



COVID-19

Online Discussion Session

How new technology can help address the various impacts of the COVID-19 crisis on roads and road transport?

17 June 2020, 13 h (Paris time)

Our Speakers today

- Mr Patrick Malléjacq – Secretary General, PIARC
- Prof. Seonha Lee, Korea, South Korea, Kongju National University - member of PIARC Committee 1.1 on Performance of Transport Administrations
- Mr Chandrasekar & Ms Wee Ping Koh, Singapore, Land Transport Authority - member of PIARC Committee 2.4 on Road Network Operations /ITS
- Mr Martin Margreiter, Germany, Technical University of Munich - member of PIARC Committee 2.4 on Road Network Operations /ITS
- Mr Graham Kingston, UK, Egis M40 Business and Optimisation Manager

Basic rules for Zoom on line meetings



There will be presentations so **be sure to access from a device that allows you to see visuals** (i.e. a laptop or ipad)



Please **mute yourselves and keep the video off** during the presentations **to avoid background noises and connection overload**



Use the chat functionality and ask questions at any time. We will collect them and direct them during the Q&A session

Please be sure to have your full name and country displayed, here you find some useful information:

To change your name after entering a Zoom meeting, click on the "Participants" button at the top of the Zoom window.



In the "Participants" list on the right side of the Zoom window, hover over your name and click on the "Rename" button.

Next, hover your mouse over your name in the "Participants" list on the right side of the Zoom window. Click on "Rename".

Enter the formula Name, Surname (FR) and click on "OK".



Participants' microphones and cameras must be turned off.

How to ask a question, raise an issue, or share a practice?

- This is strongly encouraged!
- Use the “Chat” feature of Zoom (bottom right of the main window)
⇒ Send a message to “All participants” (this is one of the “chat” options)
- **Note: only questions that are specific to roads or road transport**
- That channel is monitored by Christos Xenophontos (Chair of PIARC TC 1.1)
- Christos will raise the questions to relevant panelists

About your name in Zoom

- **We recommend that participants accurately name themselves in the Zoom application:**
 - First Name Last Name Country
- This fosters interaction between participants

This session is being recorded

- The resulting video will be shared on www.piarc.org

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Key Concept: Focus on the short-term.

The world is going through a crisis and every day counts.

- **Share knowledge and current practice between PIARC members urgently in order to support responses to the pandemic in near real-time.**
- Such knowledge and current practice are not yet confirmed as valid or effective, and what works in some parts of the world may not be relevant elsewhere.
- However, inspiration can be found anywhere, and a good idea now could save lives, improve business resilience and could minimize disruption of services.
- Note: In parallel, PIARC is planning medium- and long-term actions for when the pandemic is in a manageable state and substantially under control.

Disclaimer

Since time is of the essence, it is likely that knowledge and practice that is shared will not have been officially approved by each country's official authorities.

“The ideas and examples shared here are for illustration only. They do not necessarily represent official policy. Ideas presented will be subject to further evaluation and use in deriving recommendations on policy and practice in due course. While care has been taken in the preparation of this material, no responsibility is accepted for any damage that may be caused.”

PIARC COVID-19 Response Team



Summary Terms of Reference

- To explore rapid sharing of knowledge and practice between PIARC members in respect of COVID-19 & associated socio-economic crisis
- To propose and implement short-term actions to support PIARC members and transport professionals in mitigation and response
- To track the course of COVID-19 over time and advise on further actions to be taken by PIARC and others during the crisis and into the recovery
- To advise on medium- and long-term implications of COVID-19 on the roads and transport sector and how these should be tackled and studied

Currently established to 1st December 2020, extendable as required

Current Membership

- Patrick Mallejacq, Secretary General, PIARC (Chair) (FR)
- Christos Xenophontos, Rhode Island DOT, TC 1.1 Chair (USA)
- José Manuel Blanco Segarra, Ministerio de Transportes, Movilidad Y Agenda Urbana, TC 1.1 Spanish Secretary (ES)
- Jonathan Spear, Atkins Acuity, TC 1.1 WG 2 Leader (UAE/UK)
- Valentina Galasso, Deloitte Consulting, TC 2.4 Chair (IT)
- Yukio Adachi, Hanshin Expressway Engineering Co, TC 1.5 Chair (JP)
- Saverio Palchetti, ANAS S.p.A., TF 3.1 Chair (IT)
- Caroline Evans, Arcadis Australia Pacific, TC 1.4 Chair (AU)
- Martin Ruesch, Rapp Trans Ltd., TC 2.3 Chair (CH)
- Andrea Peris, Paraguay National Committee (PY), Comm. Commission

For more information, contact info@piarc.org

Agenda and Structure

- **Brief introduction to PIARC**
- **Issues faced by Road Operators and Administrations**

- **Panelists' Presentations**
 - Maintaining the social distance by an appropriate pedestrian system
 - COVID-19 Impact on Traffic, Public Transport and Road Maintenance, The Singapore Experience
 - COVID-19 Impact on Traffic Modes
 - Utilising Technology For Smarter Working

- **Q&A**
- **Conclusion and Next Steps**

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Introduction

What is PIARC?



What is PIARC?

- **PIARC** is the new name of the **World Road Association**
- We were founded in 1909 as a **non-profit, non-political** Association
- Our goal is to organise exchange of knowledge on all matters related to roads and road transport

PIARC's Four key missions

- Be a **leading international forum for analysis and discussion** of the full spectrum of transport issues related to roads and related transport;
- Identify, develop, and disseminate **best practice** and **give better access to international information**;
- Consider within its activities the needs of **developing countries and countries in transition** fully; and
- Design, produce, and promote **efficient tools for decision making** on matters related to roads and related transport.
- The Association mobilizes the expertise of its members
- Through operations guided by a **4-year Strategic Plan**

COVID-19

Issues faced by Road Operators and Administrations



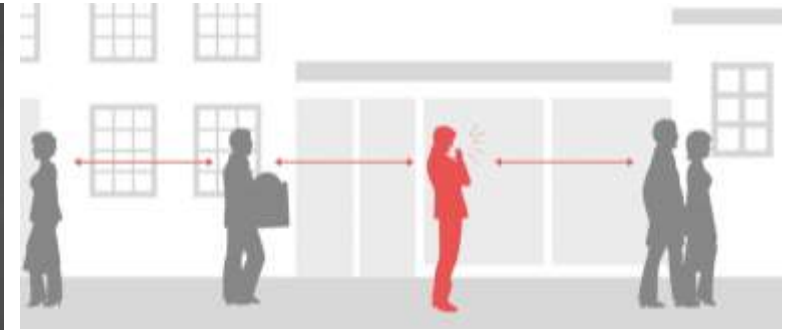
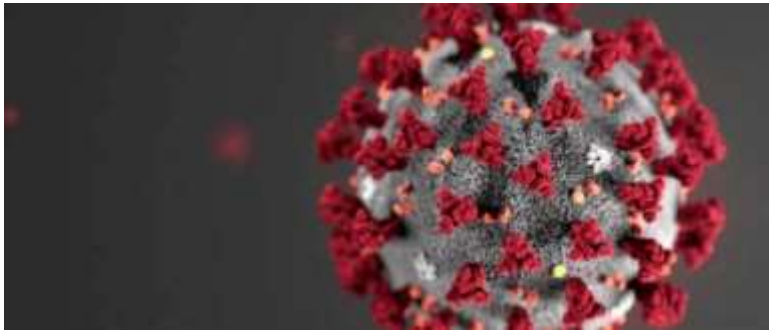
PIARC has tentatively structured the situation around Six Key Issues

- Issue 1: Ensuring employees' health and safety in general
 - Issue 2: Maintaining activity and business continuity
 - Issue 3: Impact on transportation
 - Issue 4: Business Relations
 - Issue 5: Customer and stakeholder relations and joint working
 - Issue 6: Security
-
- They were presented in more detail during our previous webinars.

