

# NATIONAL ROADS AND GREENWAYS CONFERENCE 2024

Session 3: Mobility of People and Goods in Urban Areas

Chair: Anne Graham, Chief Executive, National Transport Authority



# Ministerial Address

**Eamon Ryan TD**

Minister for Transport

Minister for Environment, Climate and Communications

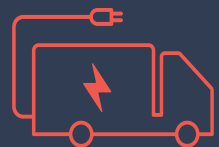


# Programme: Session 3

## Session 3: Mobility of People and Goods in Urban Areas

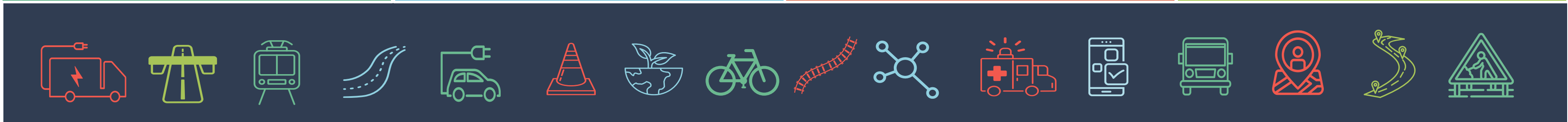
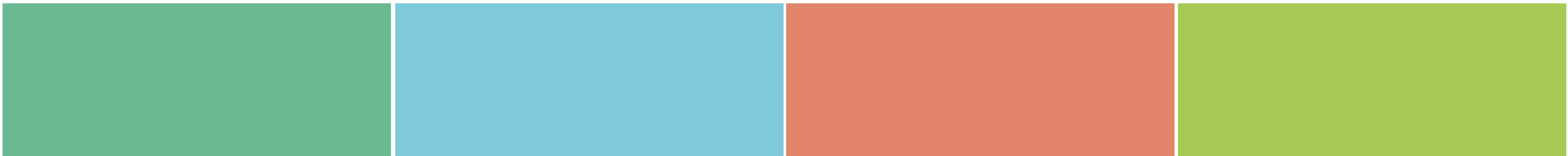
*Chair: Anne Graham, Chief Executive, National Transport Authority*

2.20pm	<b>Macroom – Impacts of the Bypass on the Town Centre One Year after Opening</b>	<i>Kelly McCarthy, TII</i>
2.30pm	<b>Quality Audits on National Roads in Urban Areas</b>	<i>Glenn Hingerty, CEng, CTPP, Lecturer, TU Dublin</i>
2.45pm	<b>N77 Abbeyleix Road Portlaoise Enhancement Scheme</b>	<i>James Dowling, Laois County Council and Dermot Donovan, Roadplan Consulting</i>
3.00pm	<b>TII National Cooperative-ITS Pilot Overview</b>	<i>Thomas D Allen, MEng. MCIHT, AECOM / RODA</i>
3.05pm	<b>Q&amp;A</b>	
3.15pm	<b>Tea and Coffee</b>	
3.40pm	<b>End of Session 3</b>	



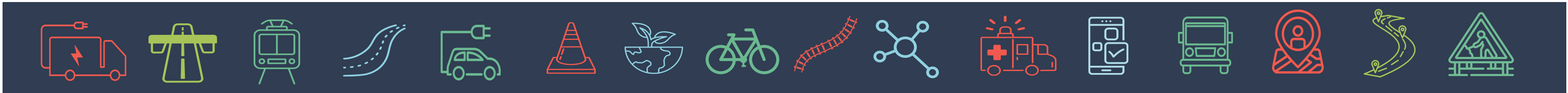
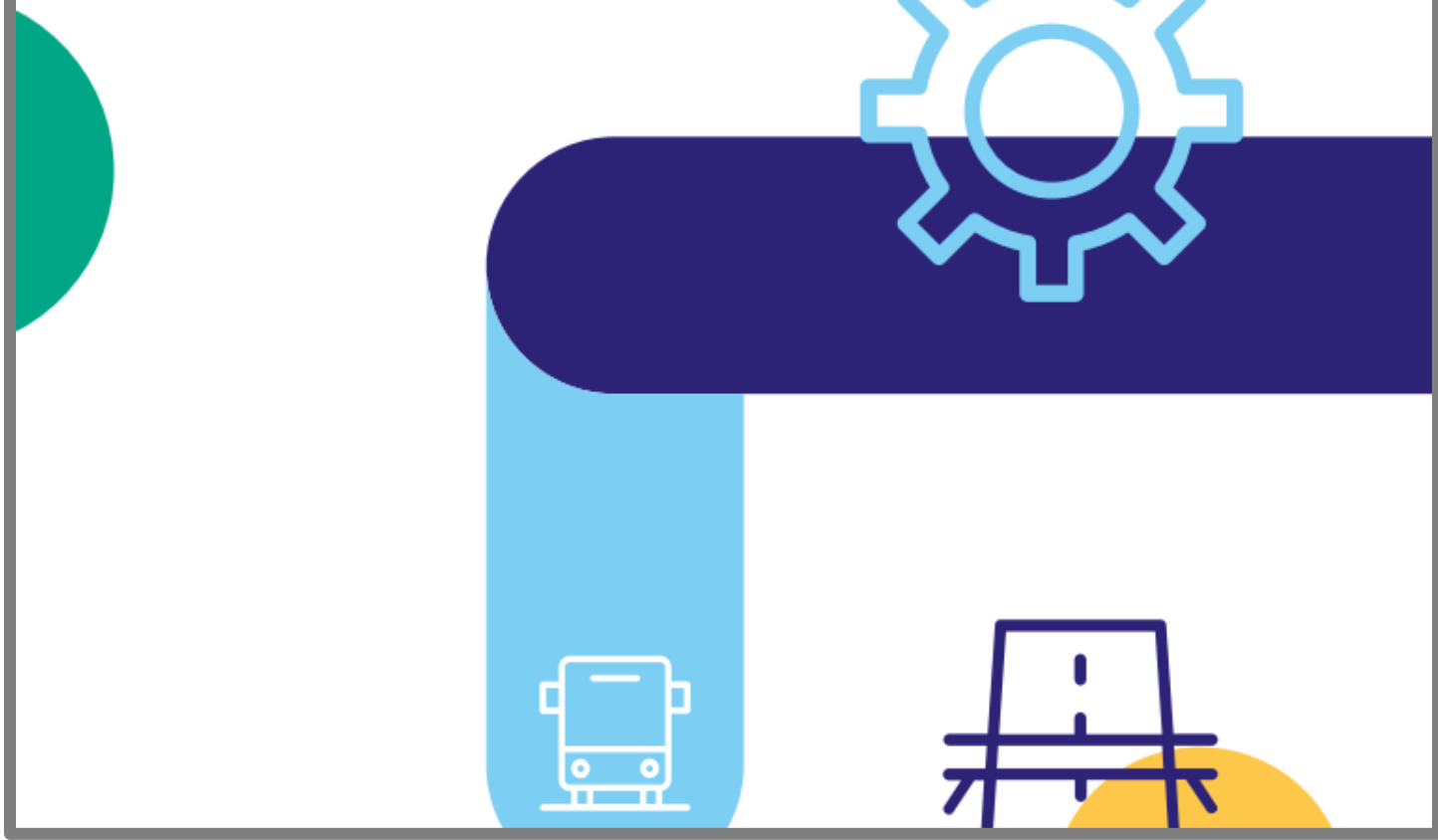
# Macroom – Impacts of the Bypass on the Town Centre One Year after Opening

*Kelly McCarthy, TII*



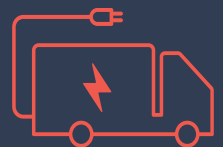
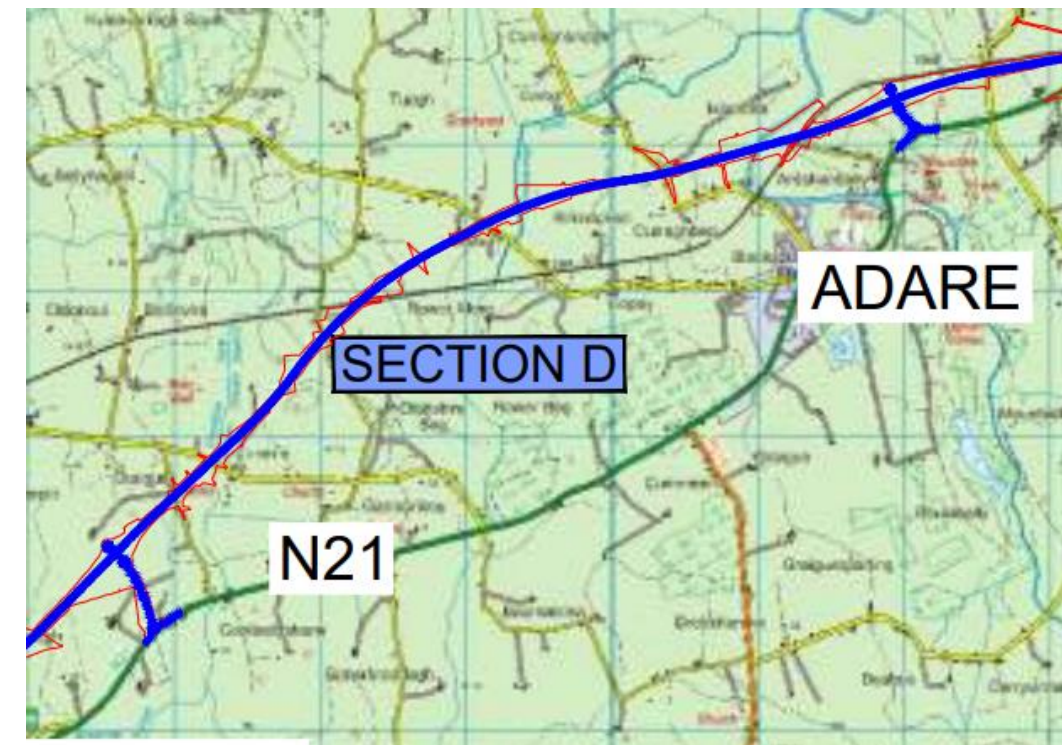
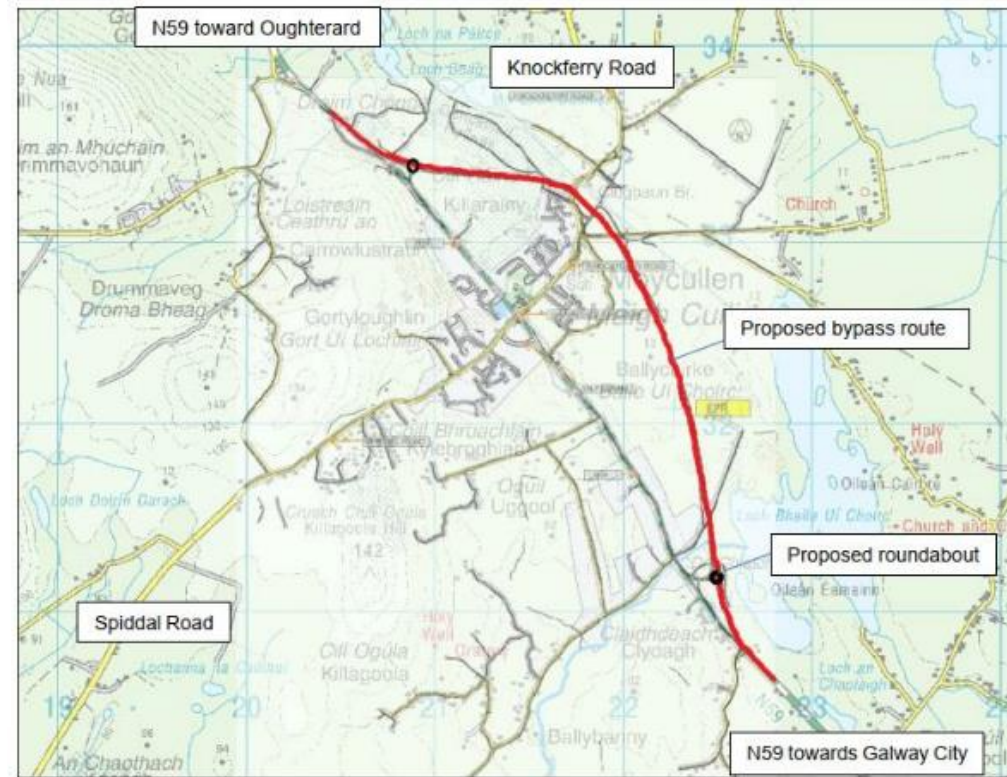


