SNUG 2026 · WELLINGTON

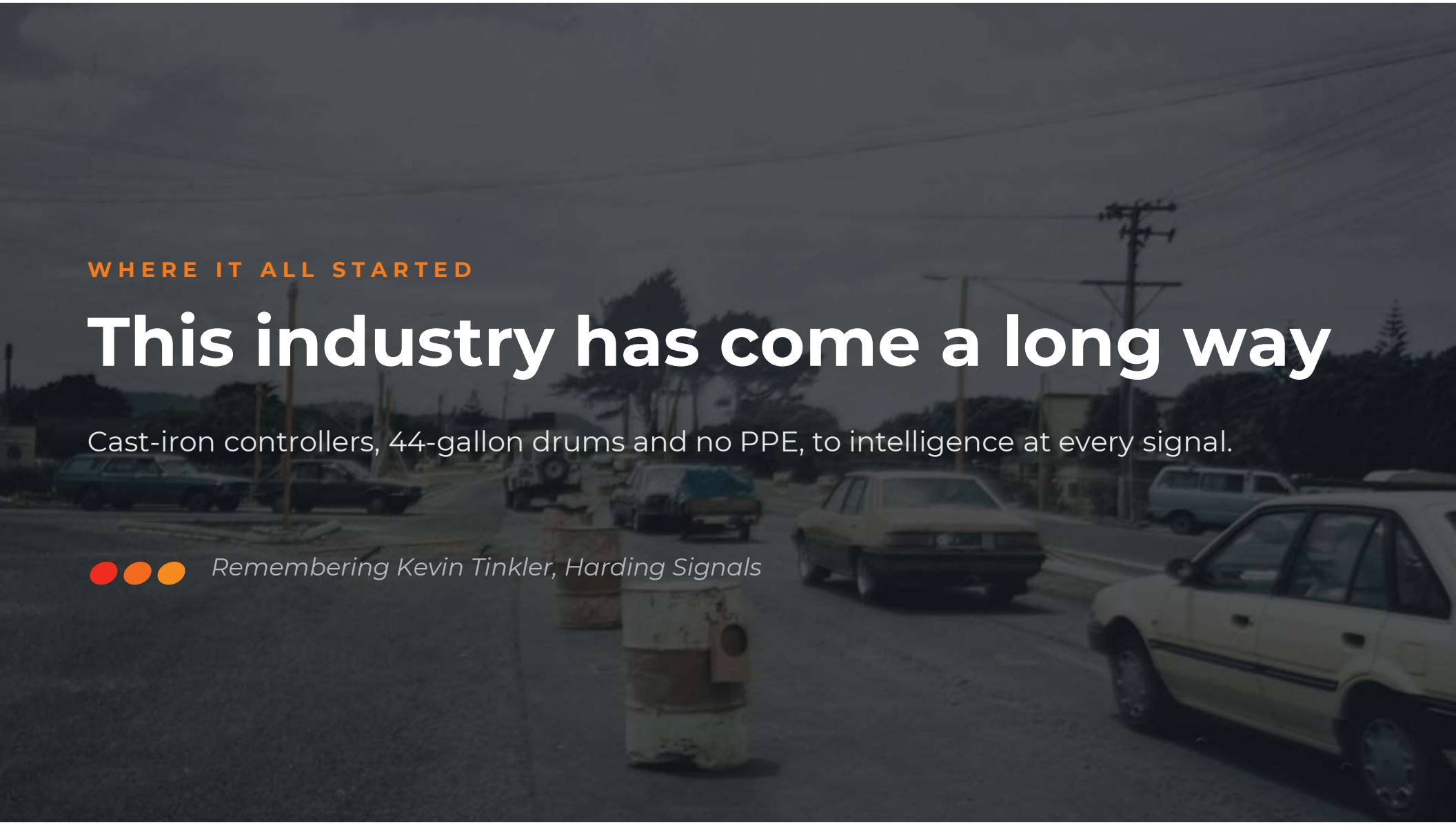
Keeping New Zealand moving

22 years of TSL, hundreds of intersections, over a thousand controllers, thousands of poles, kilometres and kilometres of cable and who knows how many lanterns. Proudly Kiwi.

Paul Ransley · Traffic Systems Ltd

with Lawrence Brown, ATC





WHERE IT ALL STARTED

This industry has come a long way

Cast-iron controllers, 44-gallon drums and no PPE, to intelligence at every signal.

Remembering Kevin Tinkler, Harding Signals

HANDS UP

How long have you been doing traffic signals?

Keep your hand up until your number is passed.

- 10+ years
- 20+ years
- 30+ years
- **40+ years**

40+

years in signals

Who is still standing?

THE EARLY DAYS

Before traffic management was a thing

No PPE. No traffic management plan. Just a row of 44-gallon drums between us and the cars.



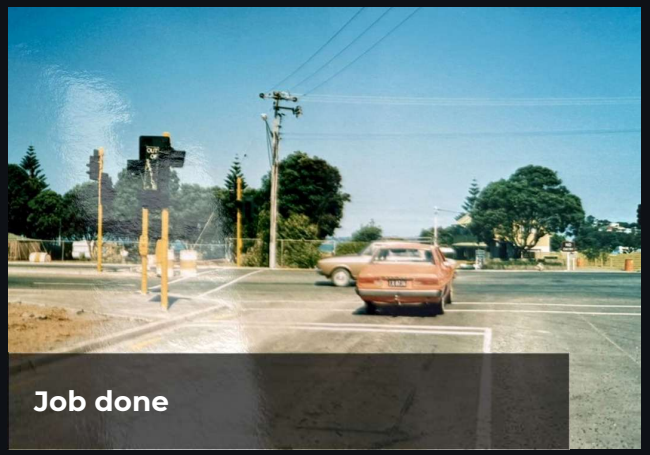
Sorting lanterns on the lawn at the Orewa Campground



The original TMP



No shirt. No hi-vis. Live traffic.