Two synthesis Notes are available

- These Notes present the emerging findings from the first Webinars.
- They are relevant for the road community and may be useful to inform planning and operational decisions that have to be made on the ground urgently.
- Available from www.piarc.org
 - Free
 - In English, Spanish and French





Maintaining the social distance by an appropriate pedestrian system

Kongju National University

Prof. Seonha Lee

Speaker



Prof. Seonha Lee

- Academic background
 - Korea University, Civil eng.
 - Technische Universität Berlin, Dipl.-Ing.
 - Technische Universitaet Karlsruhe, Institut für Verkehrswesen Dr.-Ing.
- Position
 - Kongju National University(2000~)
 - PIARC Committee in Korea(2020~)
 - TOMMs CEO(2017~)
 - Former President of Korea ITS (2018)

Contents

1. Background
2. Case study
2. Methodology
 - Methodology
 - Simulation
 - Scenario
 - Results
3. Results



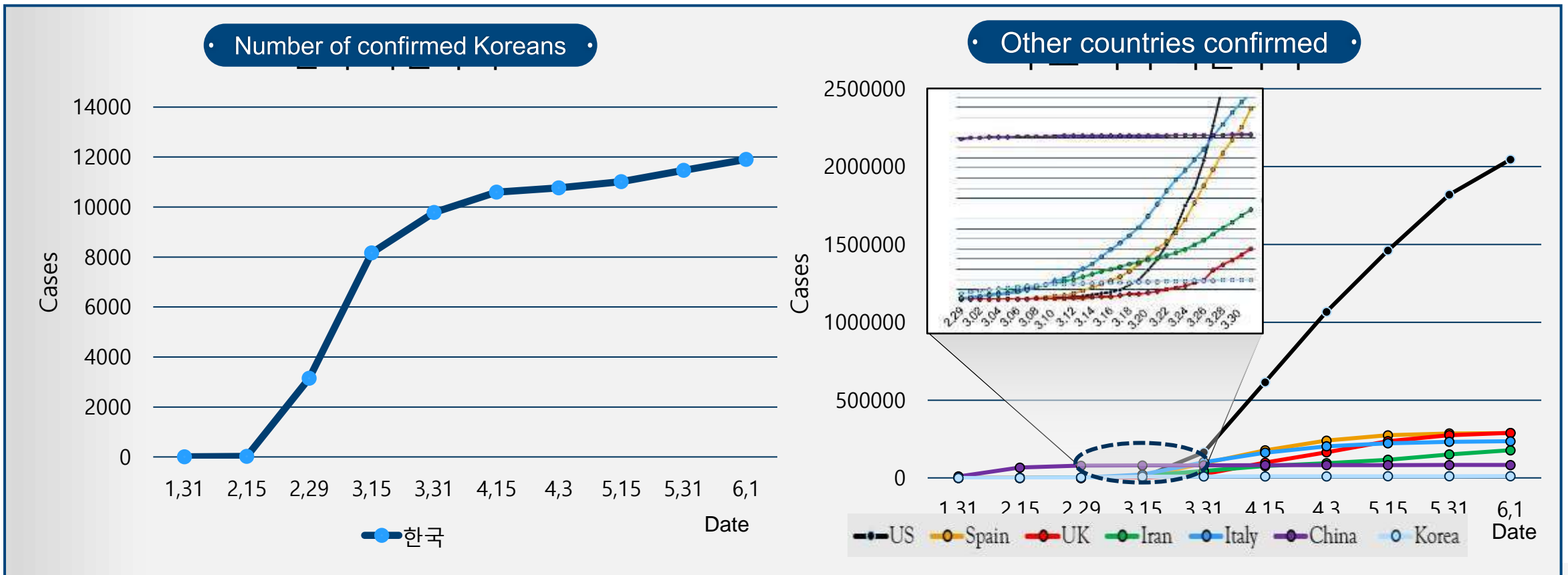
1. Background

- Life loss and property damage caused by COVID 19 are serious globally, and most countries restrict traffic, but considering the economic downturn in all sectors of society, limited levels of economic activity should be resumed, but to prevent the spread of infection, Maintaining “social distance” is very important
- Until now, it has relied mainly on government administrative orders, but it is effective only when a systemic method is proposed to allow citizens to pass through the “social distance” in multiple concentration facilities.
- In this study, we present a system that allows customers to act while maintaining “social distance” in multi-dense facilities (historic stations, department stores, stadiums, etc.) and based on this, the number of people that can be accommodated in each facility.



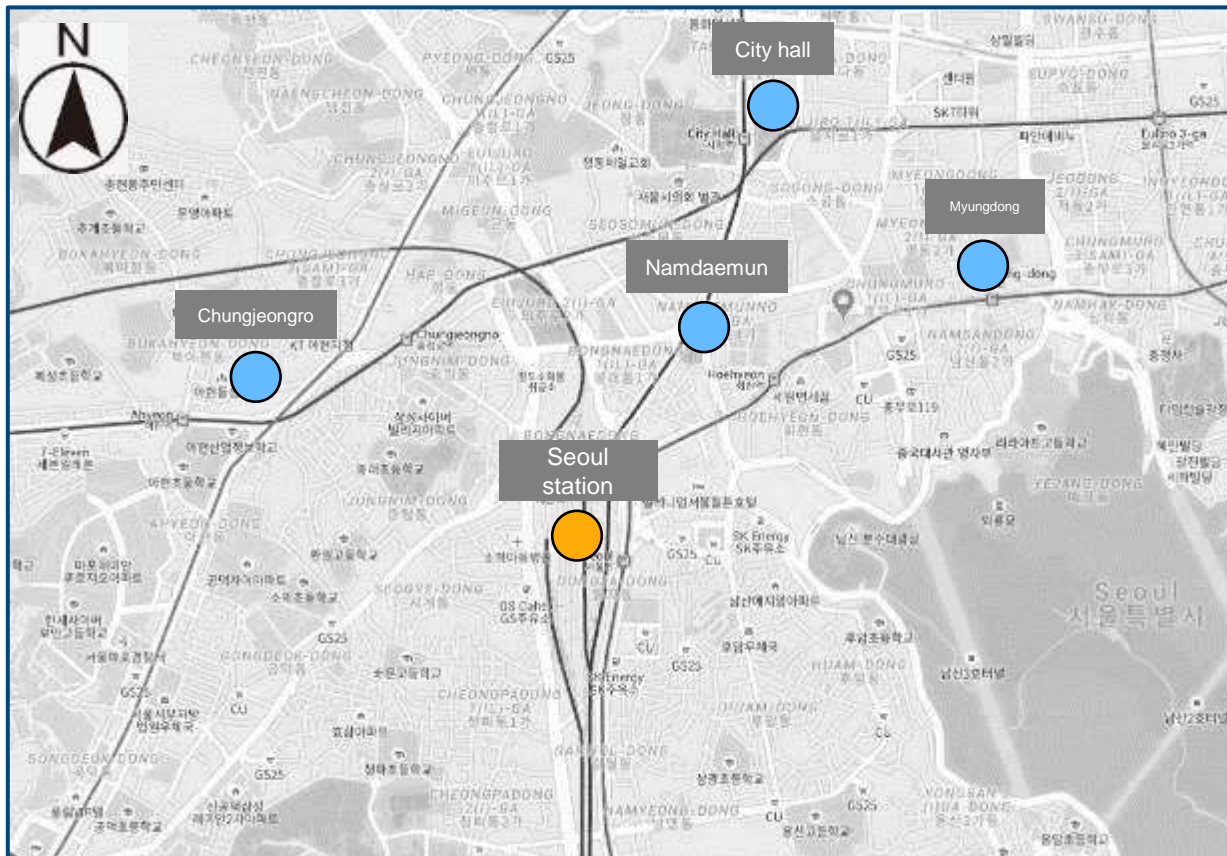
1. Background

- The number of confirmed patients in Korea's COVID 19 skyrocketed around February 15, and the number of additional confirmed patients decreased after April 15, but increased again.
- Compared to the increase in the number of confirmed persons in major countries, the increase in the number of additional confirmed persons in Korea is relatively stable.



2. Study area

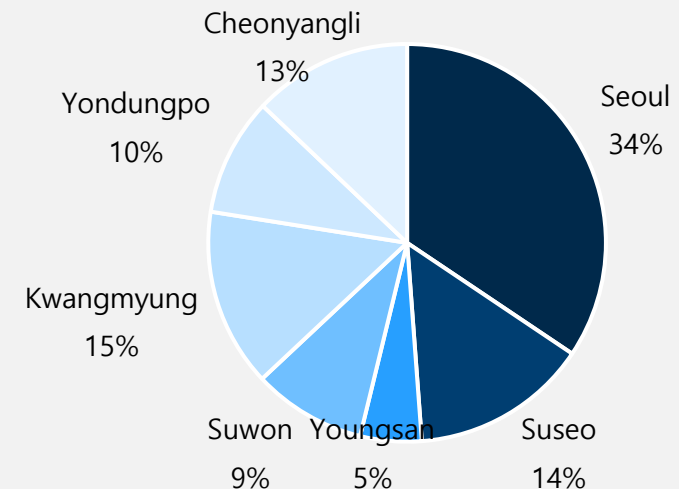
- Seoul Station is located in the downtown area of Seoul and is very close to major tourist attractions such as Myeongdong and City Hall and downtown
- As a result of the 2018 number of passengers surveyed by major stations in the metropolitan area, Seoul Station accounted for 34%, taking a major role in the use of rail transportation.