Transport Infrastructure Ireland  
**Bypass Impact Evaluations**  
**Macroom**



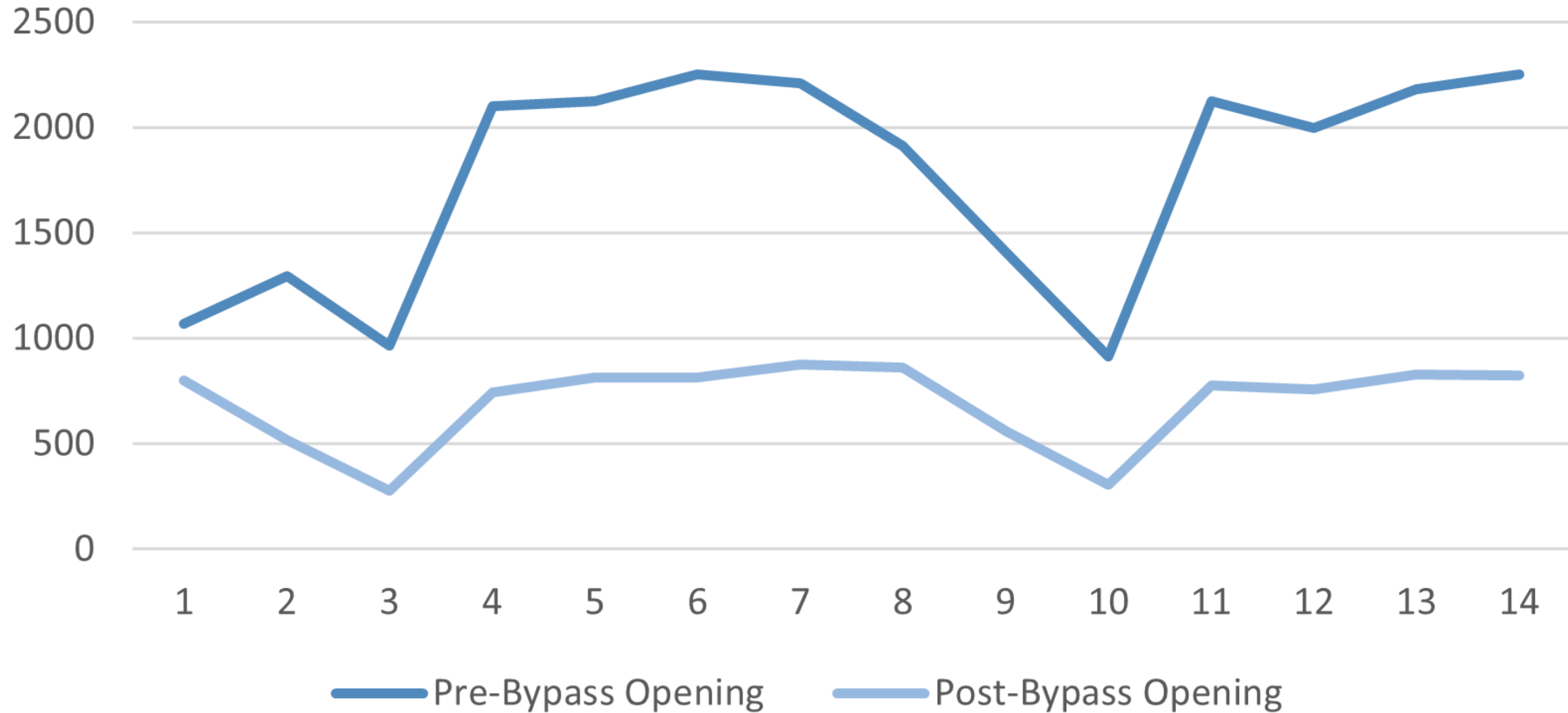


# Where are we carrying out studies?





# Macroom West - Medium and Heavy Goods Vehicles Per Day

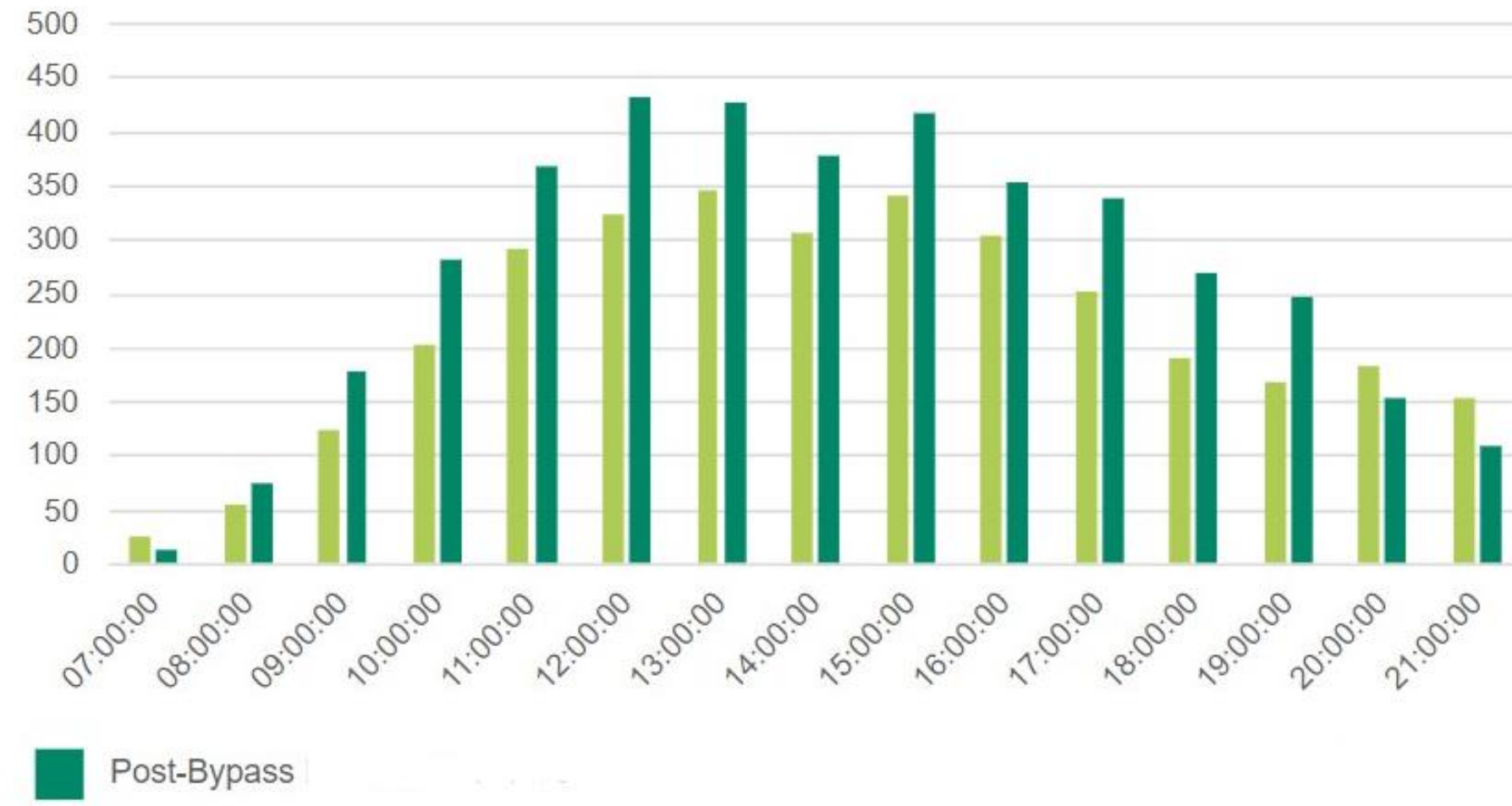


# Footfall

### Footfall Weekday Hourly Average



### Footfall Weekend Hourly Average



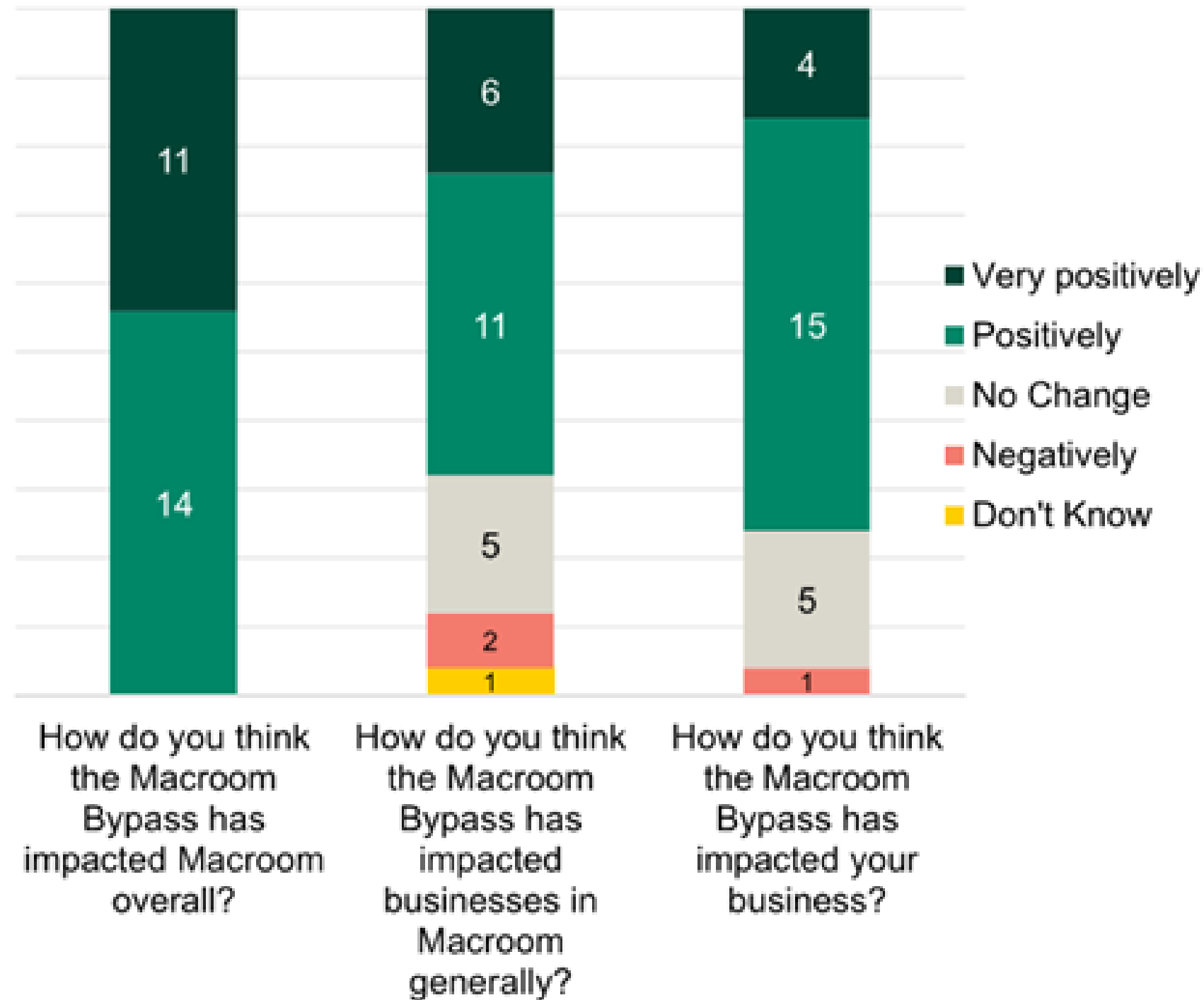
# Travel to and from school

Mode of transport to school	Year	
	2022 (n = 96)	2023 (n = 66)
Car/van	55%	41%
Bus (public)	1%	0%
School bus	3%	0%
Walk	<b>39%</b>	<b>58%</b>
Cycle	0%	0%
Other	2%	2%