Job done



THE LAST OF THE TYPE 54S

A Plessey controller, a Kingswood ute and a lot of swinging

- **Type 54, Plessey, made in England**

  A big cast-iron box that weighed a ton. Too heavy to lift, so we pushed them over.

- **Then we called RJ Don**

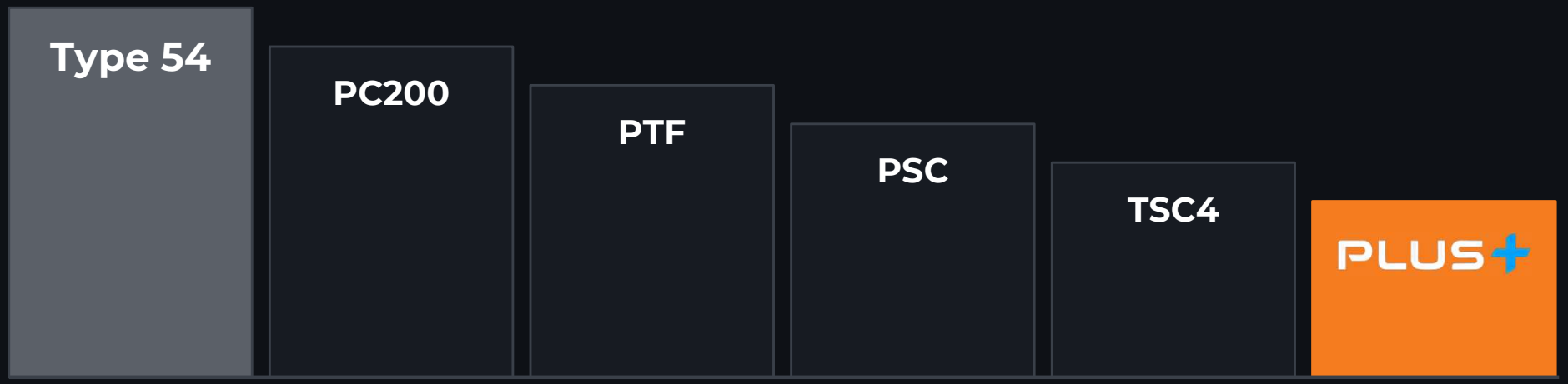
  Holden Kingswood utes turned into tow trucks. Strap the controller on the back and off down the road, swinging side to side.

- **The last ones out**

  We believe the last was Great North Road and Railside Avenue, New Lynn. Before that, Manukau Road and Ranfurly Road, Epsom.

