier Terrace	3
<b>Ronwood Carpark</b> 2 Davies Ave Manukau	6
<b>Pilkington Road Carpark</b> 3 Pleasant View Road	6
<b>McCrae Way Carpark</b> Entry at McCrae Way, New Lynn	6

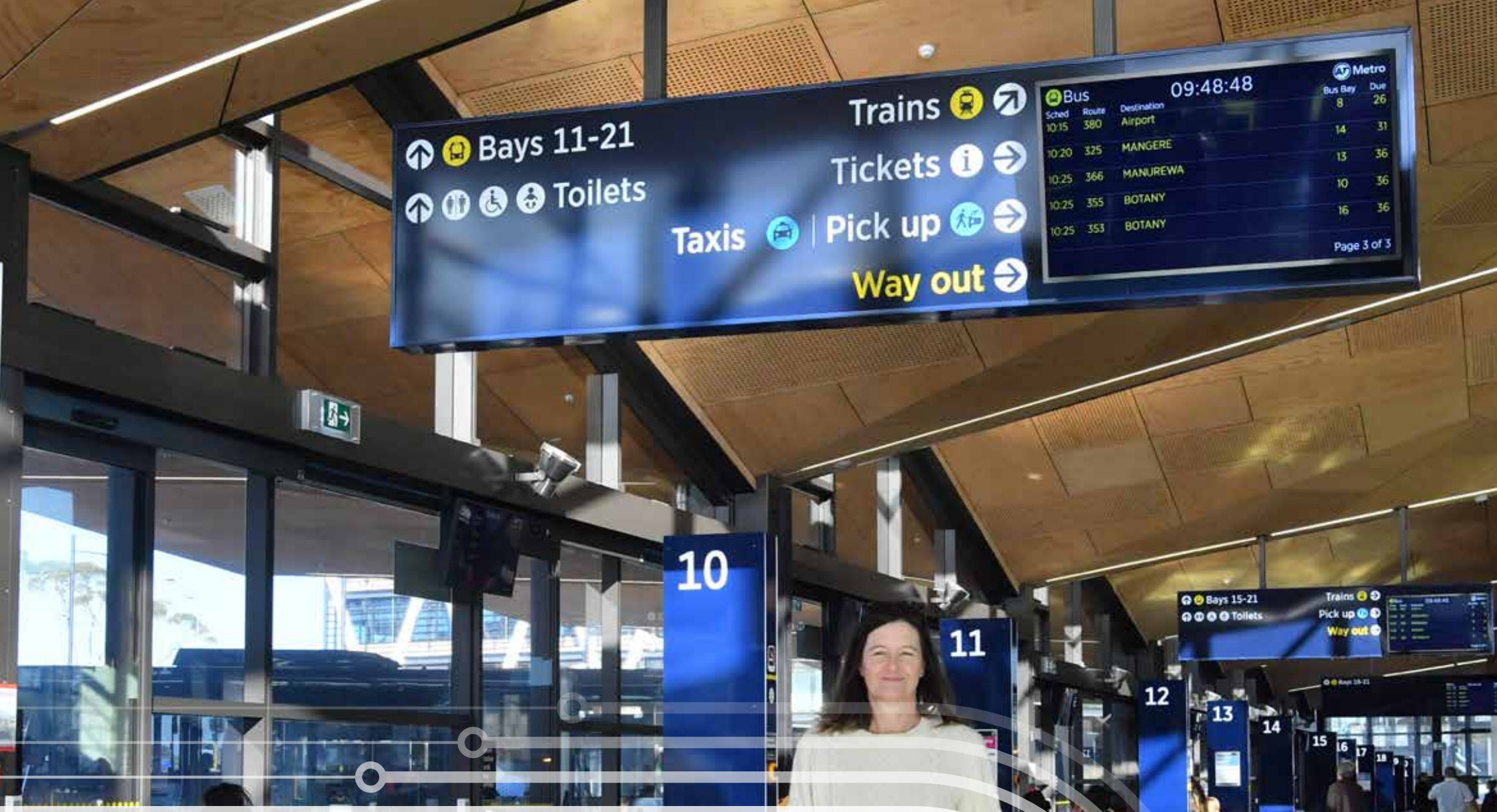
\* This data only represents charging information from Ronwood, Civic, Downtown, Fanshawe, Victoria and Pompallier as of July 2018. As additional units come online, more data will become available for measuring impacts.