P-value=0.1, Chi2=7.5, dof=4

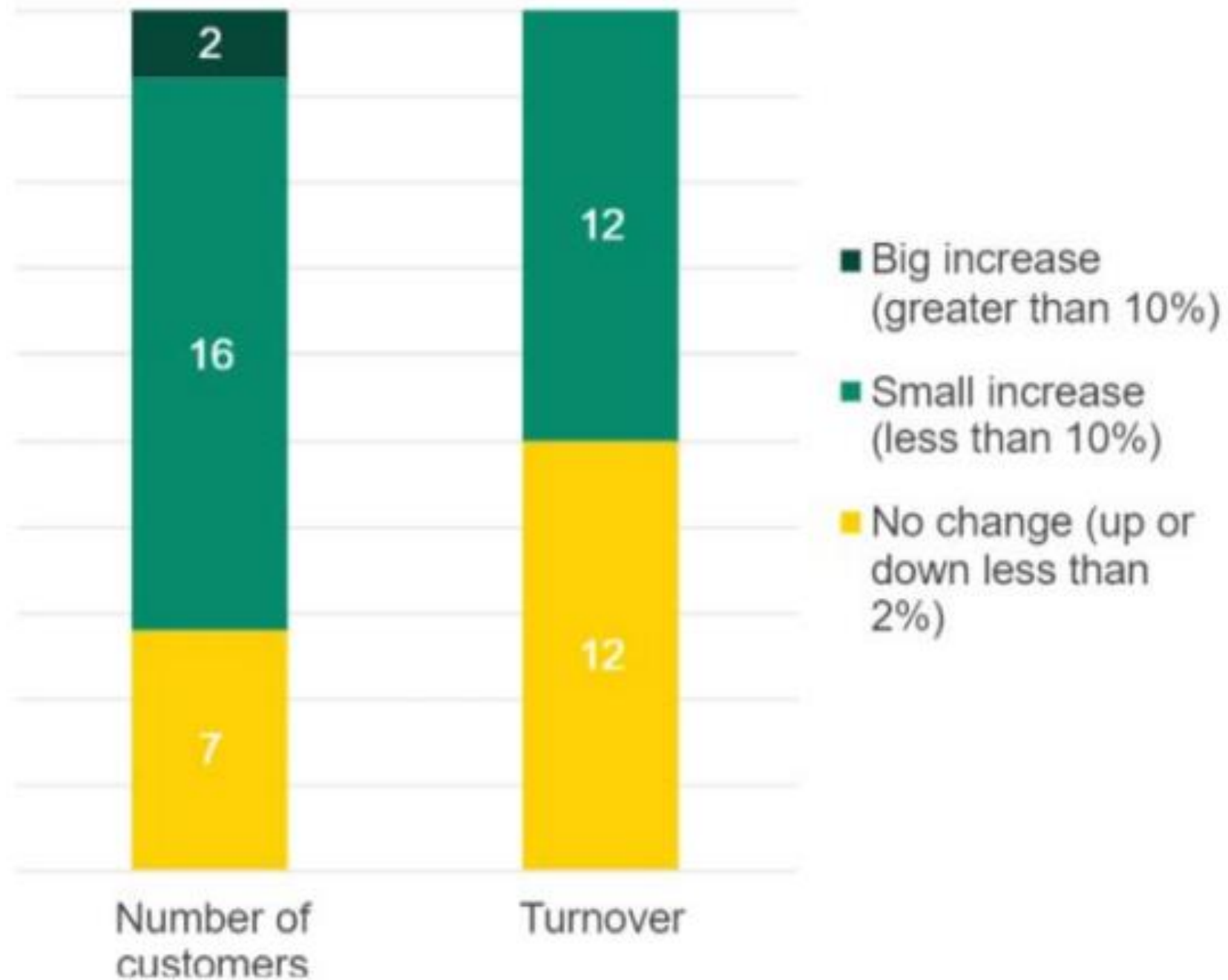
# Local Business

How do you think the Macroom Bypass has impacted...?  
(Business survey respondents, n = 25)



# Local Business

Were there any changes in the number of customers/turnover your business had this year (2023) compared to last year (2022)?  
(Business survey respondents, n = 25)



***“People are actually in better form when they come in because they haven’t sat in traffic for 30 or 40 minutes. They’re happier coming in and saying how much of a pleasure it is now to come in.”***

Business Focus Group, November 2023

# Residents' travel to town for shopping or leisure

Residents - Usual mode of travel to town centre for shopping or leisure	Year	
	2022 (n = 250)	2023 (n = 231)
Car/van, as driver alone	58%	57%
Car/van, as driver with passenger(s)	4%	14%
Car/van, as passenger	2%	1%
Bus	0%	0%
Walk	33%	25%
Cycle	0%	0%
Motorcycle	0%	0%
Taxi	1%	0%
Do not travel to Macroom for shopping or leisure	0%	0%

P-value=<0.01, Chi-squared=22.8, dof=9



# Other indicators

- Air quality
- Noise
- Speeds
- Mode share for work / education commutes
- Road safety
- Perceptions of road safety (by user type)
- Frequency of cycling
- Population
- Land use map

- Parking turnover
- Perceptions re: parking
- Public events
- Outdoor seating
- # EV chargers
- Media monitoring



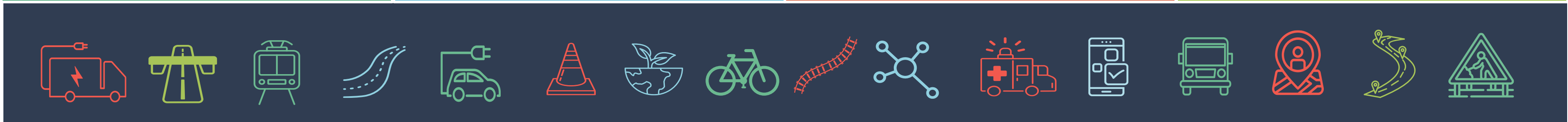
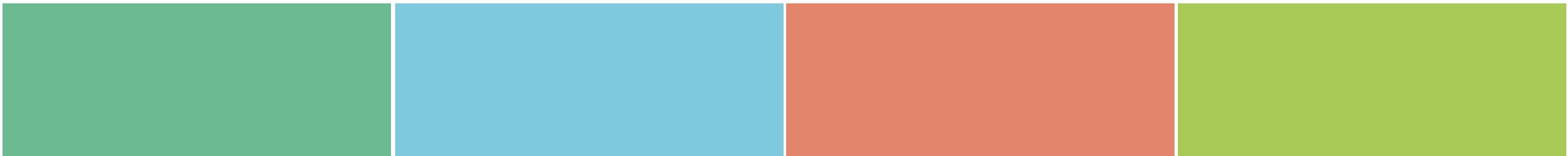
# Bypasses – Enabling Change

- Bypasses on their own are not silver bullets, but provide great opportunities, in conjunction with active travel and public realm works, to enable broader change
- The Macroom bypass findings show us the potential impact of joined up, inter-agency (including LAs, DoT) thinking and planning
- Opportunities through considering other initiatives/funding opportunities related to for example traffic calming, active travel and public realm works, in a more holistic approach.
- Slane bypass is an excellent model of joined up thinking and planning – bypass coupled with urban regeneration submitted as one project to ABP, with TII funding the bypass element



# Quality Audits on National Roads in Urban Areas

*Glenn Hingerty, CEng, CTPP, Lecturer, TU Dublin*



**DMURS Quality Audits on National Roads**

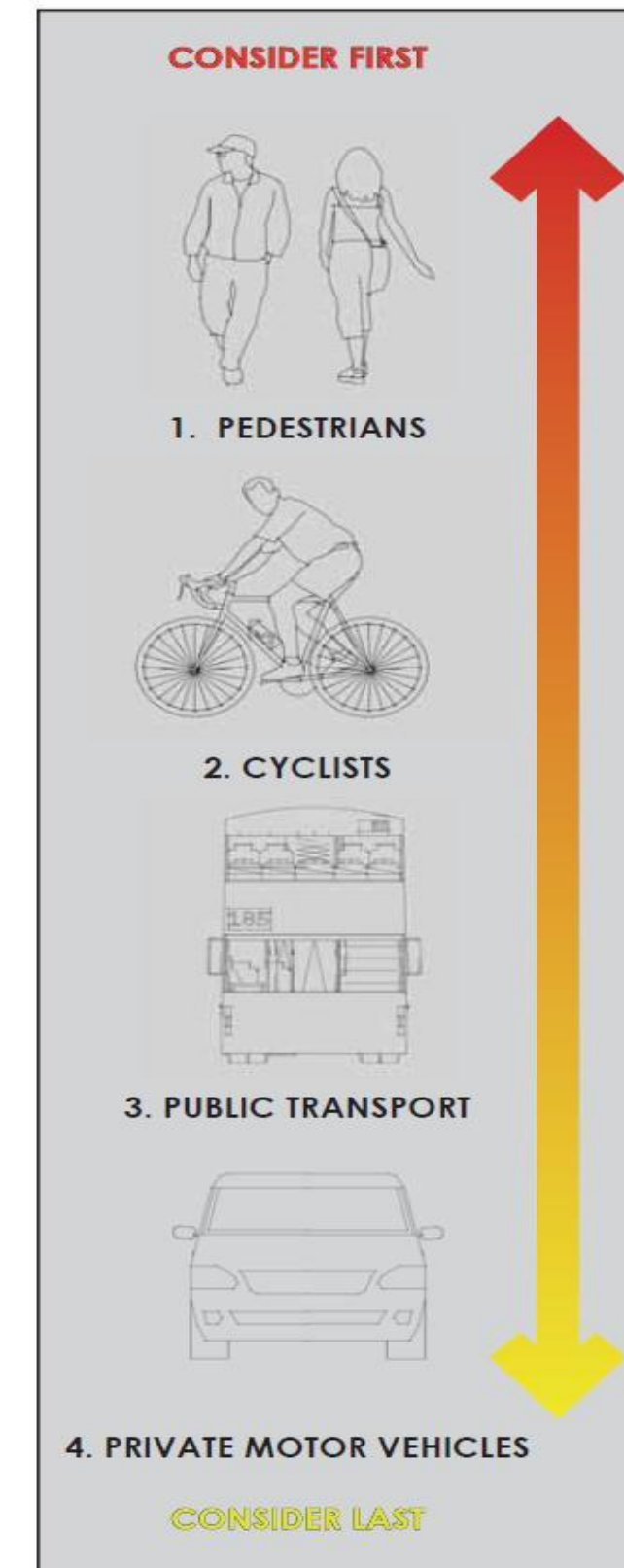
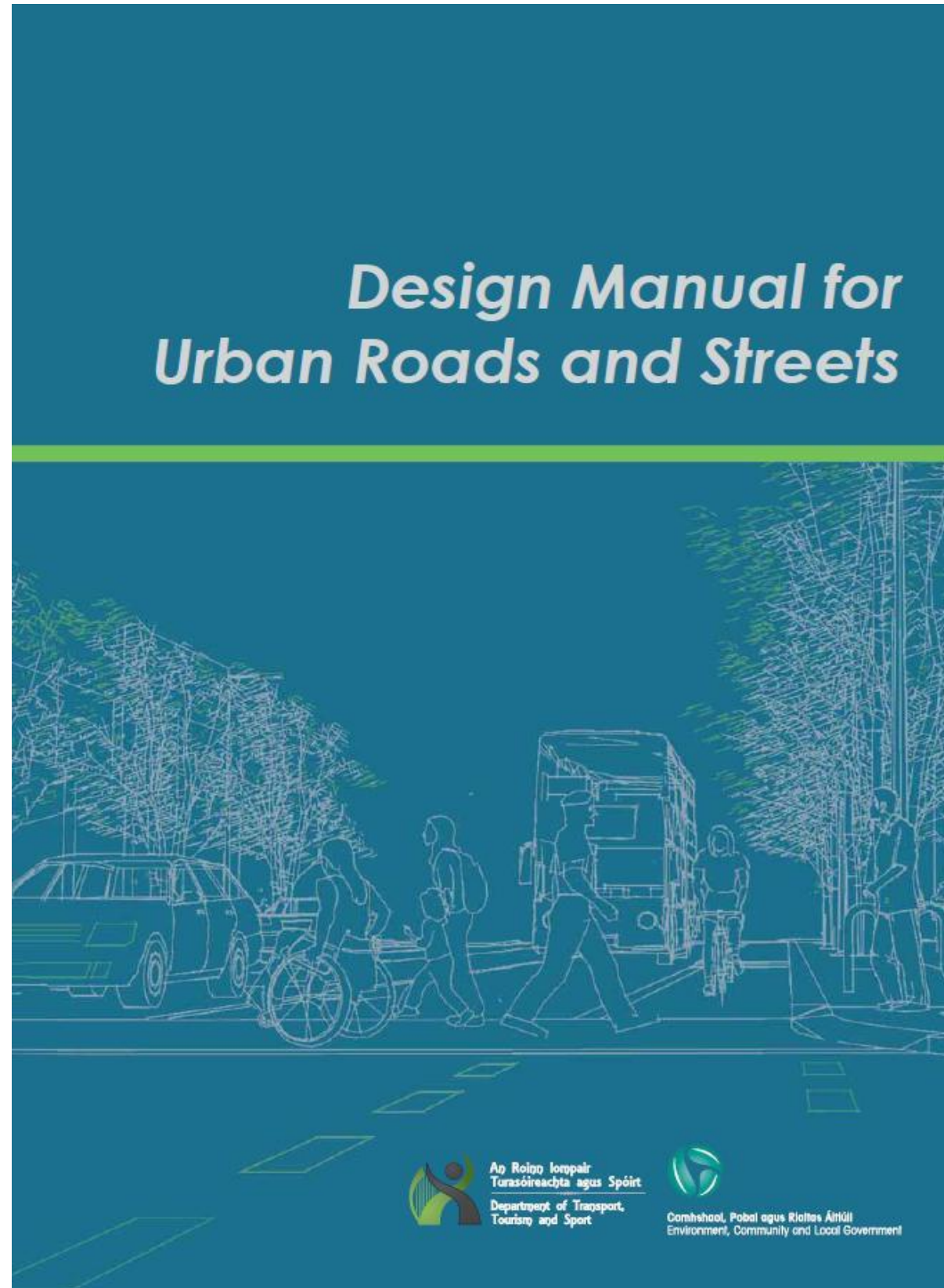
**TII Roads & Greenways Conference 2024**

**[Glenn.Hingerty@tudublin.ie](mailto:Glenn.Hingerty@tudublin.ie)**



**School of Transport & Civil Engineering**

# DMURS (since 2013)

- Purpose?
- Function?
- What is a Street?
- What is a street for?  
(one word)



# Movement v Place

		 PEDESTRIAN PRIORITY	 VEHICLE PRIORITY			
FUNCTION	ARTERIAL	30-40 KM/H	40-50 KM/H	40-50 KM/H	50-60 KM/H	60-80 KM/H
	LINK	30 KM/H	30-50 KM/H	30-50 KM/H	50-60 KM/H	60-80 KM/H
	LOCAL	10-30 KM/H	10-30 KM/H	10-30 KM/H	30-50 KM/H	60 KM/H
		CENTRE	N'HOOD	SUBURBAN	BUSINESS/ INDUSTRIAL	RURAL FRINGE
		CONTEXT				



# Street Design is Multidisciplinary

- Accessibility Consultants
- Architects
- Engineers
- Landscape Architects
- Urban Designers
- Placemaking Consultants
- Stakeholders
- Transport Planners



Figure 1: Street design is a complex process that must consider the many issues related to movement (users) and place (experience).