HOW FAR CONTROLLERS HAVE COME

From a ton of cast iron to intelligence at every signal

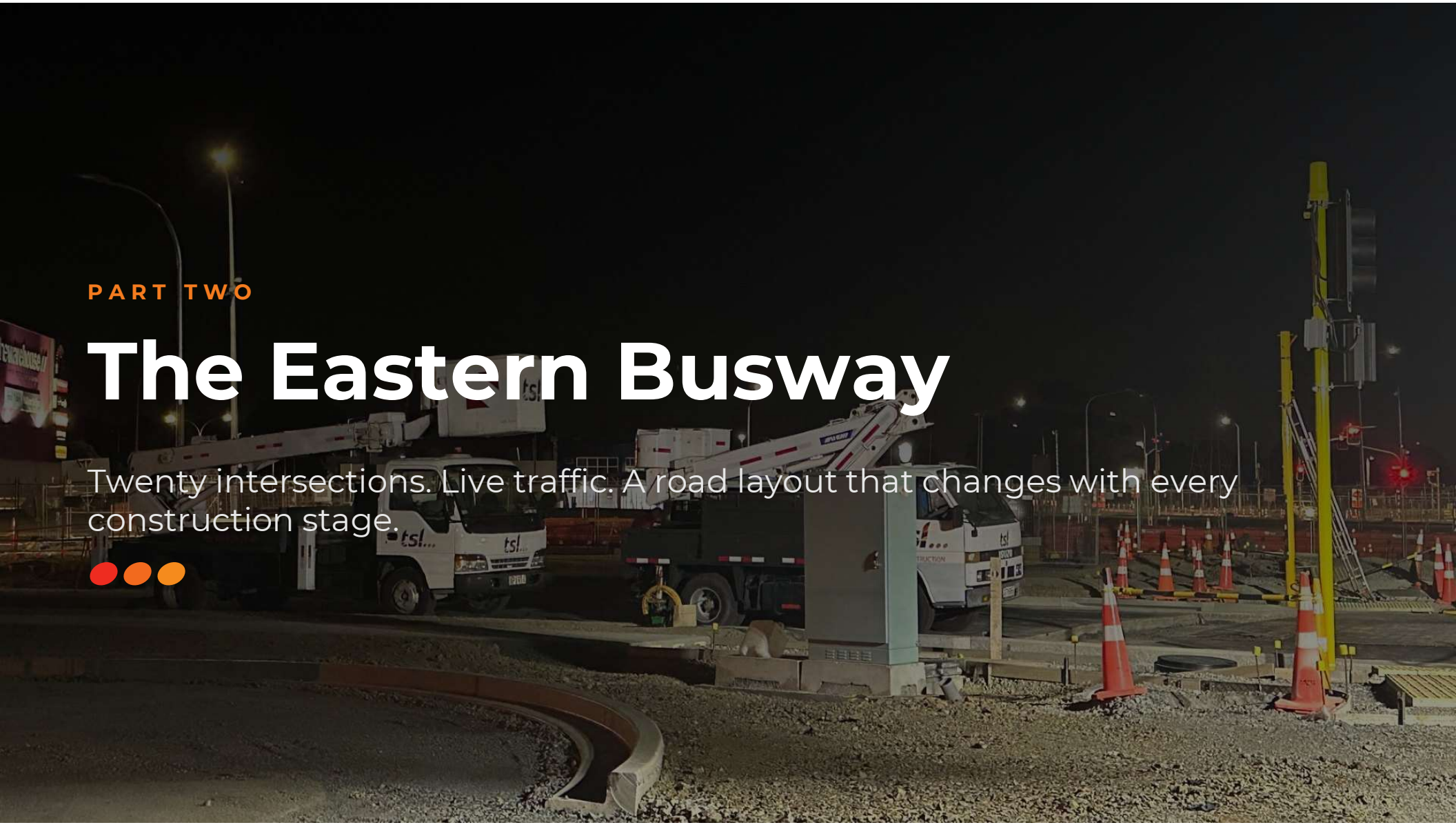


Plessey, England.
Cast iron.

Then

Lawrence will show you.

Now



PART TWO

The Eastern Busway

Twenty intersections. Live traffic. A road layout that changes with every construction stage.

BEFORE WE GO ON

One number to hold onto.

We are building 20 signalised intersections on the Eastern Busway. How many kilometres of 36 core, fibre, feeder and Cat 6 cable have gone in so far?

HAVE A THINK ABOUT IT

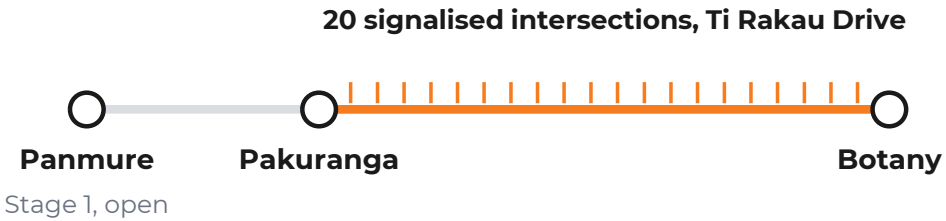
- Under 10 km
- 10 to 25 km
- 25 to 50 km
- Over 50 km



Keep your answer. We will come back to it.

THE JOB

Twenty signalised intersections, built with the corridor open



- Eastern Busway Alliance, for Auckland Transport. Stages EB2, EB3R, EB3C, EB4 and EB5.
- TSL scope: poles, cabling, ATC controllers, UPS cabinets, radar detection, the temporary signal configuration for every stage, commissioning.
- **18 intersections running by Christmas. All 20 by the first quarter of 2027.**





THE HARD PART

The new intersections were never the hard part. The live ones were.

01 **Every stage moves the lanes**

And every stage needs detection and phasing that match it from day one.

02 **Loops die when the surface changes**

In a corridor that changes with every construction stage, that is a lot of dead loops and a lot of closures to cut new ones.

03 **The network cannot go dark**

Ti Rakau Drive kept carrying its daily traffic while the busway went in beside it.

BACK TO YOUR NUMBER

So. The cable.

Twenty intersections. How many kilometres so far?

- Under 10 km
- 10 to 25 km
- 25 to 50 km
- Over 50 km



WHAT WENT INTO THE GROUND

35km

of cable

Roughly the drive from this room to Upper Hutt.

Cat 6	**10km**
36-core	**16km**
12-core fibre	**2km**
96-core fibre	**7km**

317
poles
183 standard 5 m · 102 JUSP · 32 JUMA

35
radars
smartmicro, pole-mounted

18
ATC controllers
one per intersection

18
UPS cabinets
with comms equipment

72
configuration changes
temporary signal configurations through the works

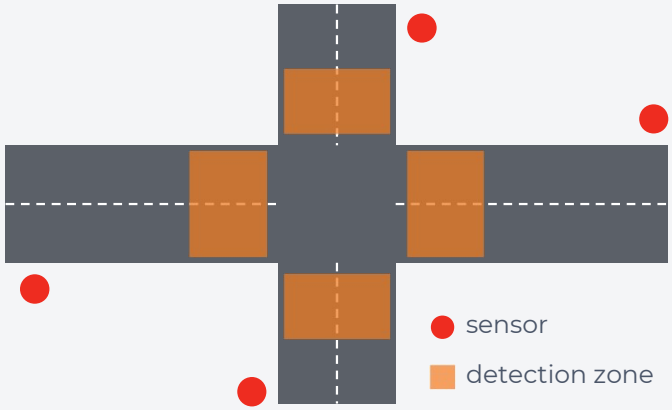
18 to 20
intersections live
by Christmas, then all 20 by Q1 2027

Eastern Busway, installed to date. Source: TSL claimed quantities on the Eastern Busway Alliance project, as at September 2026. Quantities grow until the last intersection goes live.