Seoul station

- Modes: KTX, Seamaul, Mugunghwa
- Major transfer: Subway 1 and 4, Airport line

Num. of Passengers in 2018



2. Methodology

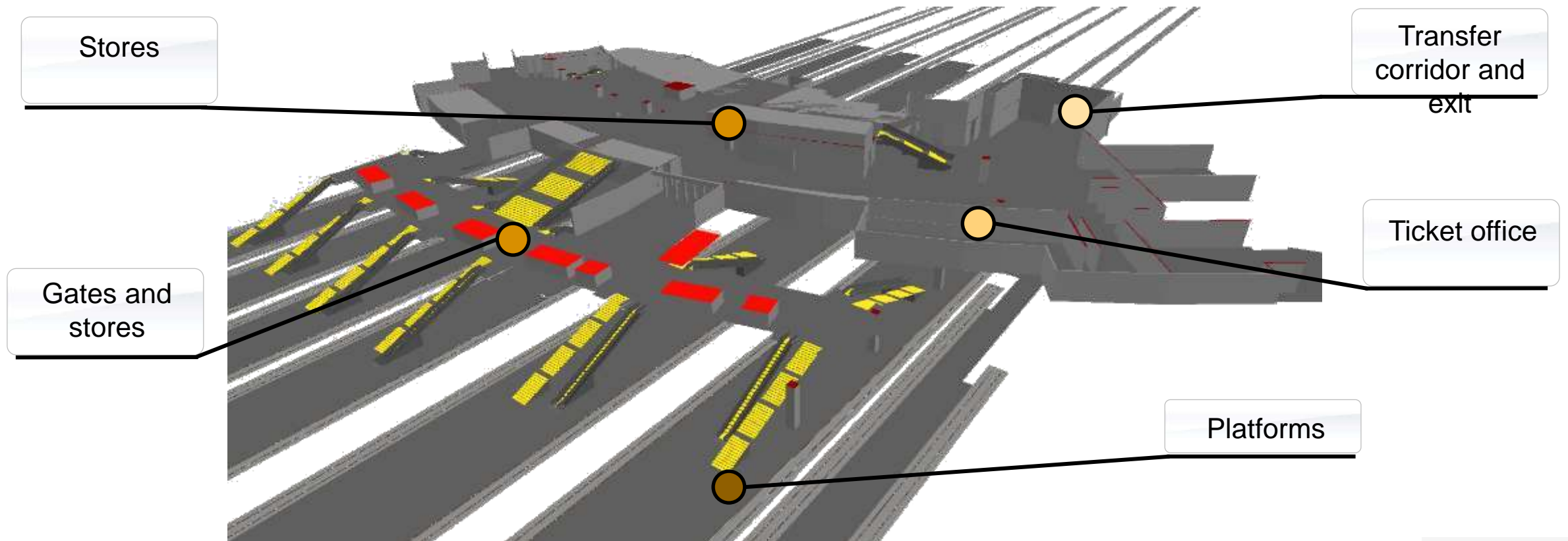
- The Pedestrian Service Level (LOS) is as follows, of which the area per walker (m^2/ped) is utilized and reflected.
- The area to maintain “social distance” is $1.5\text{m} \times 1.5\text{m} = 2.25\text{m}^2$, so it corresponds to LOS level “C”

LOS	Density(m^2/ped)	Flow (ped/min/m)	Speed (m/s)
A	> 5.6	≤ 16	> 1.30
B	> 3.7-5.6	> 16-20	> 1.27-1.30
C	> 2.2-3.7	> 20-26	> 1.22-1.27
D	> 1.4-2.2	> 26-36	> 1.14-1.22
E	> 0.75-1.4	> 36-49	> 0.75-1.14
F	≤ 0.75	Variable	≤ 0.75



2. Simulation

- Establishment of facilities such as the platform, stairs, waiting room and ticket office of Seoul Station using PTV VISWALK, a pedestrian simulation
- For accurate simulation analysis, KTX's schedule is used to reflect train departure and arrival times.



2. Simulation

- Social force calibration process

Social Force Parameter			Default	Modified
1	Tau	Relaxation time or inertia that can be related to a reaction time	0.40	1.00
2	React to n pedestrians	React to n: During calculation of the total force for a pedestrian, considers only the influence exerted by the n closest pedestrians.	8.00	6.00
3	Lamda	Lambda governs the degree of anisotropy of the forces.	0.17	1.00
4	A social (Isotropic)	$F = A_{soc\ isotropic} \omega(A) \exp\left(-\frac{d}{B_{soc\ isotropic}}\right) n$	2.72	4.16
5	B social (Isotropic)		0.20	0.60
6	A social (mean)	$F = A \exp\left(-\frac{d}{B}\right) n$	0.40	1.60
7	B social (mean)		0.40	2.20

2. Scenario

- Four scenarios were set to judge the efficiency of maintaining the “social distance” when analyzing the pedestrian circulation system.
- Scenarios C-1 and C-2 establish a scenario by additionally constructing a pedestrian line considering the step width

Scenarios A

Status of not applying “social distance”



Scenarios B

Status of applying 1.5m “social distance” between pedestrians



Scenarios C-1

“Social distance” using two-row routes



Scenarios C-2

“Social distance” using three-row routes

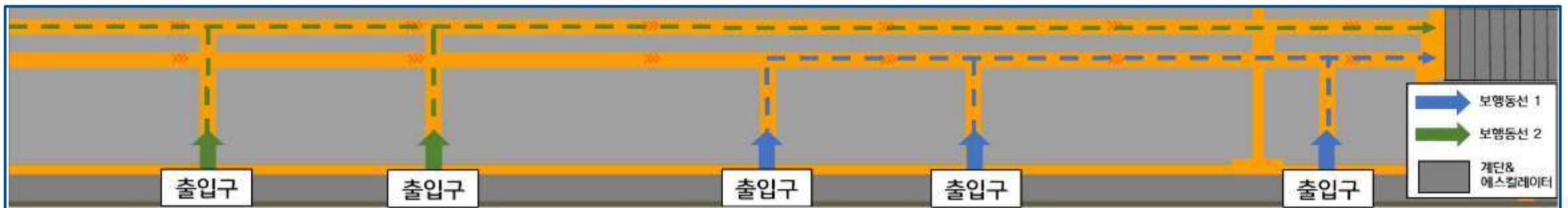
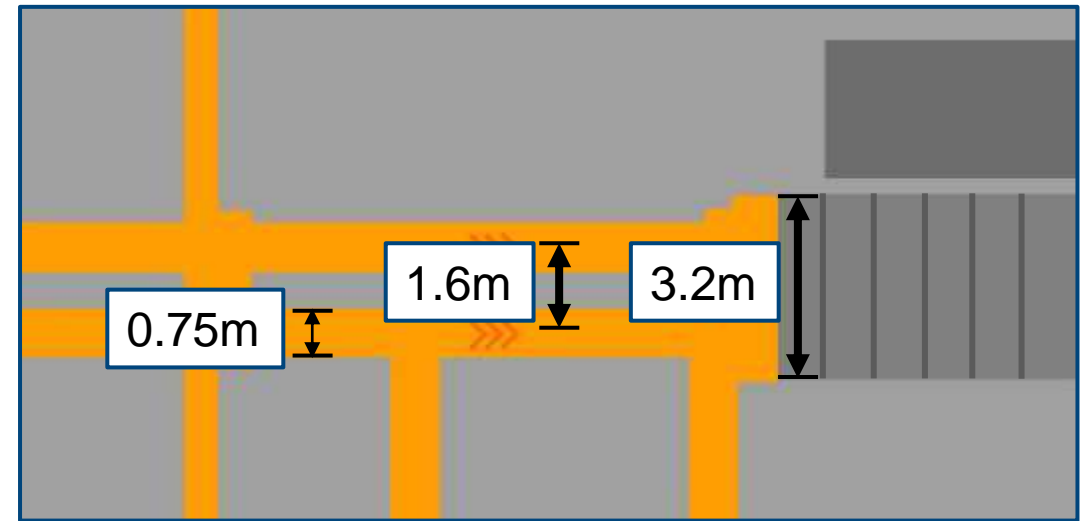