# Quality Audit - Introduction

- **Urban Realm:**

**Quality Audit process was introduced in DMURS following concerns that in the design of new streets the dominant provisions made for motor vehicles frequently led to a poorly-designed public realm.**

**In an urban area there is a high level of competing demand from different classes of users.**

**A well-balanced street will have minimal visual clutter and obstacles**



# Quality Audit Focuses on:

- Design rationale in terms of Pedestrian, Cycle, Public Transport and vehicle movements (inc parking)
- Desire Lines for Active Modes (Connectivity)
- Accessibility requirements (all modes including disabled and vulnerable road users)
- Road safety concerns
- Self-Regulating Street Environment
- Visual appearance of the scheme

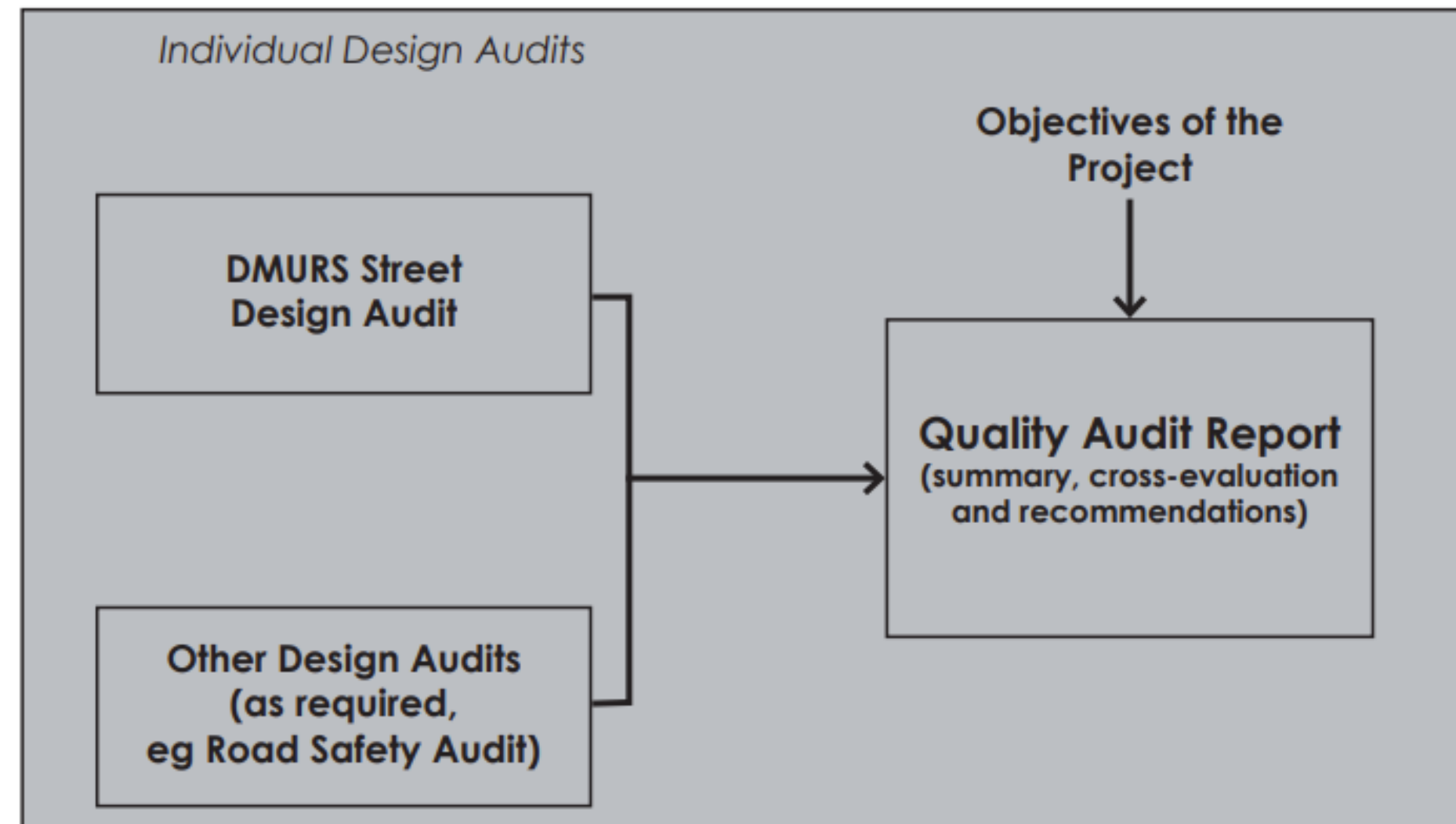
# Quality Audit - Contents

- DMURS Street Design Audit

(<https://bit.ly/DMURS-SA>)

- Other Design Audits:

- Road Safety Audit
- Accessibility Audit
- Walking Audit
- Cycling Audit



# Quality Audit v Road Safety Audit:

*'Quality Audits and Road Safety Audits, are required for all works carried out on public roads which involve new infrastructure or reconfiguration of existing infrastructure, and which are not purely maintenance works' (1/1/23)*

- NGS Circular 3 of 2022:

<https://assets.gov.ie/226615/b6806c78-f48b-4b3b-be55-068f53c7c0cb.pdf>

- <https://www.dmurs.ie/supplementary-material> Advice Note 4 – Quality Audits
- Stage F: Route selection stage
- Stage 1: Completion of preliminary design
- Stage 2: Completion of detailed design
- Stage 3: Completion of construction
- Stage 4: Early operation.

# Road Safety Audit?

- **Problem:** Ponding of Water and residual silting has been observed during the site visit at the pedestrian crossing shown. This may cause a slipping hazard for vulnerable road users (Pedestrians and Cyclists) resulting in associated injuries.
- **RSA Recommendation:** Ensure adequate drainage measures at this location to negate ponding.





# Quality Audit? – Accessibility?

- **Problem:** The dished kerb may pose a problem for people with mobility impairments.
- **QA Recommendation:** Install raised crossing across width of the road with associated drainage.