**OUTCOMES**

**Since the chargers went live in May, 2018\* there have been:**

- 25 charge sessions
- 9 unique EV driver check-ins
- 170 kWh of energy used to charge EVs



Bus			09:48:48		Metro	
Sched	Route	Destination	Bus Bay	Due		
10:15	380	Airport	8	26		
10:20	325	MANGERE	14	31		
10:25	366	MANUREWA	13	36		
10:25	355	BOTANY	10	36		
10:25	353	BOTANY	16	36		

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# INNOVATION AND TECHNOLOGY

Use innovation, technology, and data for improved outcomes.

# Solar Bus Shelters and Passenger Information Displays

**Project Sponsor:** Transport Services Development

**Project Delivery:** Infrastructure Development and Market and Engagement

**Project Date:** 2011 – Present

**Sustainability Framework Focus Area:**

Innovation and Technology

- Use innovation, technology, and data for improved outcomes.

## Project Background:

### Solar Powered Bus Shelters

In 2016, Auckland Transport's Infrastructure Development team started installing solar powered lights at bus shelters across the network. Using solar to light our bus shelters is efficient, sustainable, and less costly than grid connected lighting. Auckland Transport looks after over 1,500 shelters across the city, of which over 347 are powered by renewable solar energy.

As the bus network continues to grow, Auckland Transport is committed to building new shelters as sustainably and cost effective as possible. This means that as a standard of practice, solar-lit bus shelters will be the preferred design choice wherever feasible.



Auckland Transport is also exploring freestanding solar powered poles in addition to the solar-lit shelters to improve lighting conditions at the shelters. Ensuring bus shelters deliver adequate lighting for safety and comfort is an important part of the customer journey.

### Solar Powered Passenger Information Displays

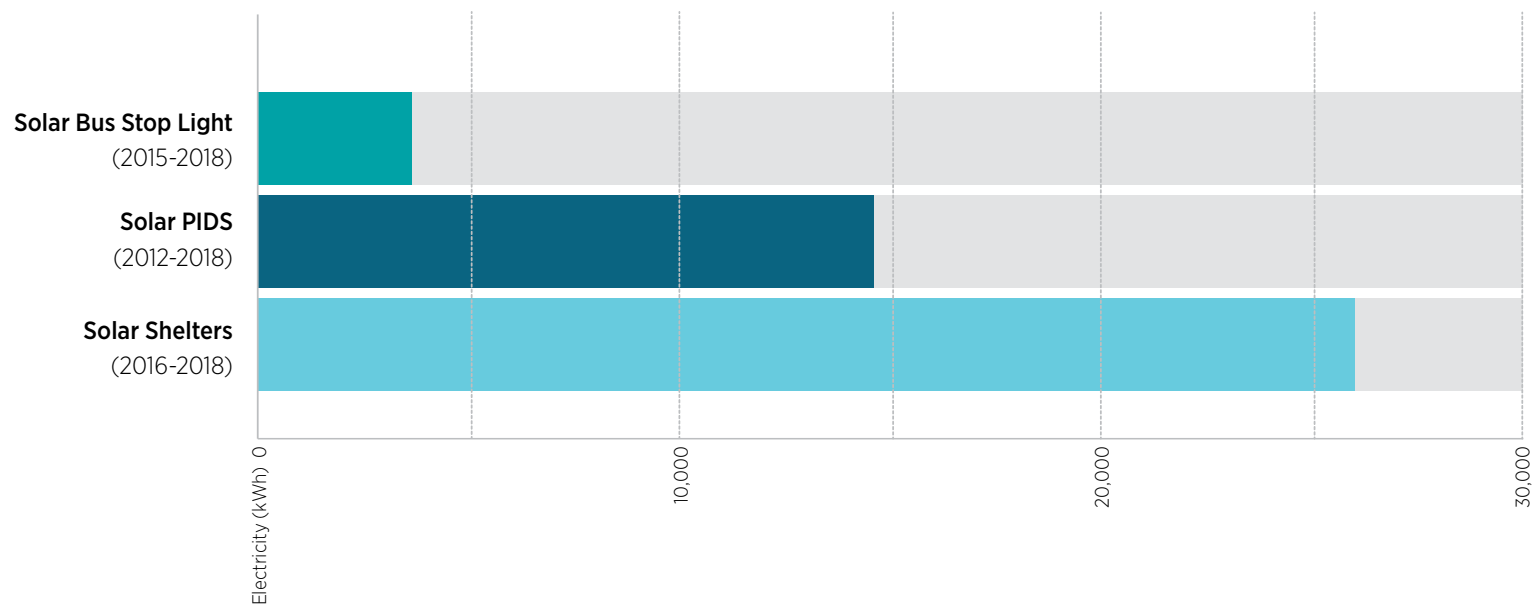
Auckland Transport is embarking on a pilot program to test the feasibility of e-paper devices as passenger information displays, which provide real time information to passengers. E-paper devices mimic the appearance of ordinary ink on paper and require less power, are instantly updateable, and provide visibility in a variety of conditions.