NEW FROM smartmicro
SMART MICROWAVE SENSORS

Deep Fusion sees every approach at once

Up to 6 TRUGRD Stream sensors
Radar and HD camera on each approach



COM HUB
Hybrid AI tracking

Fuses radar and camera data from every sensor into one live object list.

- **Every approach, one view**
  Up to six sensors fused, so no approach goes unseen.
- **Where each vehicle goes**
  Approach, lane and path of every vehicle, tracked live.
- **What each vehicle is**
  Full classification of cars, trucks, cyclists and pedestrians.
- **Detection plus data**
  Advance and stop-bar detection, plus traffic statistics.

How we kept the EBA running: as lanes shifted, we redrew the smartmicro radar zones in software. 35 radars, 72 changes, no saw-cuts.

Come and talk Deep Fusion at the TSL stand.

THE PARTNERSHIP 20 years

All 20 controllers at the EBA are ATC.

ATC supplies them. TSL builds them, installs, commissions, sells and supports them across New Zealand.

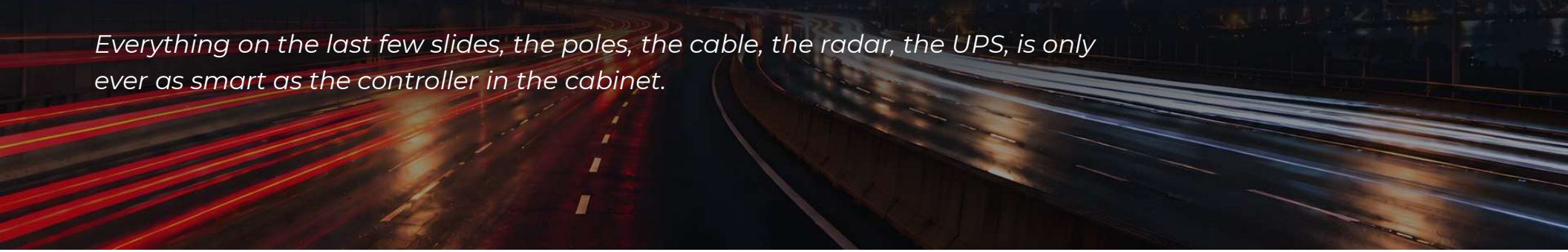
100

ATC controllers delivered nationwide, year to SNUG 2026

41

of them ELV

Everything on the last few slides, the poles, the cable, the radar, the UPS, is only ever as smart as the controller in the cabinet.



SIXTEEN YEARS OF ATC WITH TSL

Last cab off the rank.
First to ELV, VC6.1 and VC6.2.

June 2010

First ATC controller

TSL puts in its first ATC controller.

September 2016

First to VC6.1

ATC is the first controller to gain VC6.1 type approval.

October 2018

First ELV controller

The first extra-low-voltage ATC controller goes in.

May 2023

First to VC6.2

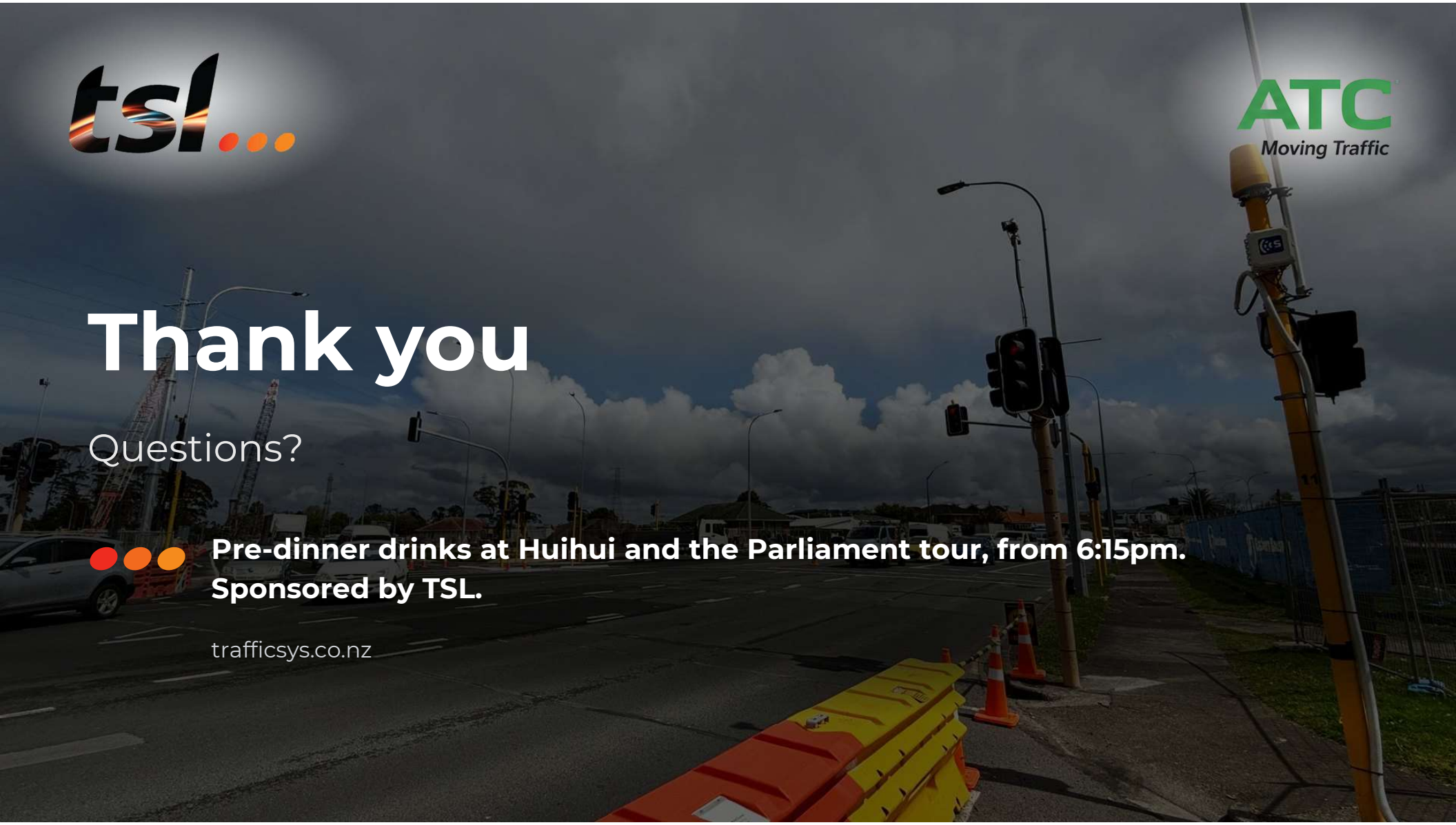
First again, to VC6.2 type approval.