2. Scenario

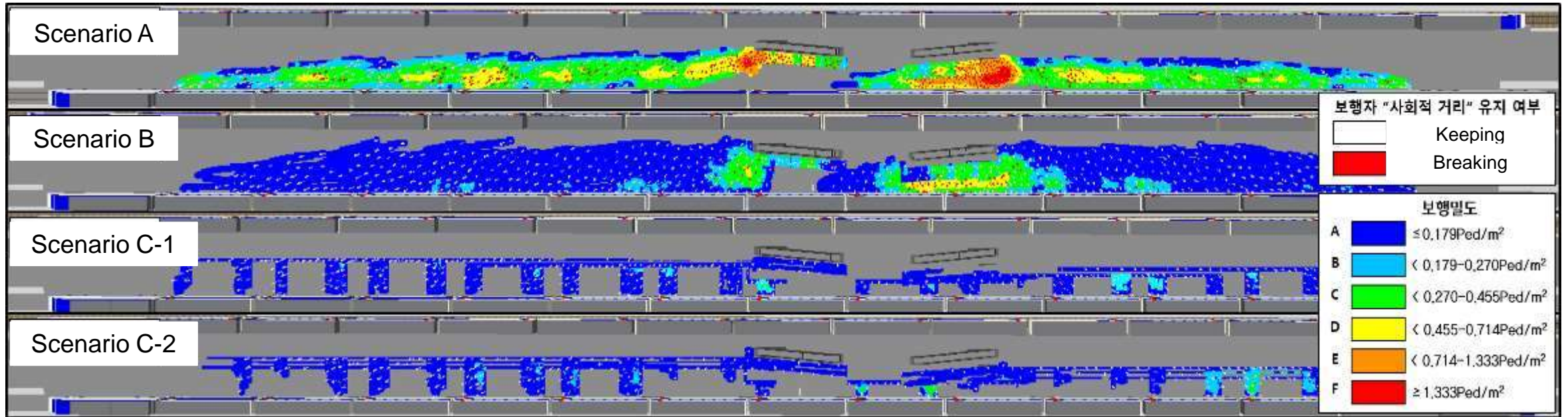
- Scenario C-1 is a scenario in which two rows of copper wire (distance between the copper wires are 1.6m) based on the width of the stairs (3.2m)
- Train passengers are set to use traffic line 1 for passengers adjacent to the platform stairs and passenger line 2 for the remaining passengers.

Scenarios C-1

- Mark the pedestrian traffic line that connects to the platform~stairs to get off the train door of 0.75m thickness on the platform so that the passenger can use the pedestrian traffic line.
- Pedestrian line width: 0.75m(75cm)
- Distance between lines: 1.6m
- Stair width: 3.2m



2. Results



Scenario	Density (Ped/m ²)	LOS	Speed (m/s)
A	0.648	D	0.69
B	0.206	B	0.71
C-1	0.241	B	0.48
C-2	0.181	B	0.51

Scenarios A

- As a result of Scenario A analysis, passengers voluntarily enter the stairs, and the passengers are concentrated in the narrow part of the platform → stairs, so the LOS level cannot maintain the "social distance" at the "E~F" level.

Scenarios B

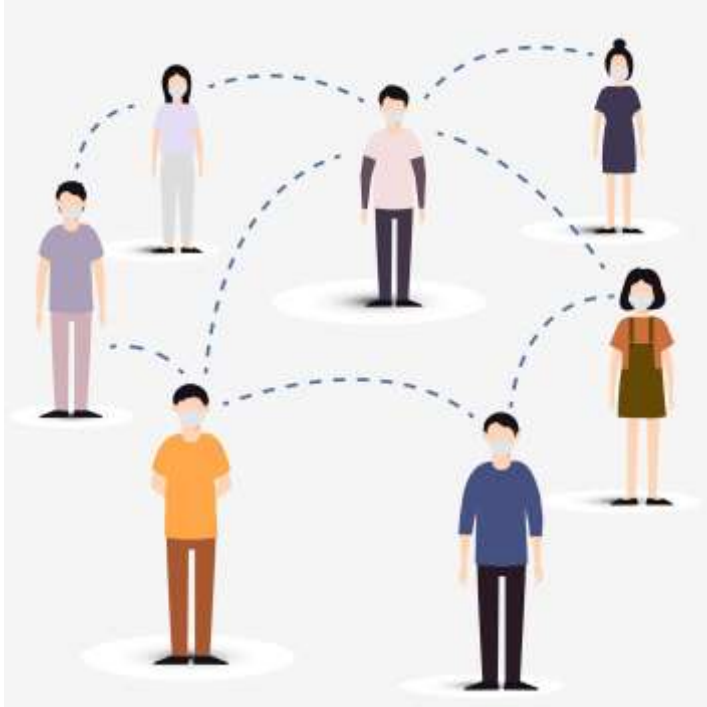
- Scenario B is that passengers voluntarily maintain the "social distance" of 1.5m, and the service level is low to "B" level, but this walking behavior is practically impossible.

Scenarios C-1, 2

- Scenarios C-1 and 2 maintain the service level "B" as a result of setting "social distance" in the longitudinal and transverse directions by marking the pedestrian lines in rows 2 and 3 considering the limitations of scenario B. In this case, the walking density was lower than that of C-1, but the "social distance" was not satisfied.

Social Distance Viswalk (Seoul Station)

3. Results



- ✓ According to the prediction that epidemics such as COVID 19 can continue to be prevalent, it is necessary to establish a systemic circulation system that allows customers to maintain a “social distance” at all times in multi-dense facilities such as complex history, shopping malls, and stadiums.
- ✓ Various circulation system alternatives considering the purpose of customers' activities and health and appropriate capacity calculation considering these are possible through walking simulation as in this study.
- ✓ At the government level, establish standards for each facility for a pedestrian system to maintain a “social distance” for multi-dense facilities, and establish a system to monitor it.

Thank you for your attention!

- Kongju National Univeristy
- Prof. Seonha Lee

- seonha@kongju.ac.kr



COVID-19 Impact on Traffic, Public Transport and Road Maintenance

The Singapore Experience, by the Land Transport Authority

Mr Chandrasekar

Group Director, Traffic and Road Operations Group



Ms Wee Ping Koh

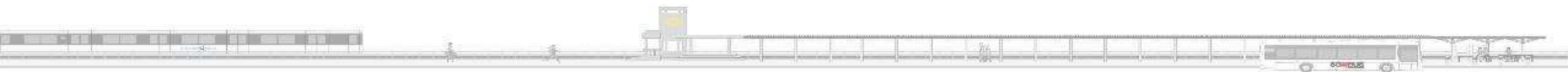
Deputy Chief Specialist, Road & Traffic Specialists
Deputy Director, Traffic Analysis & Projects



17 June 2020

Outline

- Headlines on Land Transport
- Traffic Operations and Management
- COVID-19 Impact on Traffic and Public Transport
- Impact to maintenance obligations
- Supporting Community & Staff
- Summary



Roles of the Land Transport Authority (LTA)

The LTA is the agency responsible for planning, designing, building and maintaining a land transport infrastructure and system that is reliable, connected, sustainable, safe and meets diverse needs.