# Raised Crossings





# Pontevedra – Frequent step free crossings (every 50 metres, 30 km/h)



@GoogleMaps





















@Cargobike of Sweden @Bleper @BikeBiz @CyclingElectric

















@Romy  
Rawlings



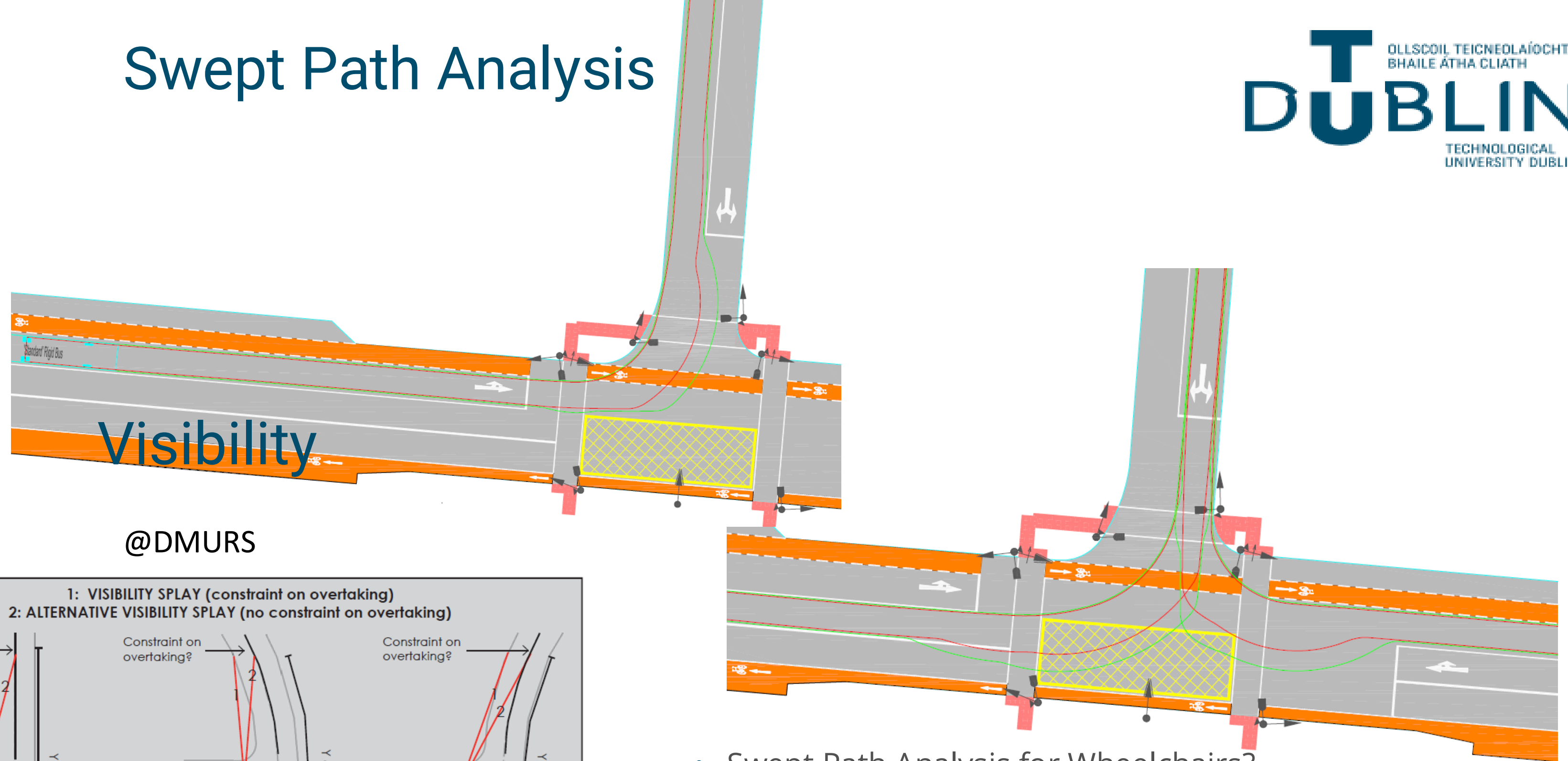




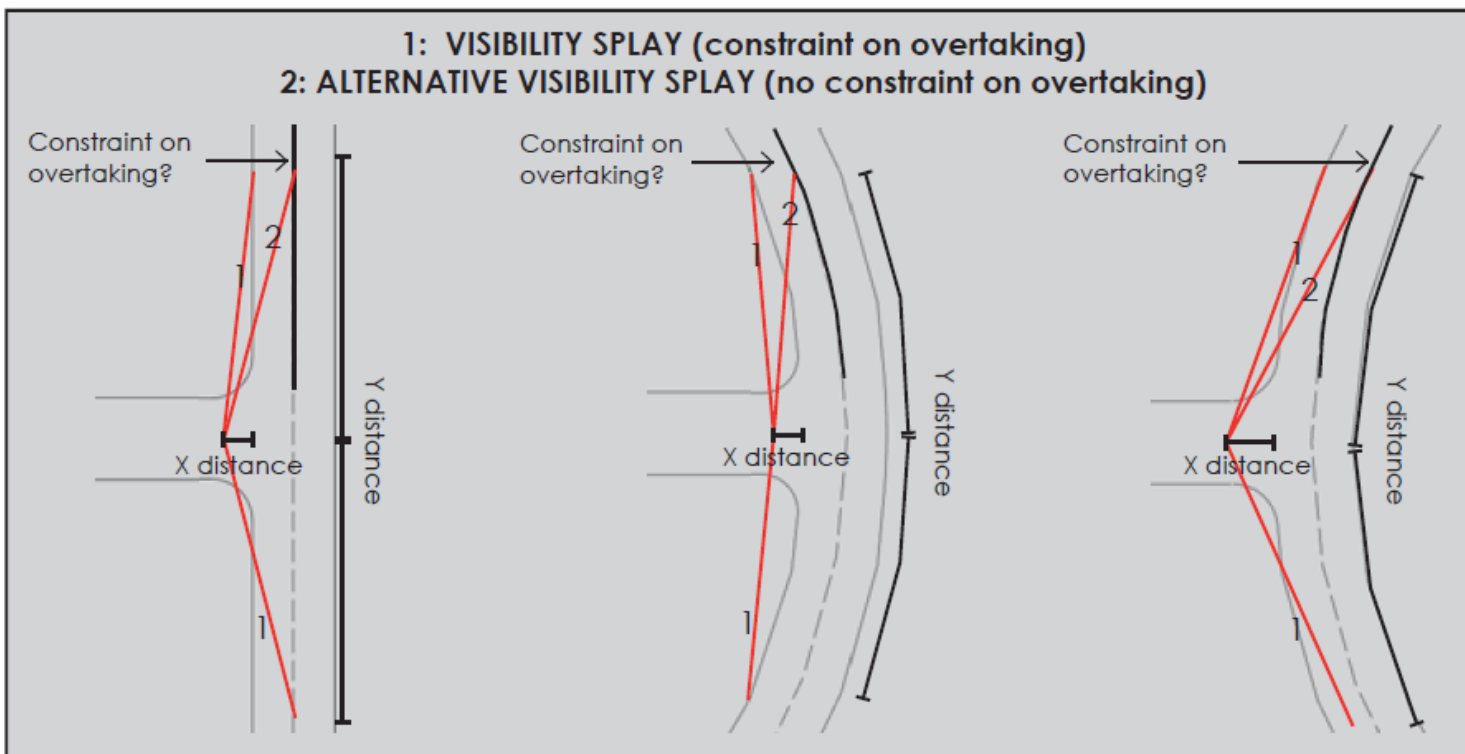




# Swept Path Analysis



@DMURS



- Swept Path Analysis for Wheelchairs?
- Visibility Splays and Stopping Sight Distances for Peds/Cycles?



@Irish Independent





# Vision Ireland

## The Wayfinding Centre

[info@thewayfindingcentre.ie](mailto:info@thewayfindingcentre.ie)



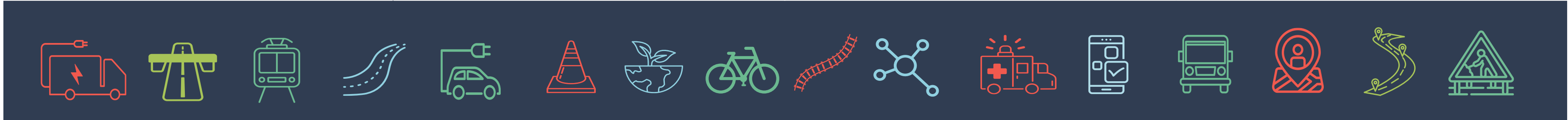


@The Guardian



# **N77 Abbeyleix Road Portlaoise Enhancement Scheme**

*James Dowling, Laois County Council and Dermot Donovan, Roadplan Consulting*





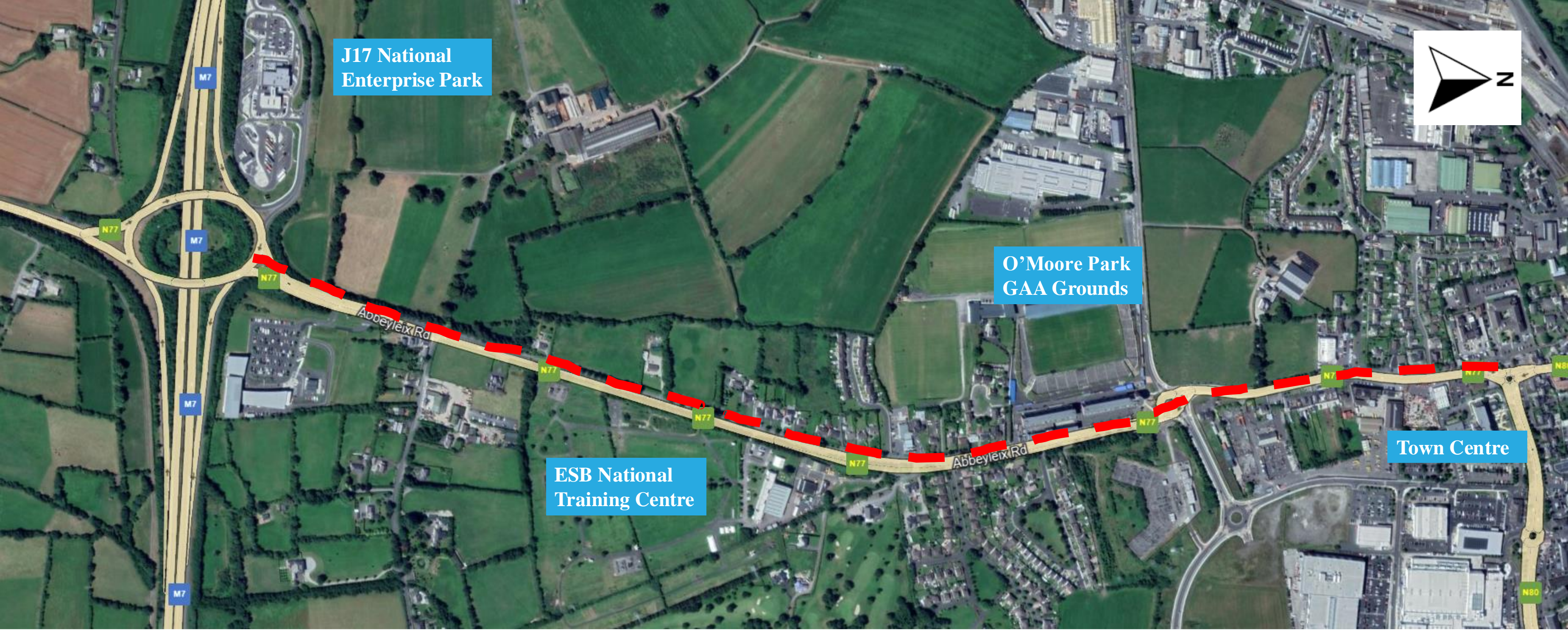
# Contents

1. Introduction
2. Existing Road Characteristics
3. Planning Process
4. The Design
5. Carriageway Narrowing
6. Junction Tightening
7. Removal of Turning Lane
8. Segregated VRU Facilities
9. Landscaping
10. Construction
11. Summary & Next Steps





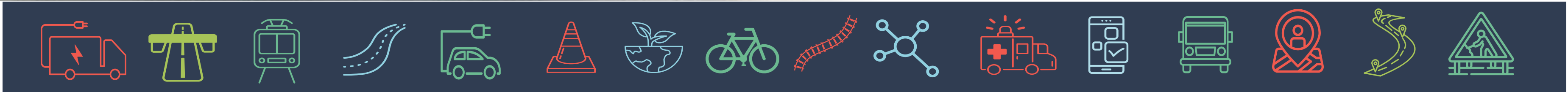
# Location





# Context

- N77 - between M7 and N80 - a developed suburban radial road 2.15km in length
- Portlaoise is a fast-growing town - doubled in size over the last 20 years
- Busy National Secondary road – J17 Business Park being developed
- Road safety problem: High Collision Location – twice above average collision rate
- Road Pavement Problem: Failed surfacing and pavement
- Existing Cross Section varied from 9m to 12m





# Road Use Characteristics

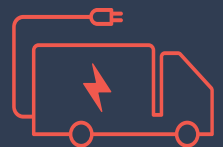
- Traffic Flows
  - AADT 12,500 approx. (7% HGV)
  - Low VRU use – < 100 cyclists per day; > 100 peds per day
- Traffic Speed
  - Speed limit of 50km/h generally – southern section 60km/h (and short 80km/h section at M7)
  - 62% of traffic exceeded the 50km/h speed limit
- Nature of Collisions
  - Occurrence – 25 collisions in five-year period
  - Outcome - minor injury and material damage
  - Type – motor vehicle – rear-end and angle/side-impact collisions – vehicles exiting side roads and accesses





# Planning Process

- Scheme Developed through the Part VIII planning process
- Advertised in December 2022
- Eight submissions received
- Decision May 2022
- Concerns raised
  - Removal of right turn lanes
  - Lack of continuity of pedestrian facilities
  - Match Day Parking



# Issues, Design Responses & Outcomes

**Before**



**Issue**

Road was very wide

**Response**

Narrow the carriageway. Tighten the junctions

**Desired Outcome**

Reduce speed. Improve safety. Increase active travel

**After**



Extensive right-turn lanes

Remove right turn lanes

Safer exit from side road. Reduce speed. Safer crossing for VRUs



Motorists and cyclists shared road space

Segregate VRUs from motor traffic

Improved VRU safety. Increased active travel



Insufficient crossing points

Provide crossing points

Improved VRU safety. Increased active travel





# Carriageway Narrowing

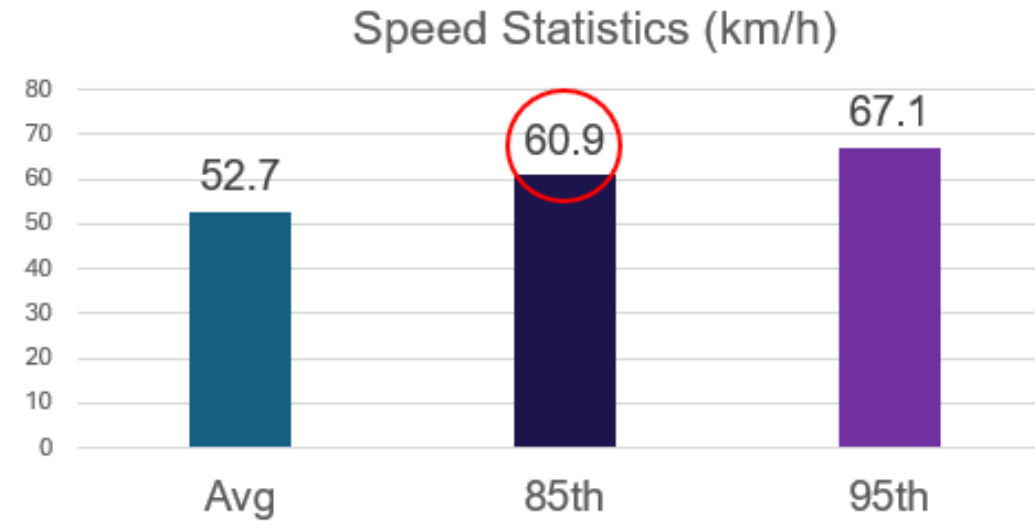
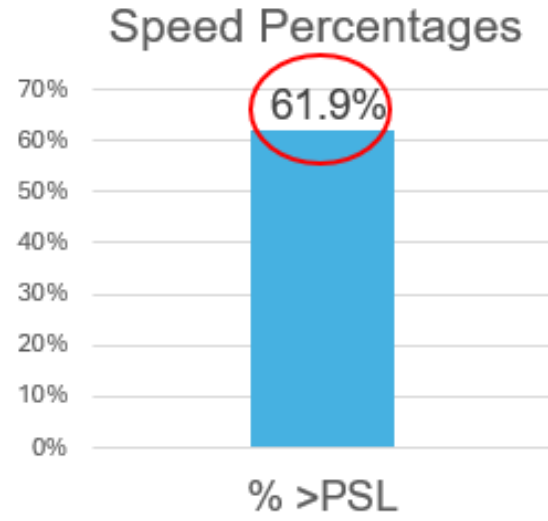
- Existing road was 9m to 12m wide
- Carriageway narrowed to:
  - 6.0m width:
    - within 50km/h zone – to DMURS
    - within 60km/h zone – to DMURS and TII DN-GEO-03084
  - 6.5m width:
    - within the 80km/h zone - TII Publications (Standards)