E-paper displays run on very low energy, which makes them great candidates to operate entirely on solar power. This off-the-grid solution delivers reduced operating costs through avoided connection fees and cost of electricity from the grid.

Auckland Transport currently operates 139 solar powered Passenger Information Displays (PIDS) across the bus network. Given the age of these existing units and constraints in visibility of the display, Auckland Transport is looking to transition the older generation solar displays to the solar e-paper display units.

Auckland Transport conducted customer surveys in July 2018 to collect customer insights on the e-paper display technology. Following this customer engagement, the intent is to replace the 139 existing solar powered passenger information displays with the new e-paper displays and add an additional 300 units to the network by 2020.

### Annualised Avoided Grid Electricity from Solar Projects



## OUTCOMES

### Solar Shelters

- **25,800 kWh** of electricity avoided annually
- **\$5,000** avoided costs on annual electricity bills
- **\$1.7M** of estimated avoided costs in grid connection fees (one-off fee)
- **3 tonnes** of avoided CO<sub>2-e</sub> emissions per year

### Solar Bus Lights

- **3,400 kWh** of electricity avoided annually
- **\$650** avoided costs on annual electricity bills
- **\$660,000** of estimated avoided costs in grid connection fees (one-off fee)
- **0.5 tonnes** of avoided CO<sub>2-e</sub> emissions per year

### Solar Passenger Information Displays

- **14,500 kWh** of electricity avoided annually
- **\$2,700** avoided costs on annual electricity bills
- **\$695,000** of estimated avoided costs in grid connection fees (one-off fee)
- **2 tonnes** of avoided CO<sub>2-e</sub> emissions per year

### Combined Savings (Shelters + Lights + PIDs)

- **43,900 kWh** of electricity avoided annually
- **\$8,000** avoided costs on annual electricity bills
- **\$3M** of estimated avoided costs in grid connection fees (one-off fee)
- **5,226 tonnes** of avoided CO<sub>2-e</sub> emissions per year



# Devonport Smart Poles

**Project Sponsor:** Business Technology

**Project Delivery:** Business Technology and Infrastructure Development

**Project Date:** August 2016 – Present

**Sustainability Framework Focus Area:**

- Low emission transport choices.
- Use innovation, technology, and data for improved outcomes.

## Project Background:

In 2016, Auckland Transport received \$75,000 in funding through the Energy Efficiency Conservation Authority’s Low Emission Vehicles Contestable Fund to support the Smart Poles Project. The purpose of the 12 month trial phase is to capture and analyse data from the smart poles to better understand how people in the Devonport vicinity integrate and transition between the various modes of transport available. This data will be integral to understanding how to shape future commercial development of the ferry terminal.