THE RAIL NETWORK



VEHICLE AND TRAFFIC
FLOW MANAGEMENT



THE PUBLIC BUS SYSTEM



ROADS & COMMUTER
INFRASTRUCTURE



ACTIVE MOBILITY



POINT-TO-POINT TRAVEL

Changing Scene in Singapore

1965



Resident Population:
1.8 million

Vehicle Population:
160,000

Today

Land Area: 722.5 sq.km



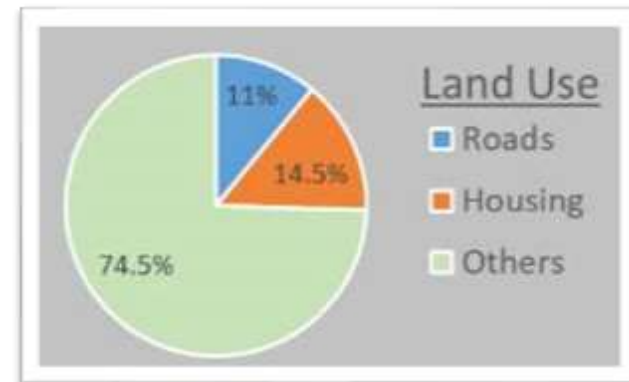
Resident Population:
5.7 million

Vehicle population:
970,430

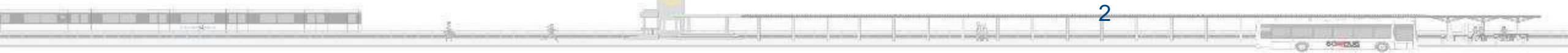
Future

**Current Growth
Unsustainable!**

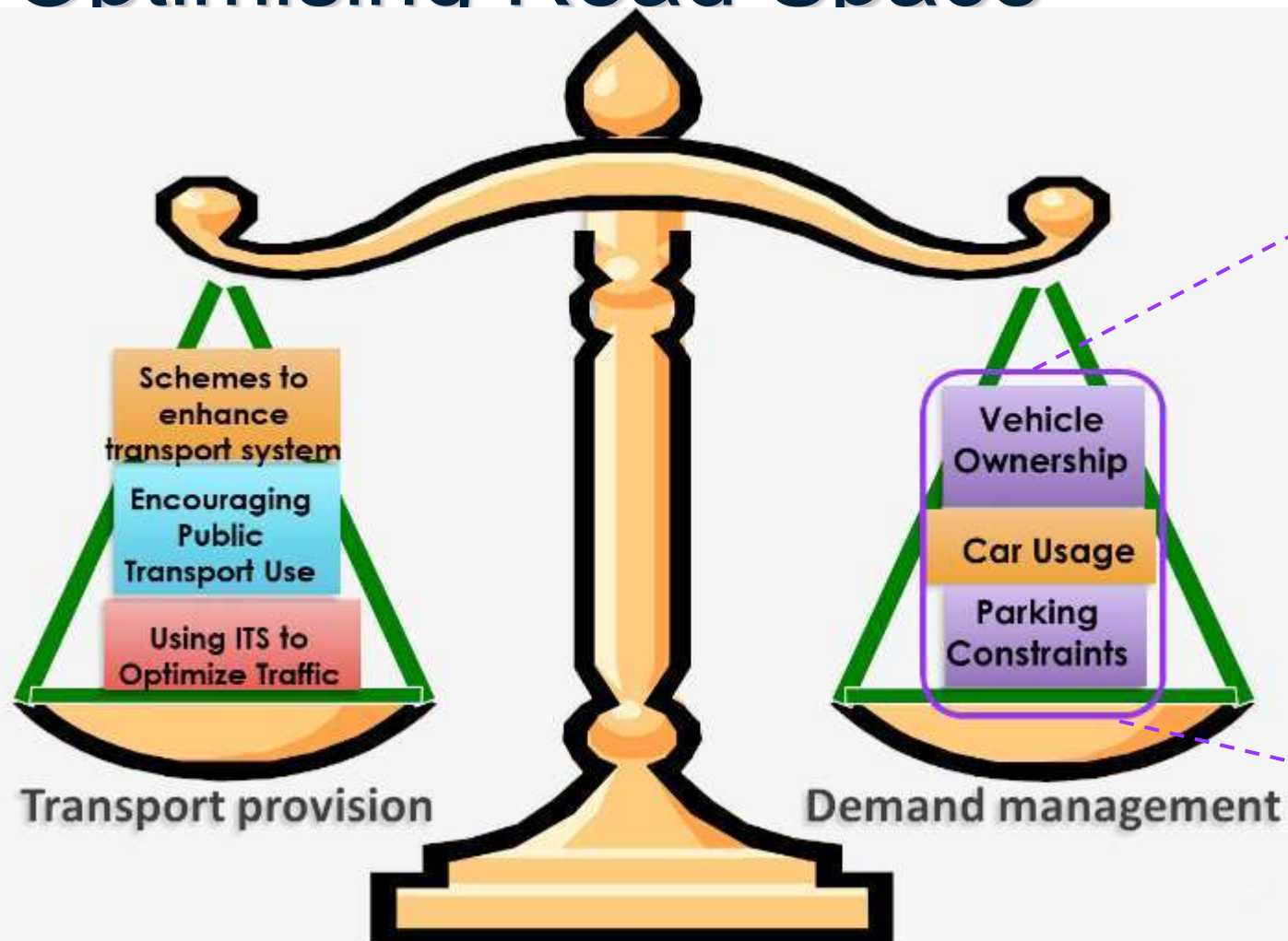
*No. of Journeys per day
expected to increase 50%
over the next 15-20 years*



Resident Population **↑** **3 times!**
Vehicle Population **↑** **6 times!**



Multi-dimensional Approach to Optimising Road Space



Balance of Ownership and Usage Restraints



- Vehicle Quota System (VQS)
- Taxes & Registration Fee

- Electronic Road Pricing
- Off-Peak Car scheme
- Parking policies

One Central ITS Platform

1. Intelligent Transport Systems

Expressway Monitoring & Advisory System (EMAS)



Traffic Scan



Green Link Determining System (GLIDE)



Parking Guidance System (PGS)



Junction Eyes (J-Eyes)



Tunnel sensors



Webcams



ITS & Sensors

One Central ITS Platform (i-Transport System)



2) Integrated Traffic Monitoring & Control (i-transport)

Maps & Dashboards for Traffic Monitoring & Situational Awareness



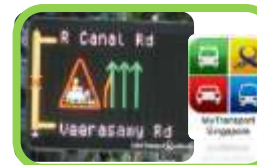
Incident Management & Response



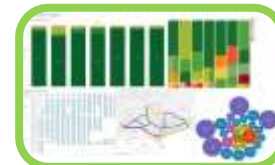
Tunnel Monitoring & Control



Information Dissemination



Data Analysis & Planning



Unified Equipment Maintenance



Applications & Functions

3. Traffic Operations, Data Analysis & Dissemination

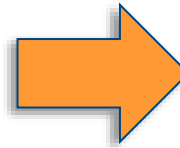


Evolution of Road Pricing in Singapore



Area Licensing Scheme (1975 – 1998)

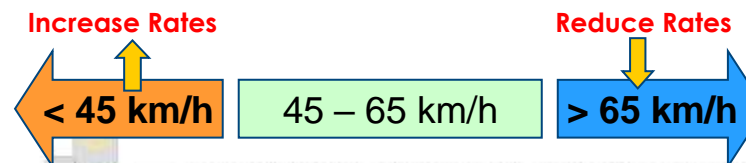
- Manual (paper based) scheme to regulate vehicle usage in city
- Motorists pay one-time \$ to enter Restricted Zone
- Daily entries at \$3 -> \$5 -> \$3/\$2
- Allows re-entry during validity period
- 44% volume reduction
- Speeds during RZ hours increased to 33kph



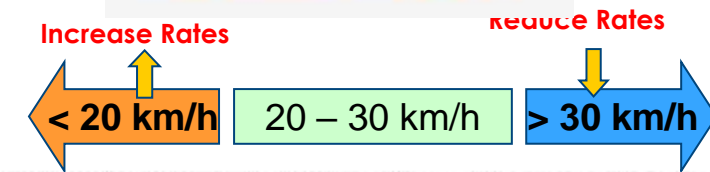
Electronic Road Pricing (1998 – Now)

- Gantries fitted with cameras, displays & sensors
- Charged through in-vehicle unit
- Flexible: rates varies by location/time (\$0.50-\$6.00)
- Pay per pass
- Additional 10-15% volume reduction even though rates lower than ALS at start
- Rates reviewed quarterly, responsive to prevailing traffic conditions