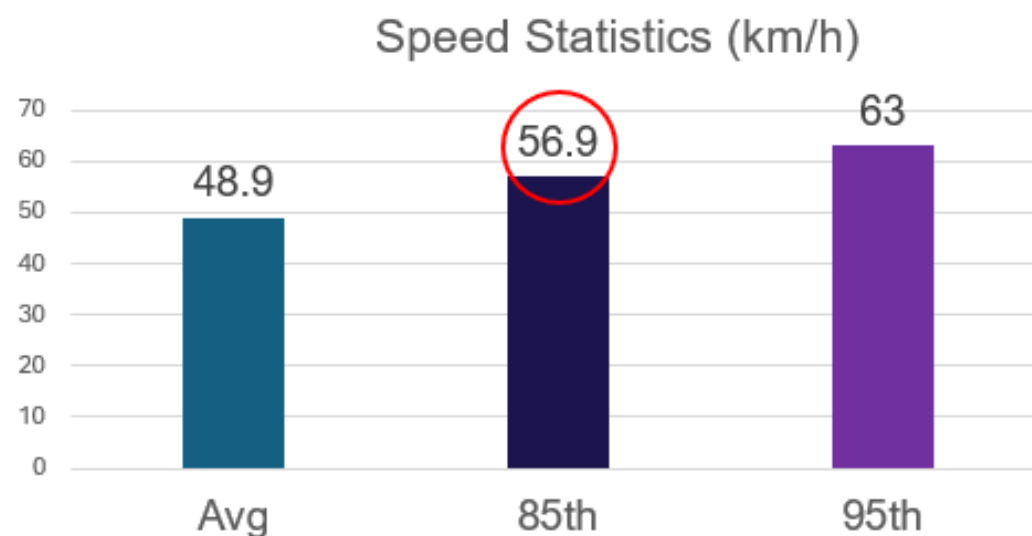
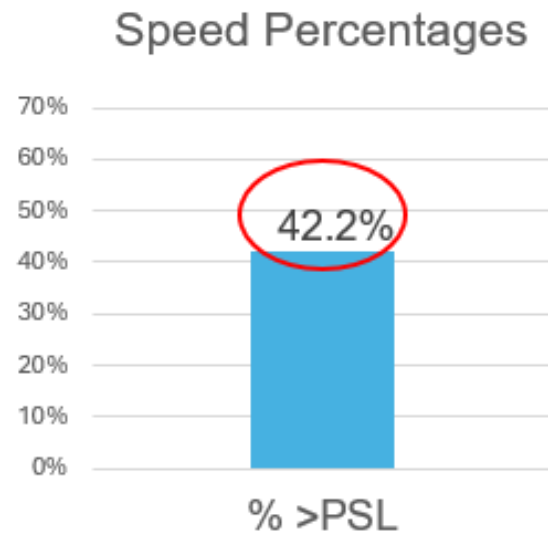


# Carriageway Narrowing

Before



After



The data suggests that narrowing the c/way is effective in achieving speed reduction





# Junction Tightening

- DMURS - Advice Note 6
- Lane widths and kerb line radii reduced
- VRU facilities continued across accesses and residential cul-de-sacs





# Junction Tightening

- Junction tightening to DMURS is effective
- Road users need time to get used to the change
- Consider all the data designing the tightening:
  - traffic -
    - volume,
    - composition
    - speed
  - swept paths
- Ensure the junction and junction edges are easily located by drivers.





# Removal of Turning lanes

- Right-turn lanes were removed from side roads and accesses
  - Parkside Shopping Centre;
  - housing estates;
  - a service station;
  - the Golf Club.
- Modelling of traffic impacts indicated that resulting reductions in junction capacities would be minor



Before



After





# Removal of Turning lanes

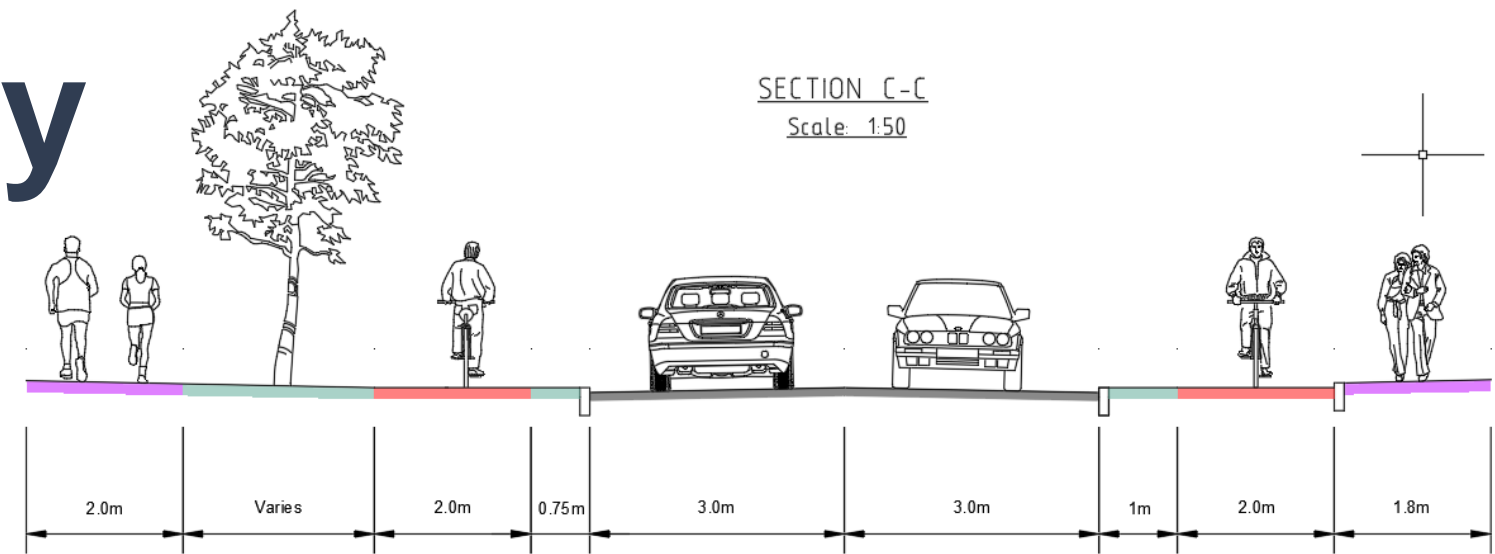
- Removal of turning lanes did not result in traffic flow problems
- Removal of right-turn lanes was strongly opposed at Part 8 public consultation
- Objections were overcome by facts such as:
  - 75% of turns were left in / right out - RTLs were not an advantage
  - right-turning volumes were low - Streetview showed no vehicles stopped in the RTLs in any years.
  - Residents of housing estates without an RTL were not requesting one.





# Segregated VRU Facility

- Segregated facilities comprised:
  - 2m wide one-way cycle tracks
  - 2m wide footpaths
  - Verges between :
    - cycle track and carriageway
    - between cycle track and footway
  - VRU facilities extend across accesses





# Segregated VRU Facility

	Pedestrian	Cyclists
Before	431	47
After	587	98
Change	+36%	+109%

*VRU no./day*








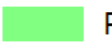



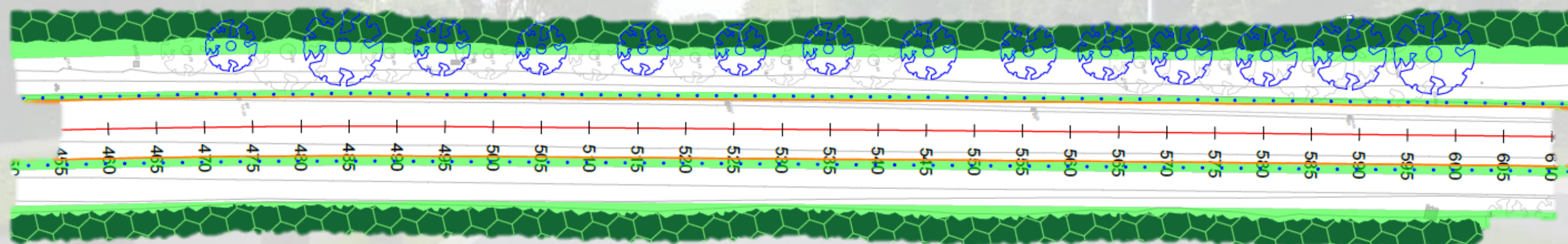


# Landscaping

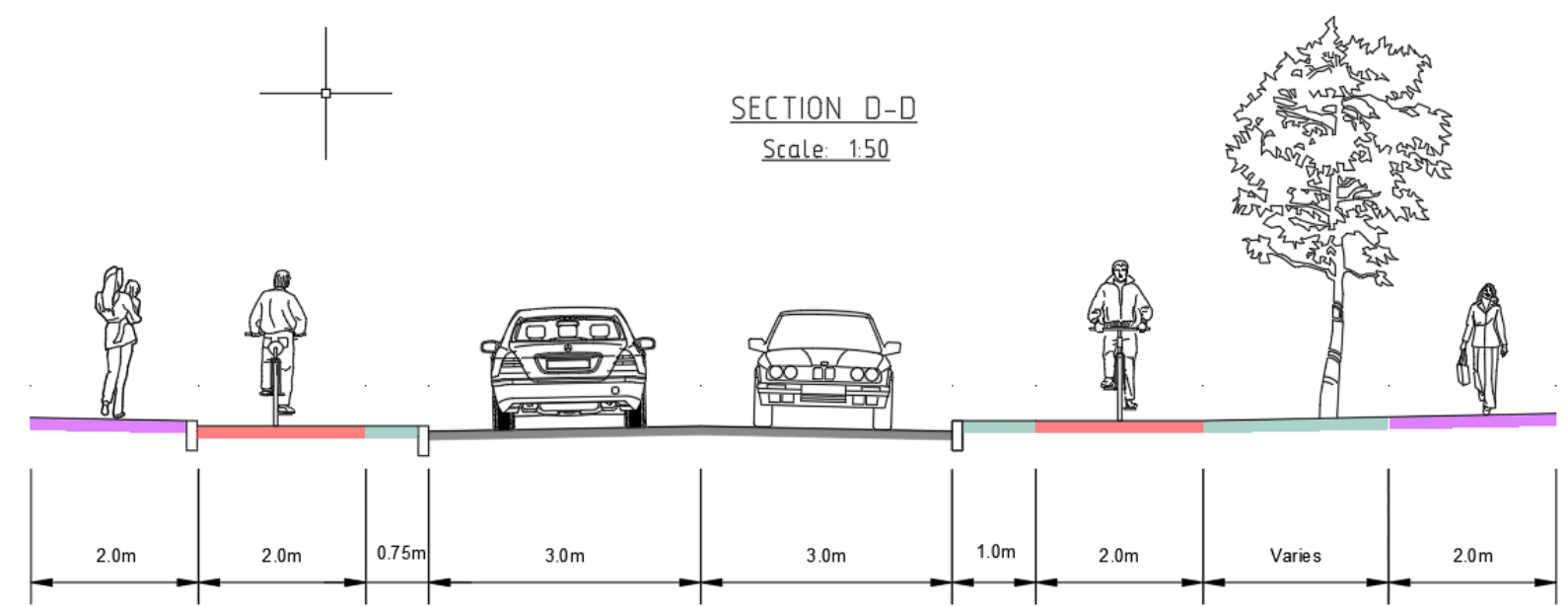
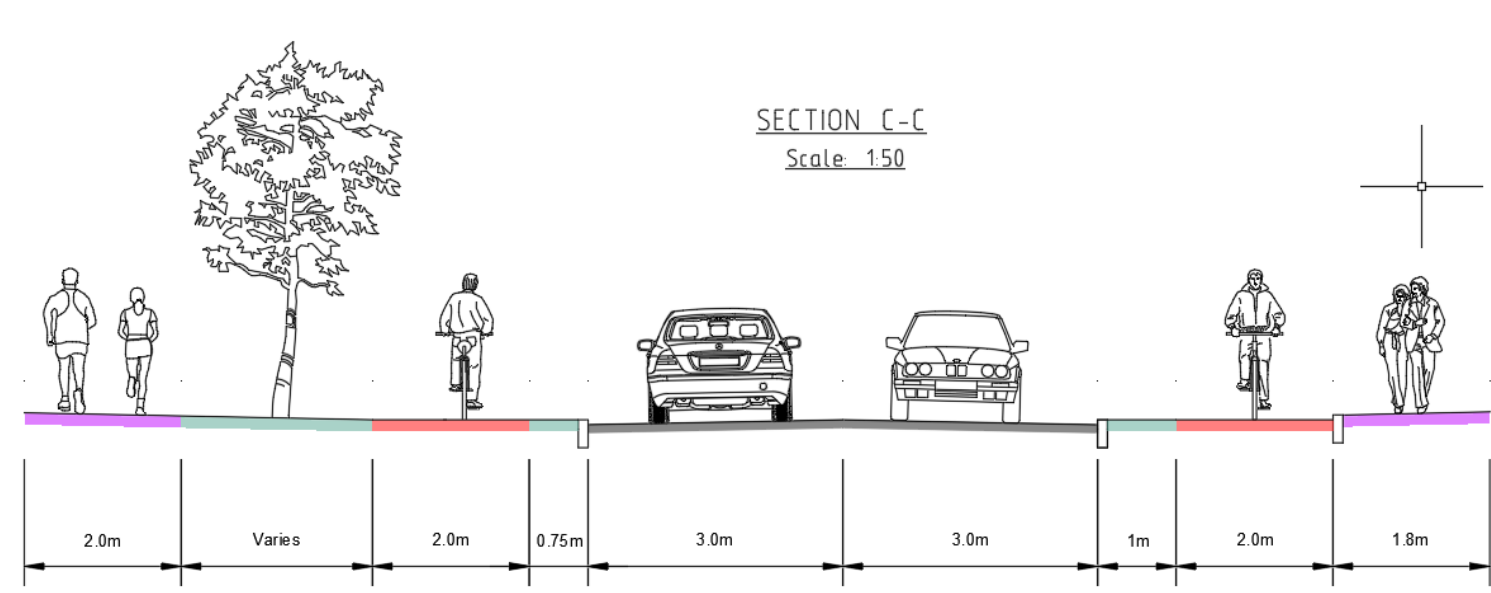
- Reducing carriageway width and removing RTLs provided road space for planting
- Biodiversity and impact planting
- Extension of the Portlaoise town and garden scheme
- Achieving visual enclosure – reduced optical width