Devonport Ferry Terminal was selected as the test site because it provides different modalities, including short term parking, long term parking, ferry terminal, bus interchange, pedestrian and cycling amenities. The Smart Poles are provided by the Urban Institute as a “smart city” technology. The poles include real time environmental data monitoring, parking sensors,





Wi-Fi stations, electric vehicle charging, and adaptive lighting capabilities.

The environmental sensors capture barometric pressure, temperature, humidity, noise levels, brightness, carbon dioxide emissions, and fine particulate matter for tracking air quality.

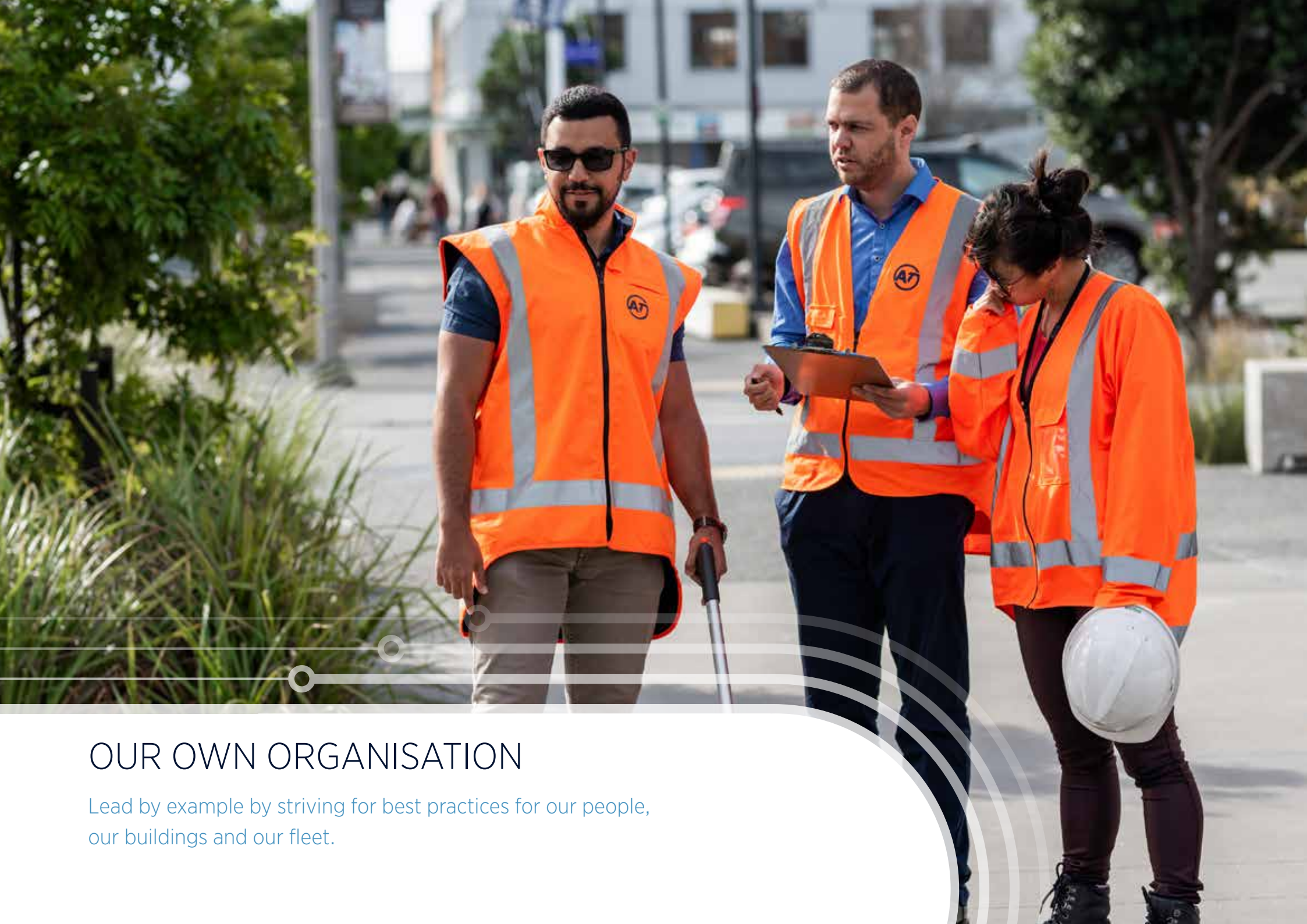
There are five Aruba Base Wi-Fi stations that assist in tracking number of people in the area and provide movement analytics. There are nine overhead parking sensors and eighteen in ground parking sensors to collect data on parking behaviours.