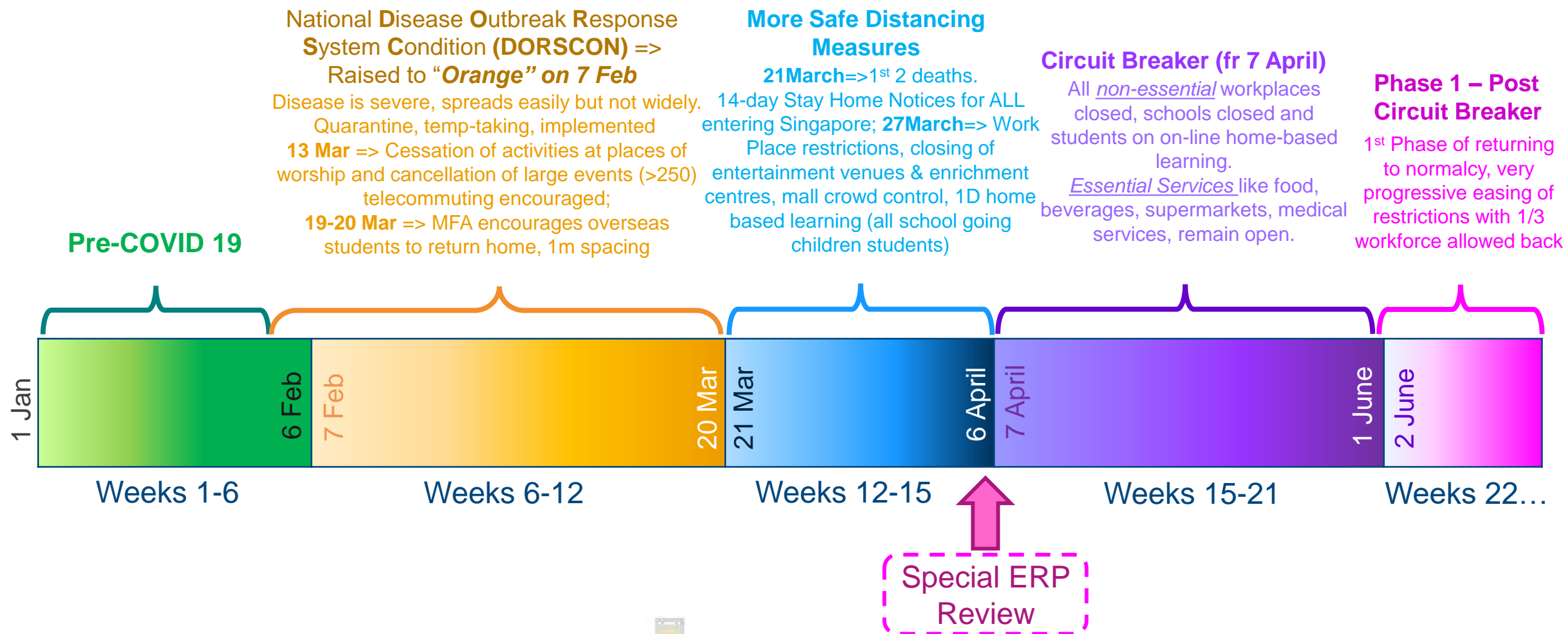
Expressways



Arterial Roads

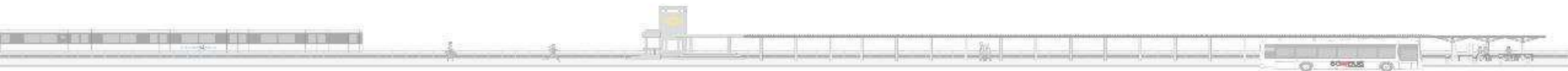


COVID-19 Related Stages & Activities

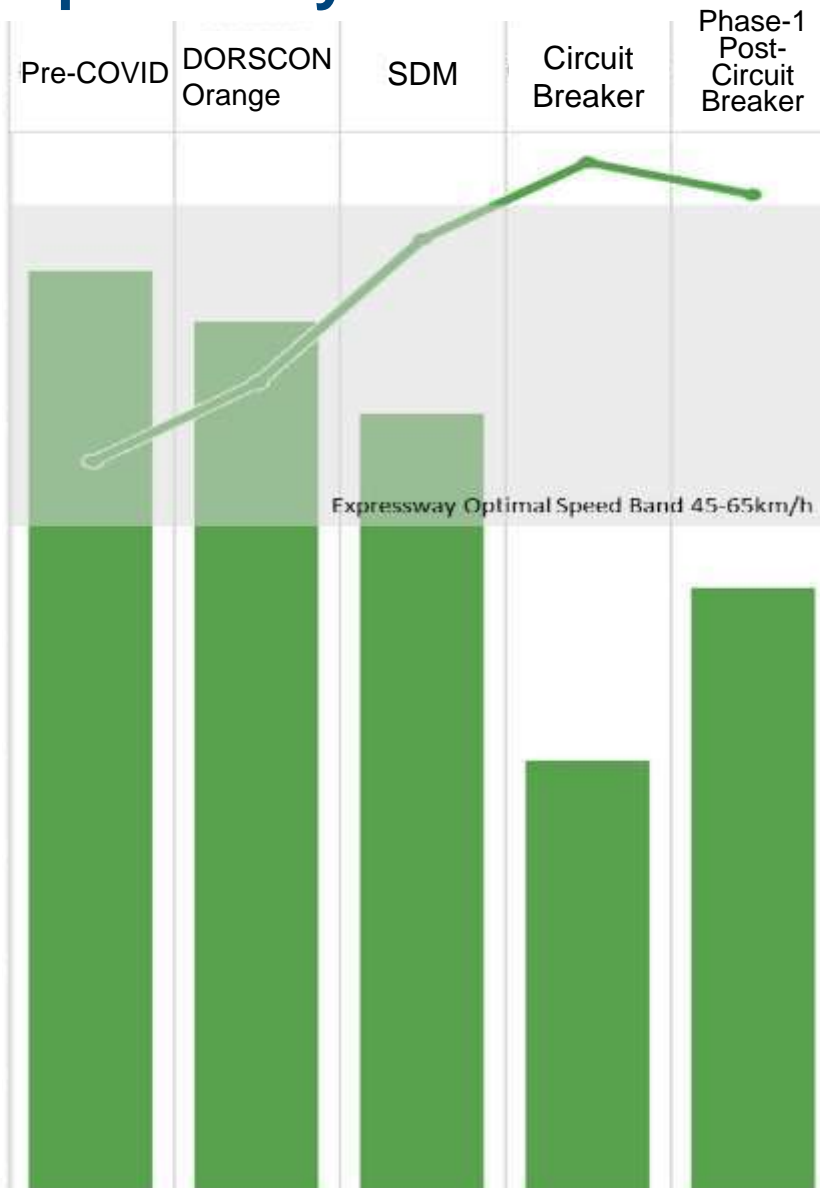


Key Observations on our Roads

- Whilst there was drop in traffic volume in the initial weeks as COVID-19 situation escalates, changes were not significant and overall traffic reduction was less than 10% compared to pre-COVID. Demand dropped more significantly only after the safe distancing measures (SDM) were stepped up, reaching around 20% reduction from normal days and eventually to 53% during the first week of circuit breaker
- The area experiencing largest drop was the Central Business District (CBD), with traffic reduced up to 30% during the SDM in view of the area having non-essential services Thereafter, volume dropped by almost 65% when circuit breaker measures set in. There was a one-day surge in traffic on 6 April, the day before circuit breaker started.
- Expressways demand dropped up to 20% during the SDM weeks, and reached around 50% in first week of circuit breaker. This was due to a progressive reduction in longer distance commuting trips as more workplaces were closed during Circuit Breaker. However, one of the expressway, serving the north-south corridor continued to attract high demand in view that many essential workplaces were located along that route.
- The road category that experienced the least demand drop was the arterial roads, with around 12% during SDM, and 45% during first week of circuit breaker. This could be because arterial roads tend to carry shorter distance essential trips, and therefore demand remains relatively high. This was especially true for roads that are serving residential areas, where demand drops are the smallest.



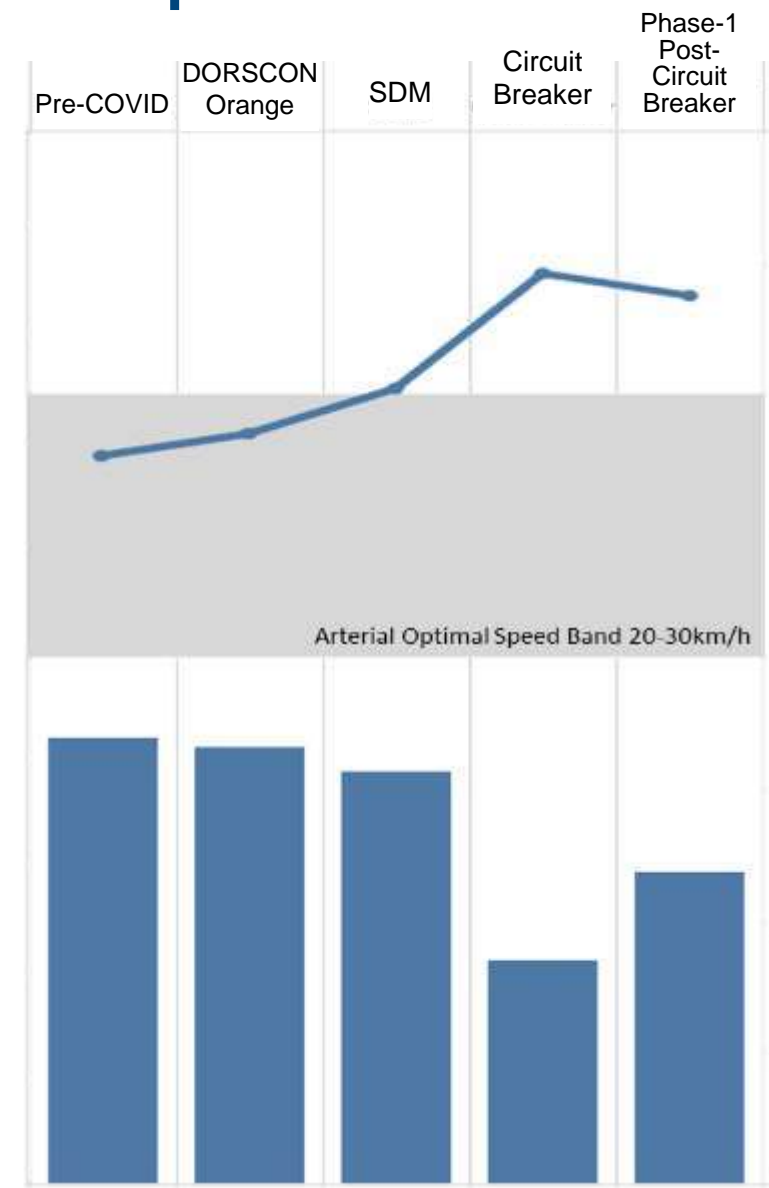
Expressway and Arterial Volumes Correlated with Traffic Speeds