## LEGEND

-  Proposed Acer Campestre 'Elsrijk' street tree
-  Proposed Quercus Robur Oak tree
-  Existing hedge to be retained
-  New native hedge to be planted
-  Timber Bench to RPSCD/1200/33
-  Timber Bollard to RPSCD/1200/31
-  Pollinator friendly perennial plant mix
-  Proposed shortcut wildflower meadow with spring bulb mix
-  Climbers (Ivy and Honeysuckle mix)









# Construction

- Tight Construction timeframe completed over 8 months in an urban environment
- Contractor implemented a one-way traffic route for outbound traffic. Inbound traffic had choice of two diversion routes
- Construction commenced in May 2023
- Substantial completion December 2023
- Combined €4.16m ex VAT (2.15km project) funded jointly by TII Road Safety and TII Pavements and delivered by TII Roads Capital Programme





# Summary and next steps

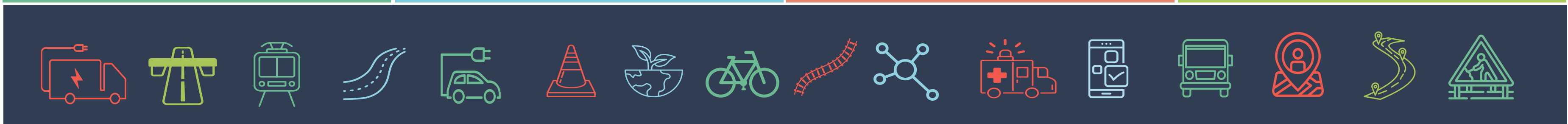
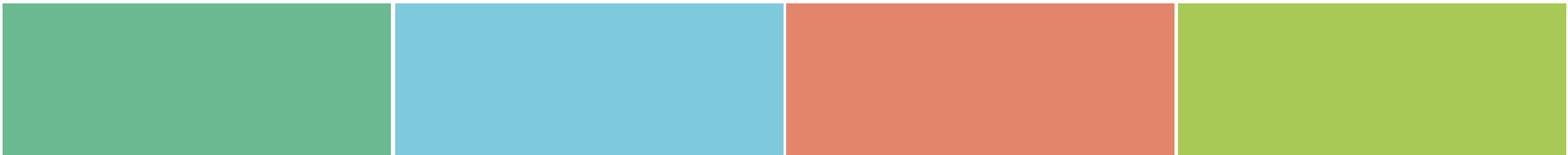
- Traffic speeds have been lowered
- Active travel use has increased
- Ecosystems have been enhanced, and biodiversity boosted, by landscaping. Excellent welcome to Portlaoise for visitors
- The Scheme complement's the development of J17 National Enterprise Park
- Potential linkage to future Portlaoise Abbeyleix Greenway
- Local amenity has been created
- Reduction in match day parking along the route





# Thank you

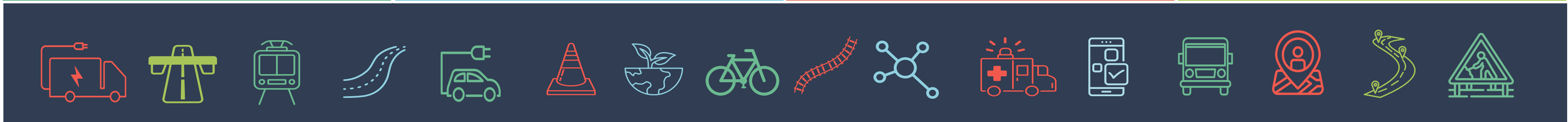
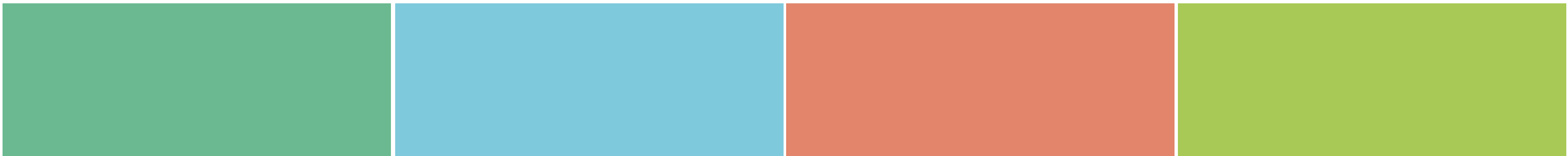
**James Dowling, Laois County Council**  
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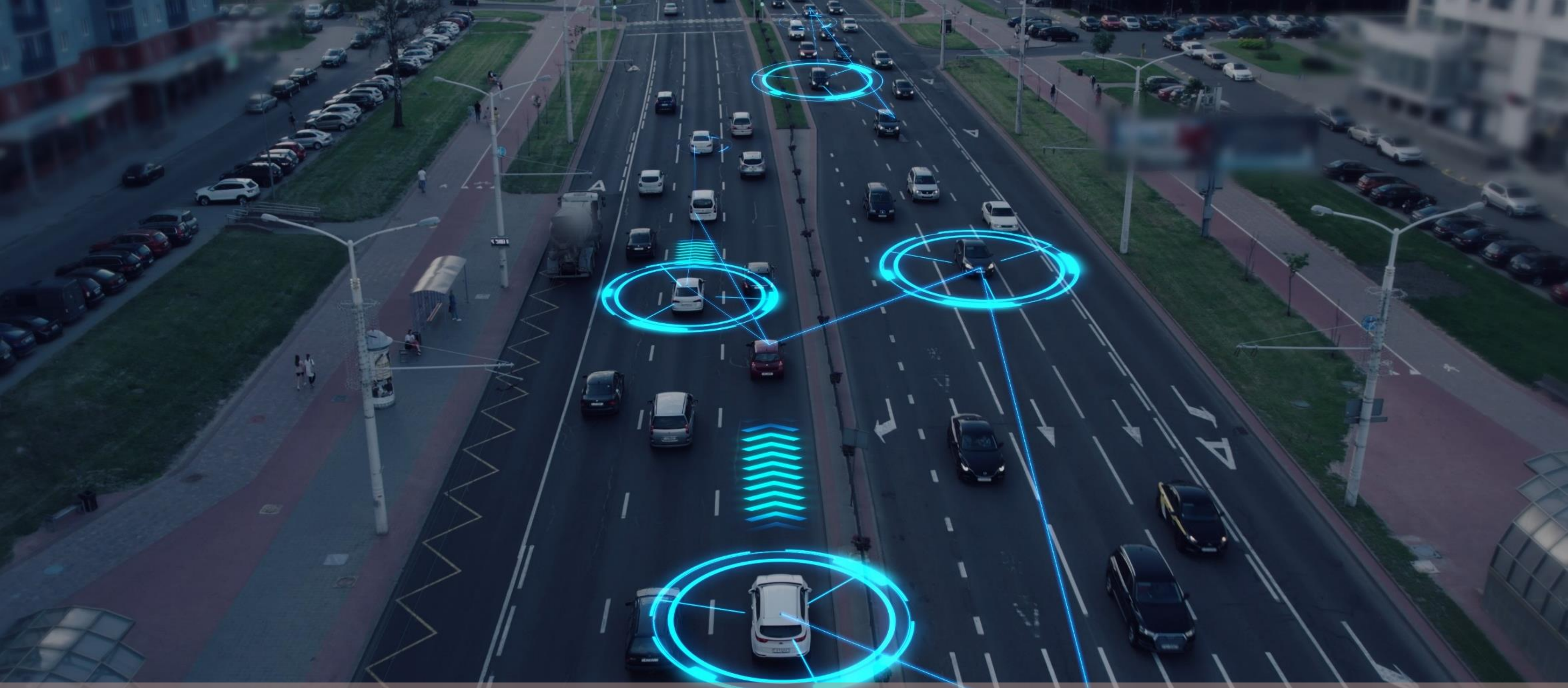


# TII National Cooperative-ITS Pilot Overview

*Thomas D Allen, MEng. MCIHT, AECOM / RODA*







# National cooperative ITS pilot overview

enhancing Motorway Operation Services

TII Conference | 03.10.2024



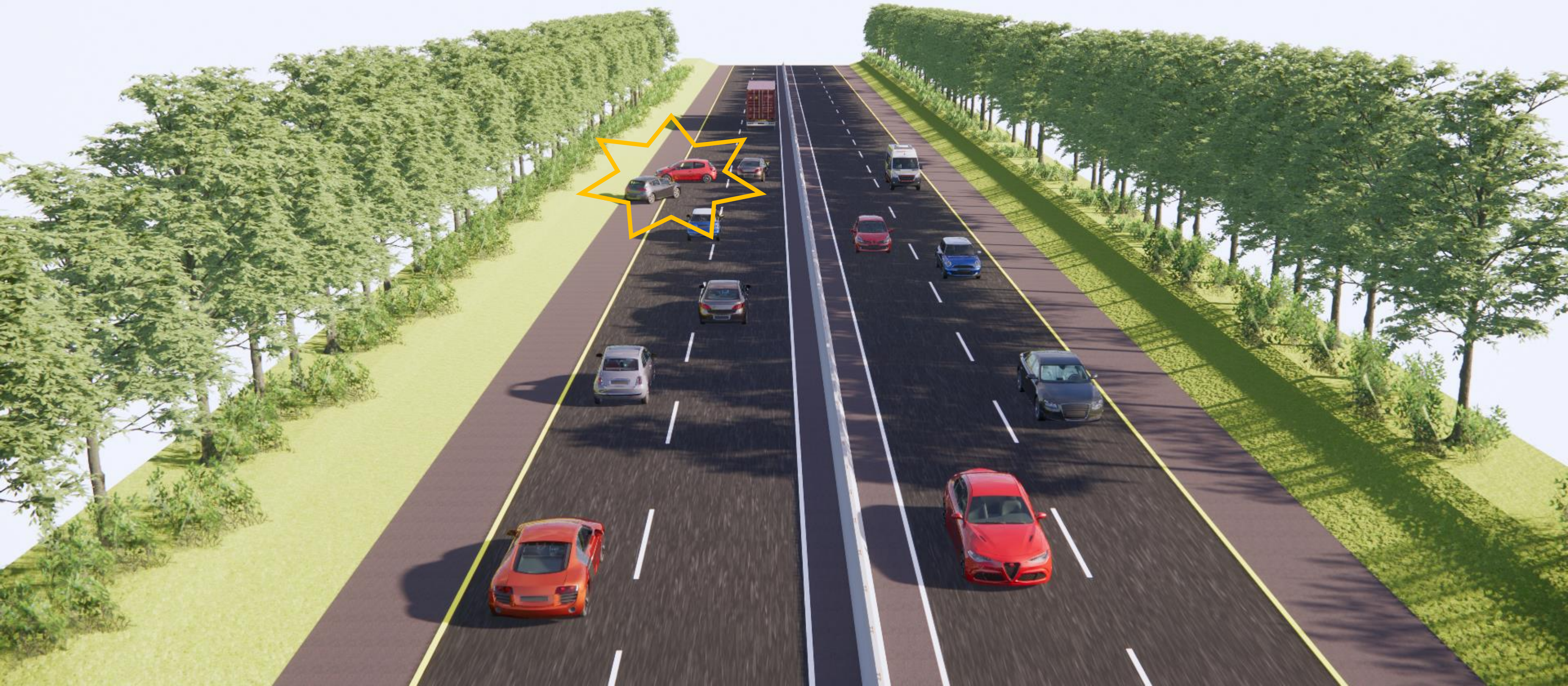
Co-funded by  
the European Union



- What is C-ITS?
  - National C-ITS pilot overview
  - Results and achievements
-