The Smart Poles utilise high quality LED luminaires with smart light management hardware controlled over motion sensors, allowing the user to control the brightness levels to maximize energy savings.

Each Smart Pole is outfitted with a Mode 3 electric vehicle charging station, with two charging points per station (meaning the chargers can charge a maximum of four cars at one time). For the purpose of this trial, only two charging points will be operational and the remaining two charging points will be activated depending on the demand. The charging equipment provides up to 22kW charging capacity for each charge point and is activated using a Radio Frequency Identification (RFID) card.

The Devonport Smart Poles demonstrate integrative planning that combines technology and innovation with sustainable development. Once the pilot officially launches, Auckland Transport will collect and analyse all of the data available to measure impacts and benefits of this new technology.





# OUR OWN ORGANISATION

Lead by example by striving for best practices for our people, our buildings and our fleet.

# Corporate Fleet - Electric Vehicles

**Project Sponsor:** Chief Financial Officer

**Project Delivery:** Corporate Accommodation and Procurement

**Project Date:** 2018

## Sustainability Framework Focus Area:

Our own Organisation

- Lead by example by striving for best practices for our people, our buildings and our fleet.
- Low emission transport choices.

## Project Background:

Recently, Auckland Transport has made a concerted effort to “right size” the fleet by removing underutilised vehicles and prioritising the removal of older and underperforming (from an emissions perspective) vehicles. Additionally, the recent office consolidation into 20 Viaduct Harbour means that staff will be required to conduct less inter-office travel and create centralised demand and access for fleet vehicles to optimise fleet efficiencies. These efforts combined have allowed Auckland Transport to reduce the fleet size by 15%.



In 2018, Auckland Transport purchased 20 Hyundai Ioniq electric vehicles (EVs) to replace petrol and diesel vehicles in the fleet. The Ioniq is a fully electric, zero emission car and will reduce overall fleet emissions by 11 per cent (65,662 kg CO<sub>2-e</sub>) annually. To accommodate these new vehicles, Auckland Transport installed nineteen 7kW electric vehicle chargers (approximate charge time of 3.5 hours) and one 25kW DC fast charger (approximate charge time of 1.5 hours) at AT headquarters.

In addition to the electric vehicles, Auckland Transport also offers three electric bicycles and six pedal bikes as part of the fleet, providing staff with alternative low-carbon transport choices.

Moving forward, Auckland Transport has set a goal for a zero emissions fleet by 2025 as part of the Low Emissions Roadmap.

## OUTCOMES

- Replacing 20 petrol hatchbacks with electric vehicles will reduce total annual fleet emissions by 11%
- The EV fleet is expected to save \$0.25 per km travelled when comparing cost of petrol to cost of electricity to "fuel" the vehicle.



# Corporate Accommodation Energy Stewardship

**Project Sponsor and Delivery:** Corporate Accommodation

**Project Date:** November 2017 – Present

**Sustainability Framework Focus Area:**

Our own Organisation

- Lead by example by striving for best practices for our people, our buildings and our fleet.

## Project Background:

Auckland Transport is committed to walking the walk when it comes to demonstrating energy efficiency. Auckland Transport has taken careful action to ensure that its offices and services operate effectively.

Consolidating several satellite offices into one central headquarters located at 20 Viaduct Harbour along with three office hubs (Albany, Henderson, and Manukau) was the first step in creating efficiencies. Amalgamating offices has resulted in better productivity now that 1,654 staff are under one roof and have access to centralised services such as training opportunities and fleet vehicles.