Expressways

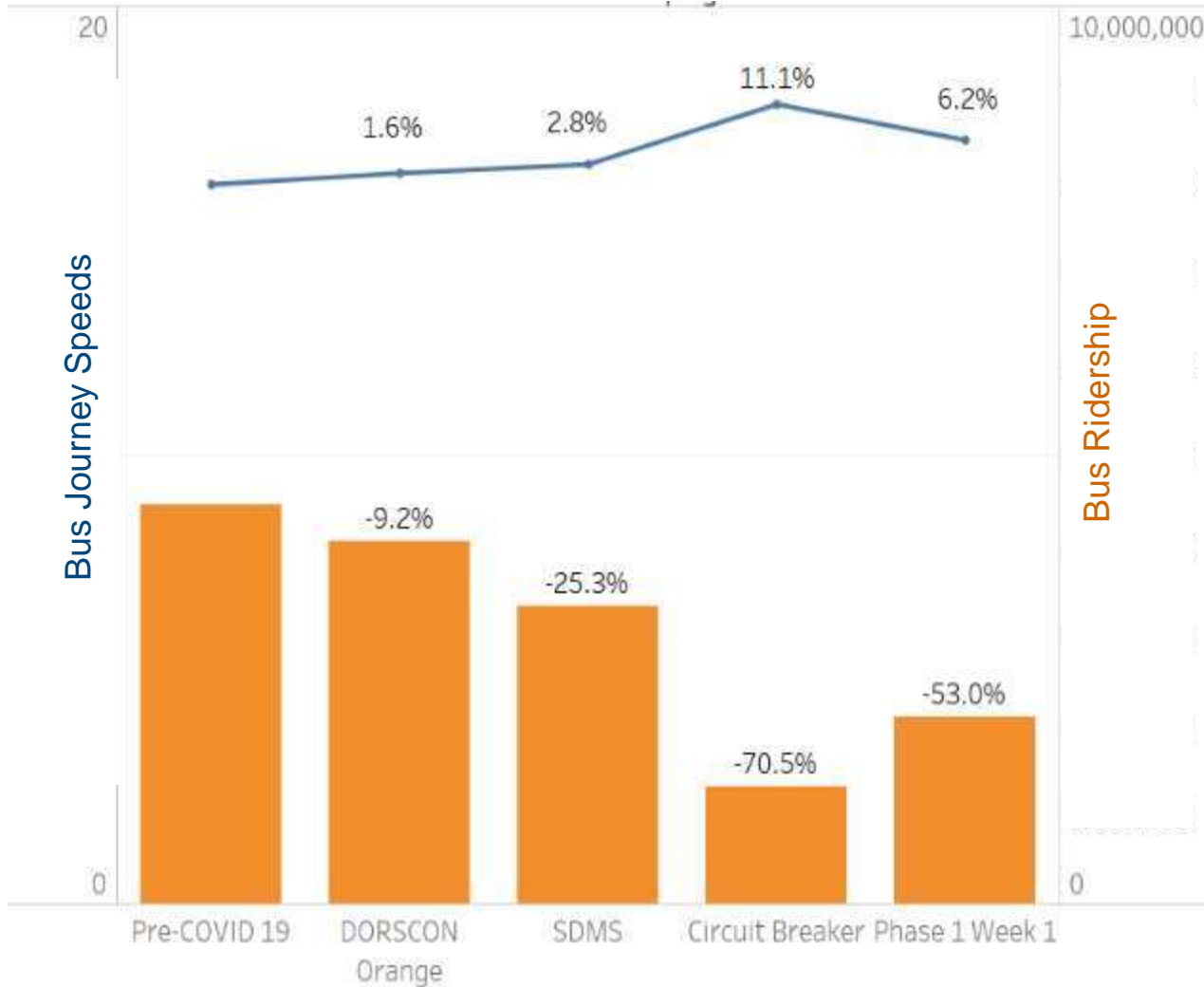
Expressway and Arterial roads volume dropped week by week during COVID-19, with the reducing demand resulting in speed improvement though at a slightly slower rate

Arterial Road speeds exceed optimal speed bands even during SDM, but expressways speeds only exceeded during Circuit Breaker period.



Arterial Roads

Island-wide Whole-day Bus Journey Speeds and Ridership

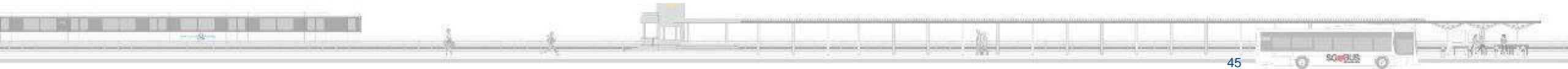


Legend
Blue Line – Bus Journey Speed
Orange Bars – Bus Ridership

DORSCON orange affected both bus volume and traffic volume equally after. But for buses, it was only during the SDM period that speeds increased by 2.8%

It took an 70.5% drop in ridership in order to see a 11.1% increase in bus speeds.

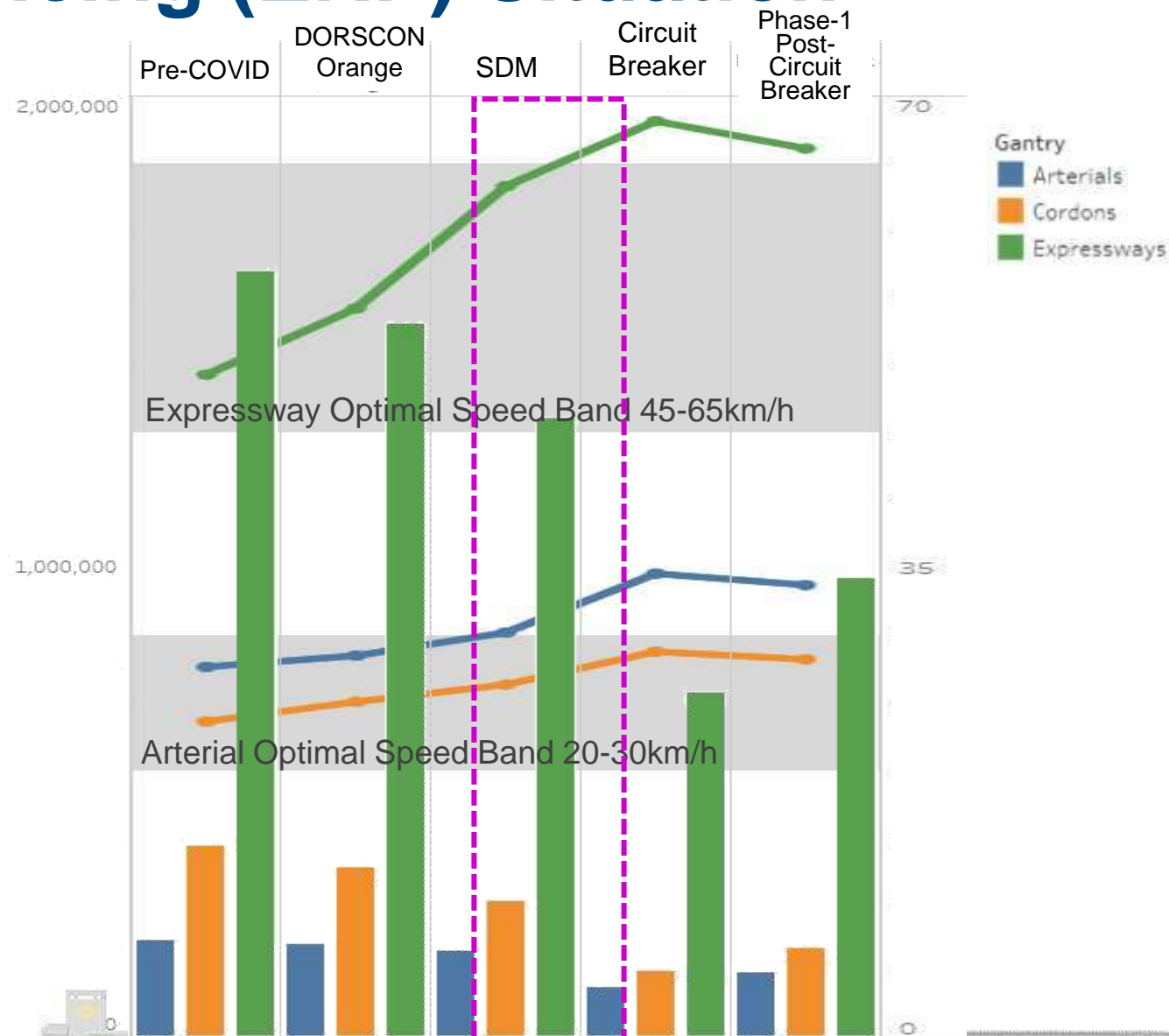
With Phase 1 post Circuit Breaker and ~1/3 workforce allowed back to work (from 15%), PT ridership has increased, with corresponding drop in bus journey speeds