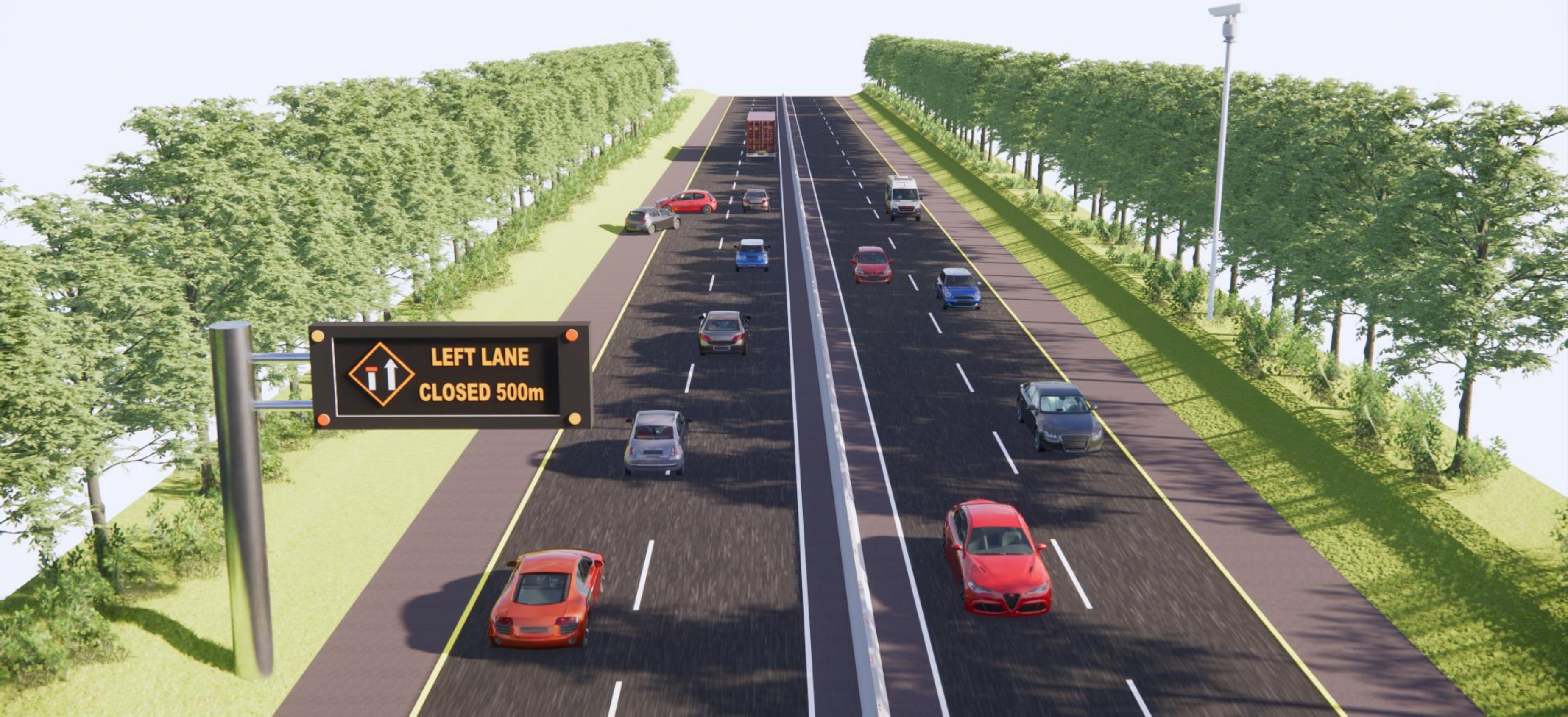


# Incident with no warning



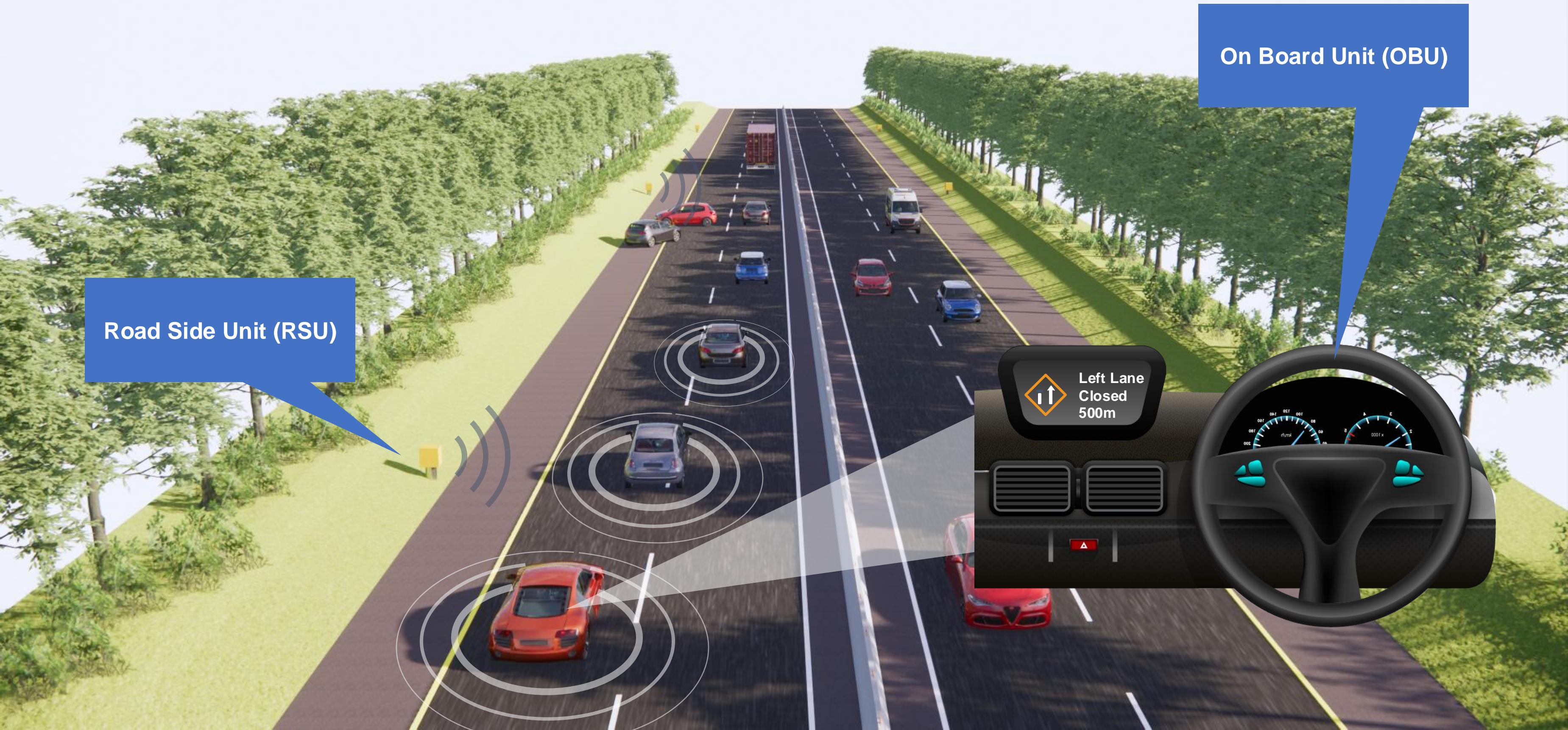


# Incident with Intelligent Transport Systems (ITS)





# Incident with Cooperative Intelligent Transport Systems (C-ITS)



Road Side Unit (RSU)

On Board Unit (OBU)

Left Lane Closed 500m





# 3

# Overview of the national C-ITS pilot?

Part of C-Roads Platform

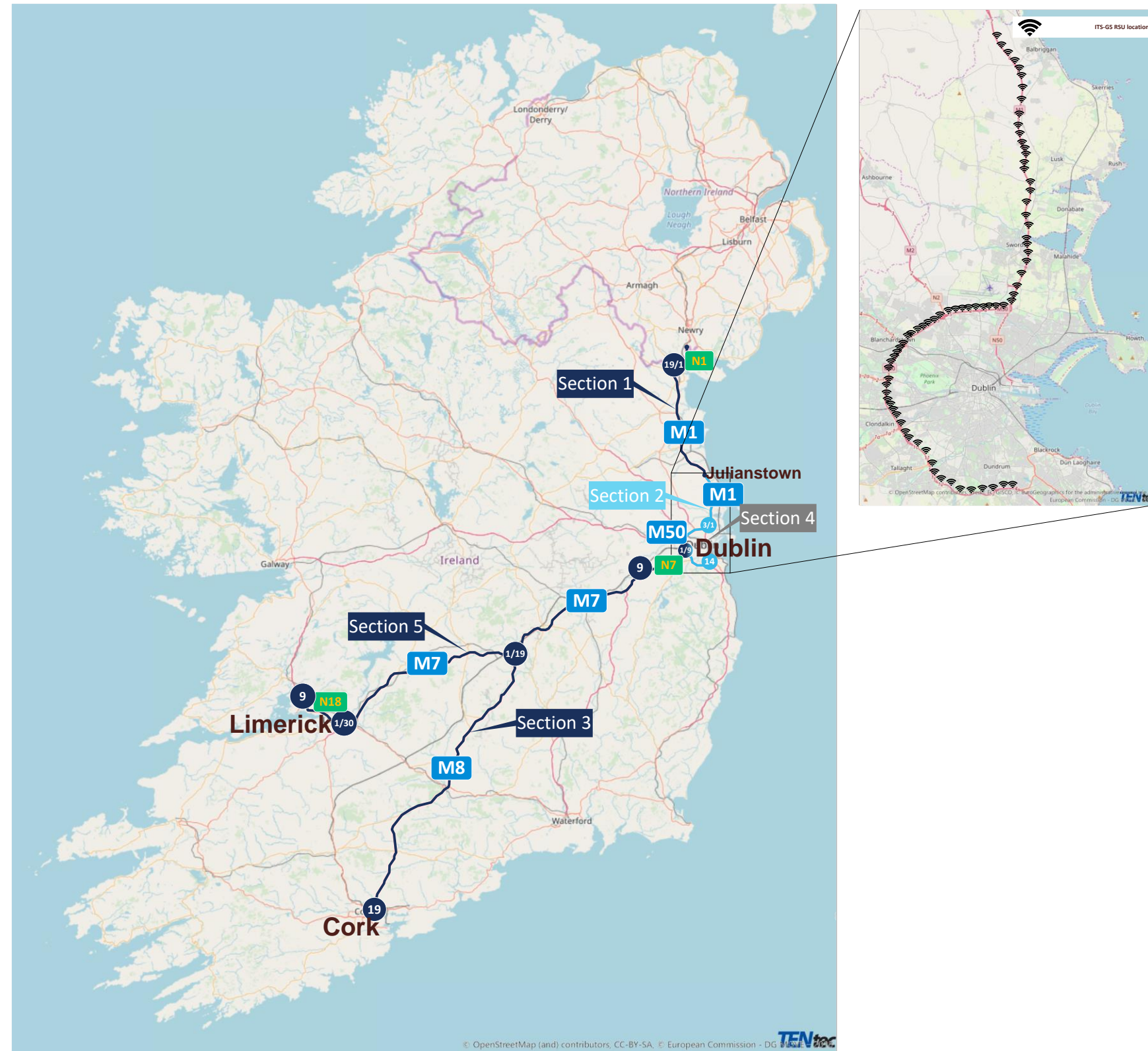
€10.2m project (50% funded by EU)

~60km of ITS-G5 coverage

~470km of cellular coverage

150 ITS-G5 on board units

C-ITS smartphone app





# 4

## Results from user acceptance questionnaire

 **76%**

found C-ITS  
influenced how  
they drove



**Drivers that were influenced...**

*“Adapted (reduced) speed. Occasionally re-routed.”*

*“I was more aware and did slow down”*

*“Makes me more prepared to react”*

 **70%**

found C-ITS  
notifications were  
always easy to  
understand



**78%**

found C-ITS notifications  
were always or mostly  
available when expected



**95%**

found the notifications to be  
always or mostly  
geographically accurate

Based on 154 responses



# 4

## Achievements

First European country to seamlessly integrate C-ITS into their live traffic management environment

Multiple C-ITS services in operation since Feb 2024, e.g. stationary vehicle, traffic jams, road works

Over 11,500 warning messages sent by C-ITS system

Over 300,000 advisory messages sent (e.g. journey times, tunnel closures, variable speeds)

Data platform developed to provide insight to potential changes in driver behaviour



# Session 3 Panel

## Session 3: Mobility of People and Goods in Urban Areas

*Chair: Anne Graham, Chief Executive, National Transport Authority*

**Macroom – Impacts of the Bypass on the Town Centre One Year after Opening**

*Kelly McCarthy, TII*

**Quality Audits on National Roads in Urban Areas**

*Glenn Hingerty, CEng, CTPP, Lecturer, TU Dublin*

**N77 Abbeyleix Road Portlaoise Enhancement Scheme**

*James Dowling, Laois County Council and  
Dermot Donovan, Roadplan Consulting*

**TII National Cooperative-ITS Pilot Overview**

*Thomas D Allen, MEng. MCIHT, AECOM / RODA*





# End of Session 3

Tea & Coffee Break

*Session 4 commences at 3.40pm*