2026

Plus+

Plus+ arrives. The lead in controller technology gets wider.

PLUS+


tsl
ATC
Moving Traffic
Thank you
Questions?
Pre-dinner drinks at Huihui and the Parliament tour, from 6:15pm.
Sponsored by TSL.
trafficsys.co.nz


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PLUS+
PLEASE WELCOME
Laurence Brown
ATC
Intelligence at every signal


tsl
ATC
Moving Traffic
TOMORROW IS HERE.
INTELLIGENCE AT EVERY SIGNAL.
PLUS+
Nelson St
City Centre
Hobson St
North Shore
Whangarei



What's Next?

Distributed Traffic Signals

SNUG - September 2026 – Laurence Brown

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Overview

Traditional Traffic Signals

Intelligence and switching are concentrated within the traffic signal controller. Multicore cables — typically 29, 36 or 51 core - connect the controller to roadside equipment.

Distributed Traffic Signals

The main processing remains within the controller, while switching and intelligence are distributed closer to the roadside equipment.

What changes?

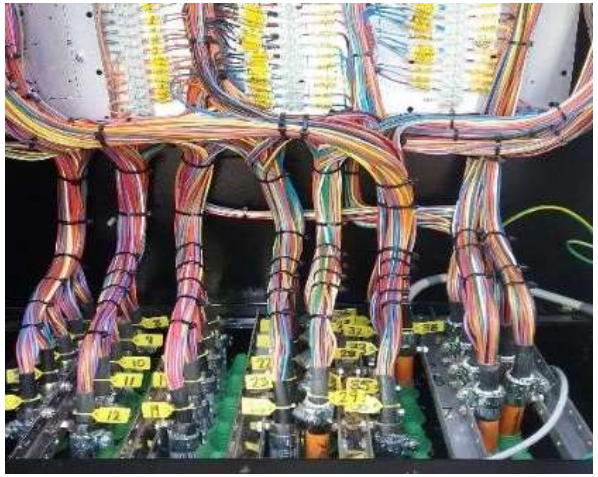
A typical distributed architecture can use just four cores - two for 48V DC power and two for communications - creating a simpler and more flexible roadside network.

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Traditional Traffic Signal Infrastructure

Current Method / Challenges

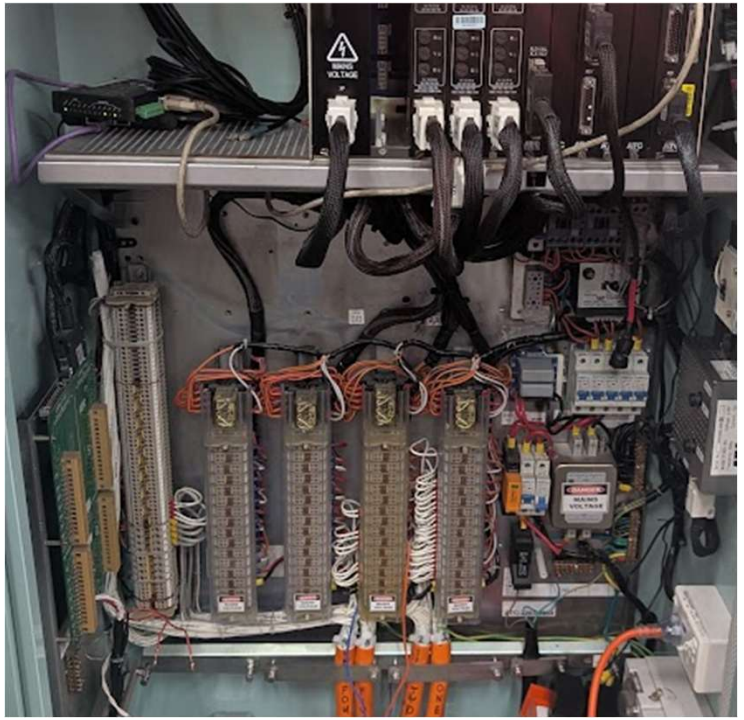
- Large multicore cables - typically 29, 36 or 51 core
- Extensive duct infrastructure required
- Significant number of cable terminations and connections
- Individual feeder cables required for detector loops