The new headquarters takes into consideration various ways in which we can reduce energy consumption. The new office lay out promotes “hot desks” which encourages employees to move around the business opposed

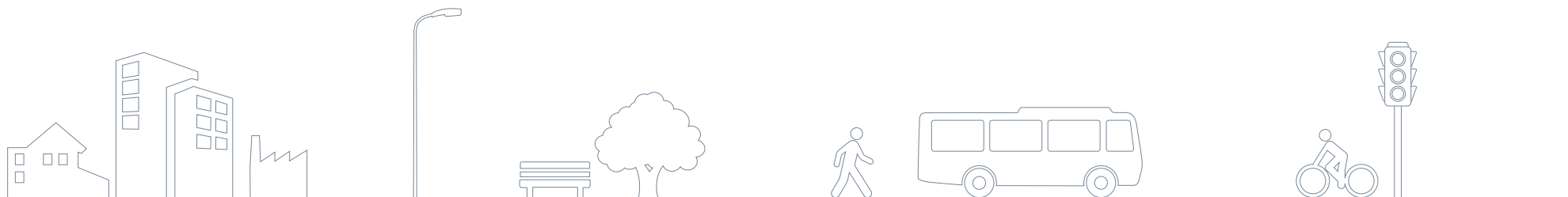


to designated seating. Since staff are responsible for packing up their belongings each day, this reduces the typical suspects for phantom power consumption – such as computers left on in sleep mode and other miscellaneous electronics. Staff also have flexible work options available to them, such as work from home and flexible hours, which also assist in reducing emissions from staff commuting during peak traffic hours.

Headquarters at 20 Viaduct Harbour incorporates efficient LED lighting that operates on occupancy sensors that detect motion and sound to adjust lighting levels. Appliances such as coffee machines and kettles as well as internal communications screens are on timers and programmed to operate only during peak office hours.

## OUTCOMES

- Employees working at 20 Viaduct Harbour consume on average 2.5 kWh of electricity per day.
- Current initiatives to reduce consumption will save Auckland Transport 55,000 kWh per annum.



# Accountability and Collaboration

## Project Delivery: Metro and Facilities Management

### Project Date: Ongoing

#### Sustainability Framework Focus Area:

Our own Organisation

- Lead by example by striving for best practices for our people, our buildings and our fleet.

In 2016, Auckland Transport signed a three-year partnership agreement with the Energy Efficiency Conservation Authority (EECA). The partnership has enabled AT to take more concerted actions toward overall energy management in our organisation.

Through the partnership agreement, Auckland Transport is held accountable to a 2.85 GWh energy savings target to be delivered by January 2019. To achieve this target, EECA has provided programme support to Auckland Transport through monthly operational meetings and quarterly governance meetings with key staff members to mobilise efficiency projects and deliver milestone commitments. Since signing the partnership agreement, two full-time dedicated positions have been appointed to provide oversight on energy efficiency and low carbon projects in Auckland Transport.

In addition to programme support, EECA has provided over \$1 million dollars in funding to support energy management and climate initiatives in the organisation. This funding has been allocated to innovative projects

such as the electric bus trial, electric vehicle charging equipment for public use, the smart pole pilot in Devonport, as well as support for tracking energy consumption and quantifying savings from efficiency projects.

In addition to EECA, Auckland Transport uses Ellserve, an energy management software tool, to track and monitor Auckland Transport's electricity consumption and costs from retailer invoices. Auckland Transport also works closely with Smart Power to monitor large energy consuming sites with half-hourly electricity data, identify opportunities for retrofits, raise consumption anomalies and performance issues, and assist with tenant on charging for provision of utilities.

Much like the old adage, “what gets measured, gets managed”, Auckland Transport has implemented such programmes and tools to do just that. As an organisation, Auckland Transport seeks to improve environmental literacy when it comes to energy management to deliver sustainable and cost effective outcomes for the business and the wider network.

#### OUTCOMES

- Reconciliation of electricity accounts recovered \$800,000 worth of cost savings as a result of improved utility management.