Typical LV / ELV installation



Typical traditional cable



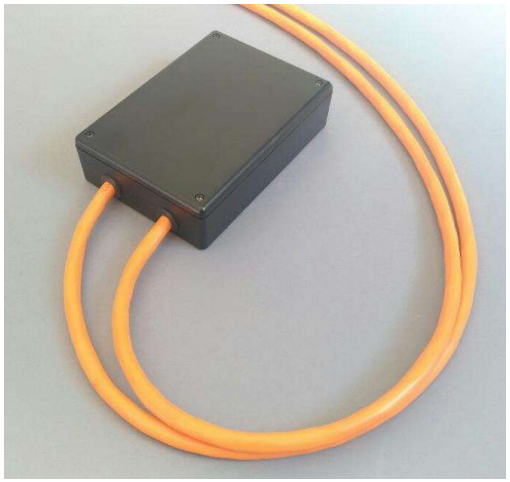
Typical ATC4S controller wiring

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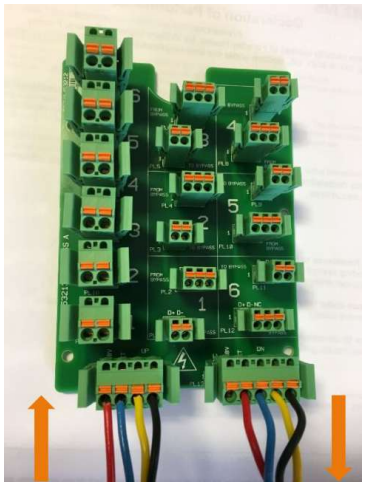
Cable Network – Distributed Signals

Overview

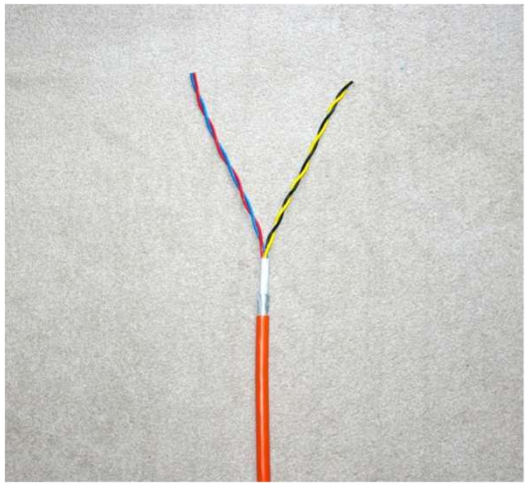
- 4-core armoured cable: 48V DC power + communications
- Can utilise existing duct networks during intersection upgrades
- Can be saw cut or installed in conduit
- Detector loops can connect locally to distributed intelligence



Smart loop



Distributed signals top assembly





Distributed signal cable

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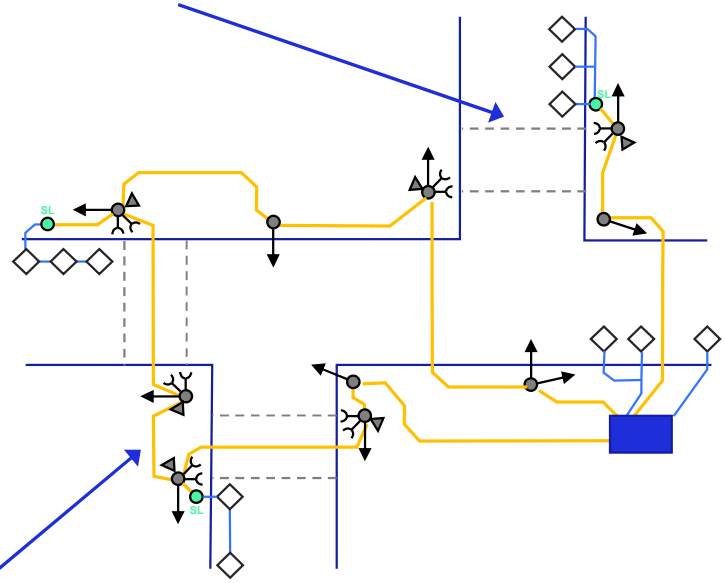
Distributed Signals System Overview

Distributed intelligence reduces the number of individual cable connections and allows the roadside network to be designed around the intersection

Flexible network topologies:

- Arms
- Rings
- Star
- Spur

*Example of an **Arm** – supporting up to 30 nodes*



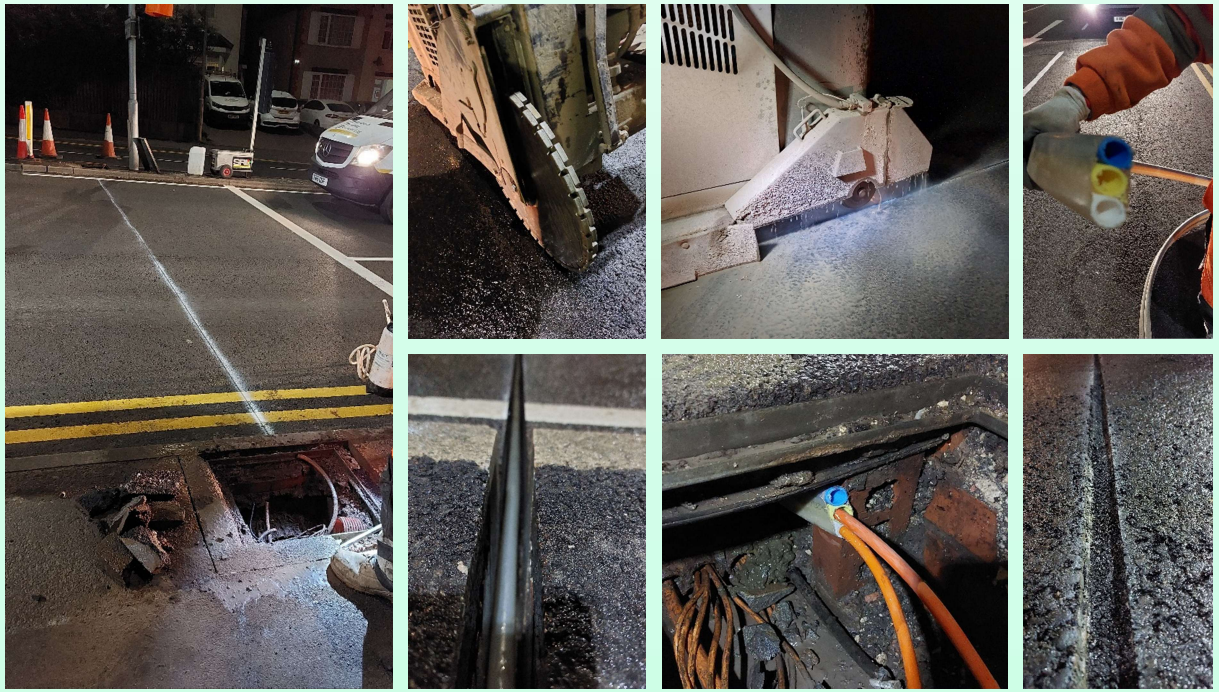
A distributed system

*Example of a **Ring** – supporting up to 30 nodes*

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Cable Network – Distributed Signals

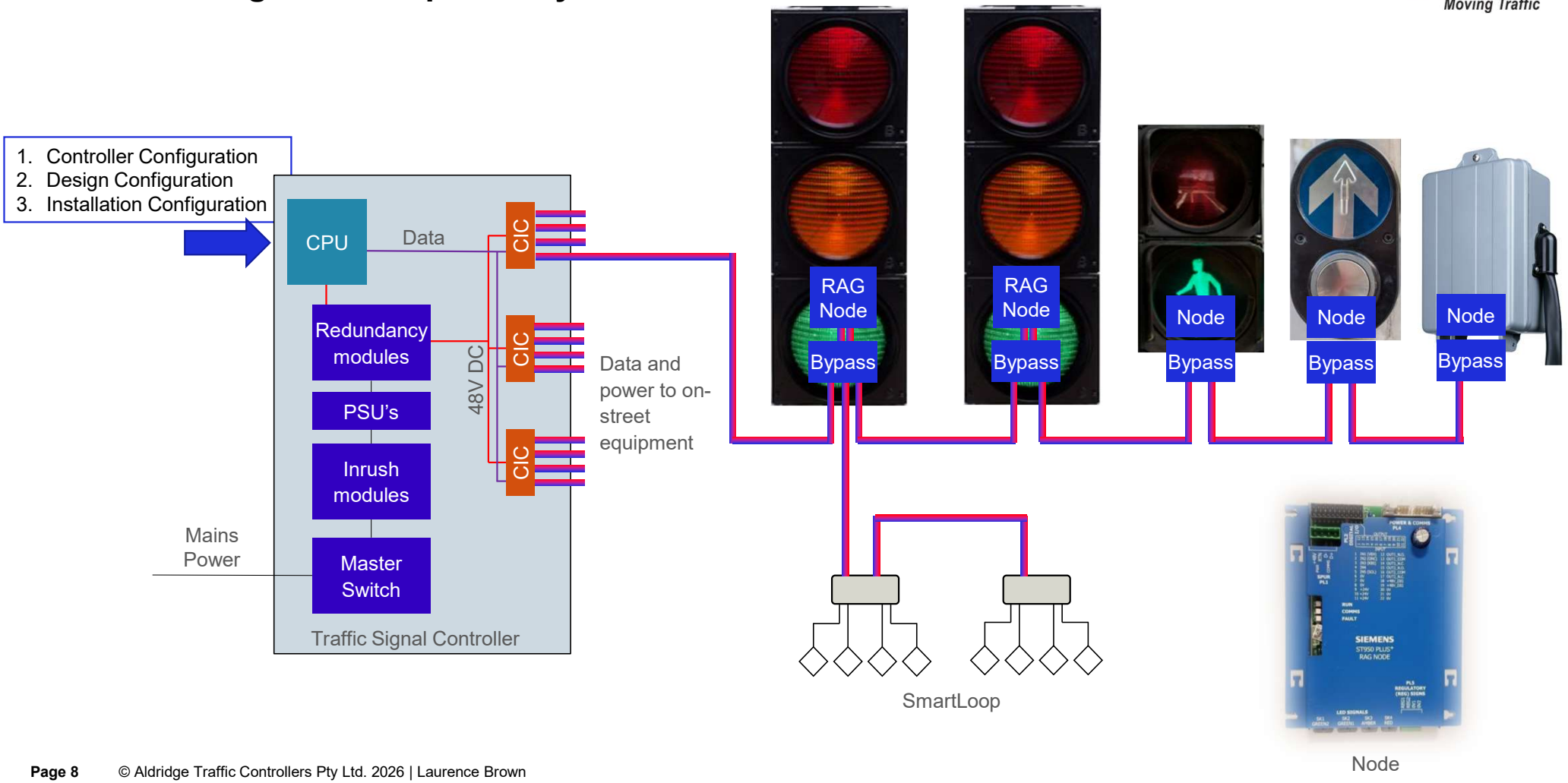
Case Study
Site refurbishment with a blocked duct across a strategic route



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Distributed Signals - Simplified System Overview

1. Controller Configuration
2. Design Configuration
3. Installation Configuration



Node

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Maintenance

Current Method / Challenges	Distributed Signal Intelligence
Lamp fault typically identified only to signal group	Fault can be identified to the individual lantern and pole
Pole strike may generate a generic controller fault	Local intelligence can identify a specific damaged pole
Damaged pole or exposed wiring may result in loss of the intersection	Affected equipment can be isolated while maintaining operation
Cable damage can result in a wider signal blackout	Damaged network section can be identified and isolated

More precise diagnostics. Faster fault location. Greater network resilience.

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Distributed signals summary



Environmental
- Less copper
- Few raw materials
- Less pollution

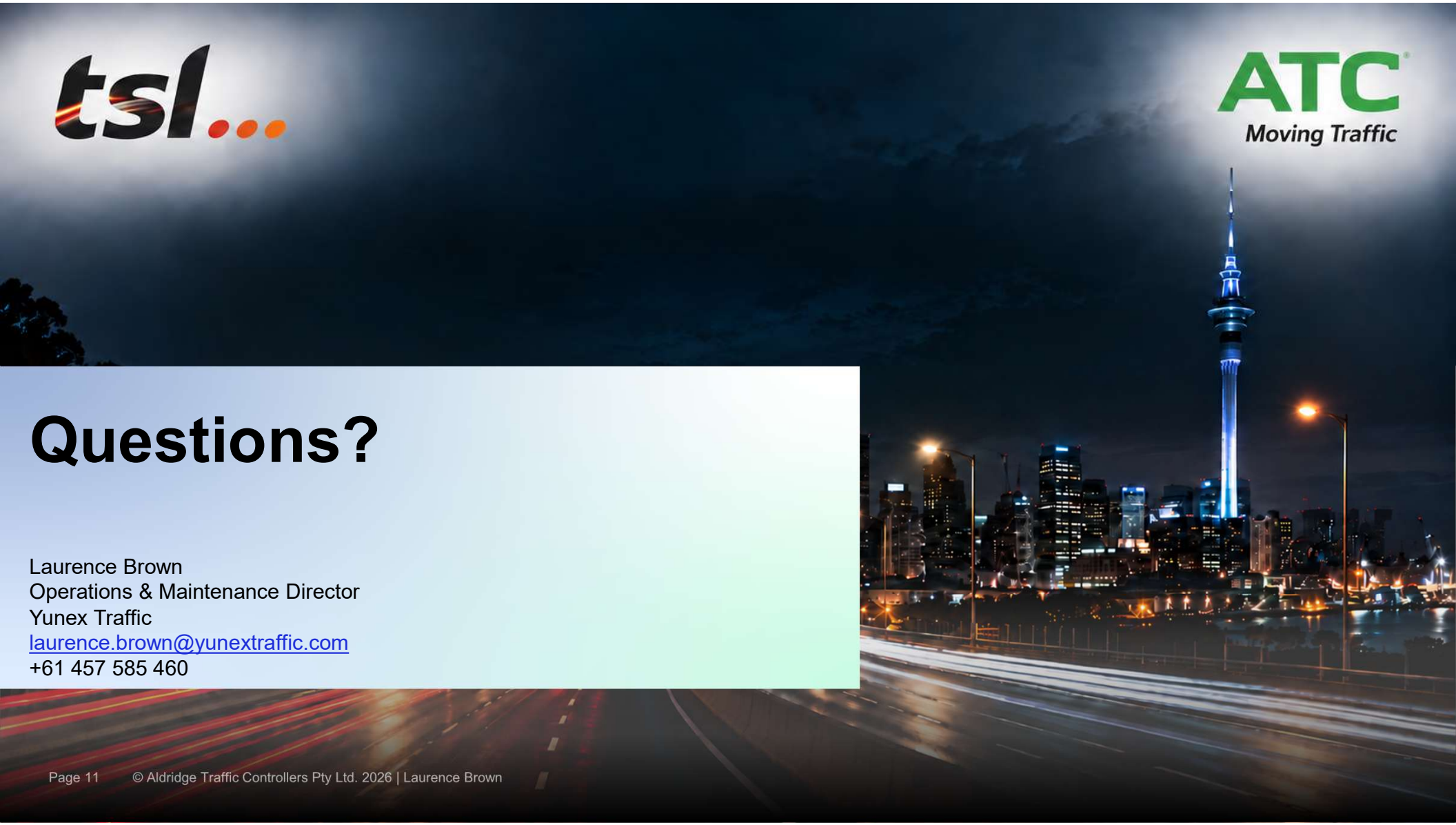
Maintenance
- Improved electrical safety
- Lighter cables
- Less time on site

Health & Safety
- Improved electrical safety
- Lighter cables
- Less time on site

Installation
- Quicker installation
- Fewer cables and ducts
- Less temporary traffic management
- Improved internal diagnostics

Socio-economic
- Reduced noise pollution and less disruption during install
- Better value for money

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Questions?

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