Electronic Road Pricing (ERP) Situation

Regular weekly monitoring of traffic conditions alerted LTA about dropping traffic demand, and improving speeds

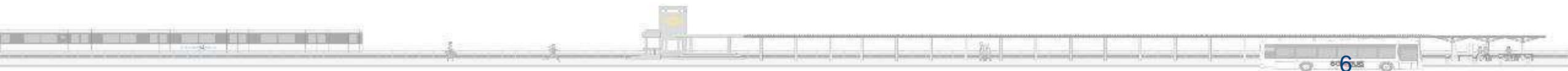
At that time, the next quarterly ERP Rate Review is a month away.



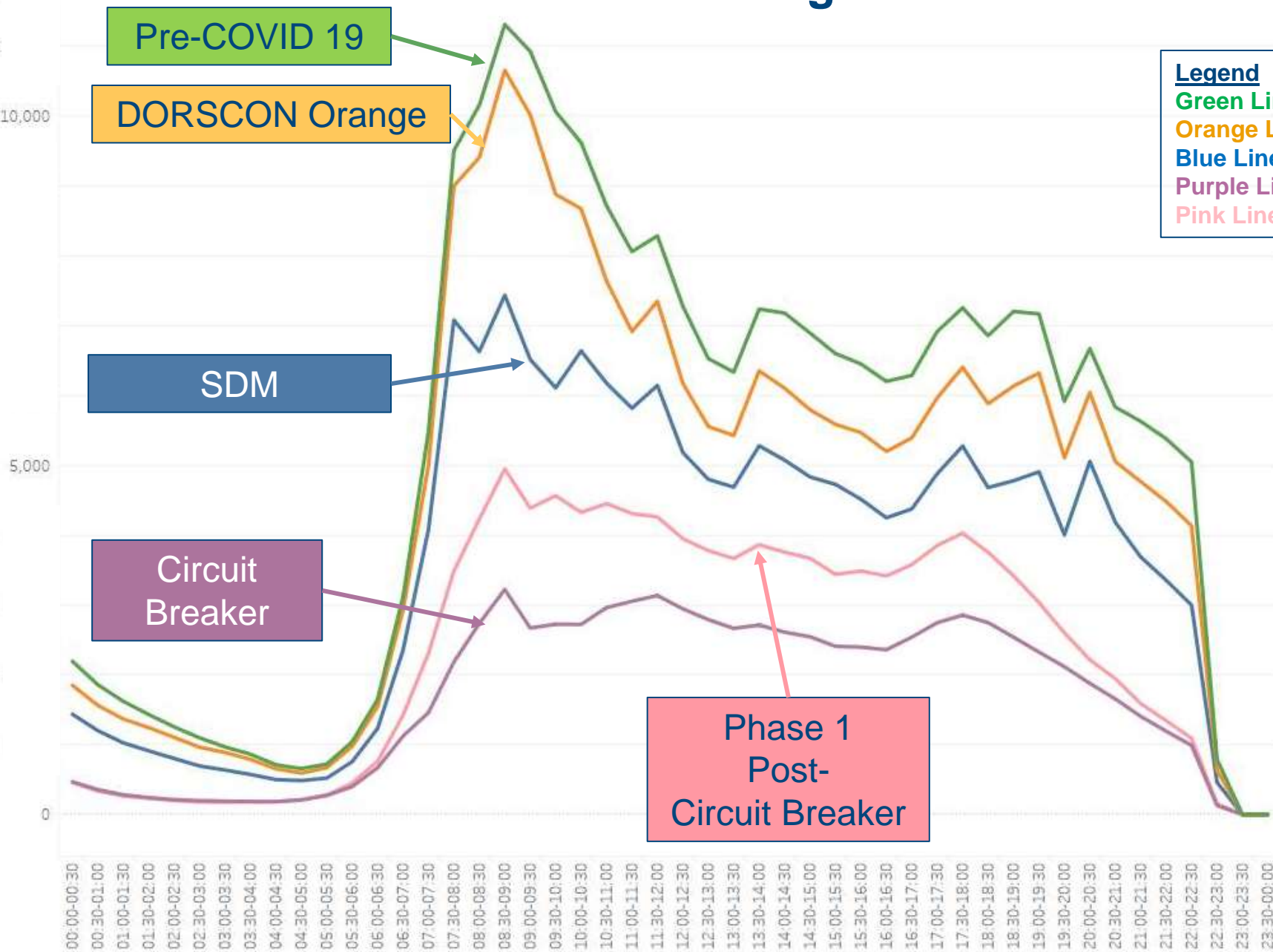
Special ERP Review

To ensure expediency in responding to rapidly changing traffic situation

- Instead of regular quarterly review, a special review was applied, resulting in special rate reduction at several gantries scheduled for 6 April implementation:
 - 74 out of 77 priced ERP gantries will have rates reduced in at least one 30-mins time period
 - 56 ERP gantries will be zero-rated
- 3 April: The intended Circuit Breaker measures were announced to start on 7 April
- 4 April: Urgent policy and operational response made in anticipation of drastically reduced commuting traffic. MOT-LTA announced the suspension of ERP rates at all 77 priced gantries from 6 April
- With the gradual easing of circuit breaker measures from 2 June, ERP charges remain suspended but more frequent review of traffic speeds will be conducted during Phase 1 post-circuit breaker, until normalcy returns



Trends of Traffic Volume Entering Central Business District (ERP Cordon)



Legend

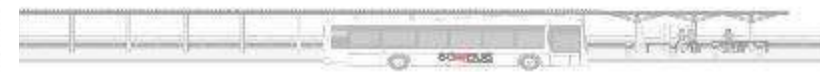
- Green Lines – Pre-COVID 19 and Pre DORSCON Orange
- Orange Lines – Post DORSCON Orange announcement
- Blue Lines – More Safe Distancing Measures
- Purple Lines – Circuit Breaker Measures
- Pink Line – Phase 1

The cessation of ERP from 6 April had no detrimental impact on traffic operations

Due to the circuit breaker measures, all non-essential travel was avoided, resulting in reduced flow on the network

The \$0 ERP rates is thus justifiable during this period.

As traffic demand is expected to rise from Phase 1 Post-Circuit Breaker, closer attention is required to track the recovery



Impact to Maintenance Obligations

- Due to limitation of resources during COVID
 - Most non-critical maintenance work was ceased (e.g. footpath inspection, Scheduled Maintenance Works & Project Works for street lighting, most escalators shut down except leading direct to hospitals)
 - Reduction of cleaning frequency, only limited to selected structures (Lifts, PUPs, Gravity sump pit, Gutter, etc)



- To enhance visibility of mild defective areas and ensure public safety, temporary measures like placing cones or drawing yellow box.
- Rectification will be done after circuit breaker, when more resources are available



Transport Ambassadors

Public Transport Safe Distancing Ambassadors

- To promote and enforce safe distancing measures on public transport, including MRT stations and bus interchanges
 - 1m safe distance from other commuters
 - Ensure commuters sit or stand at designated spot on train



Active Mobility (AM) Ambassadors

- In current climate, higher usage of AM devices
- Timely opportunity to remind users on proper use of such AM devices on public paths, to encourage safe and responsible usage
- Efforts to engage food-delivery drivers on safe-distancing



Positive Social Impact

Spreading the safe-distancing message to all



Keeping staff engaged via online measures



Coping with Parental Stress While Working from Home

CYBER & DATA SECURITY QUIZ

Your mandatory training on LEARN



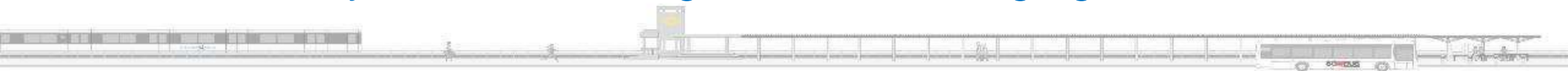
MENTAL HEALTH
KEEPING IT TOGETHER DURING COVID-19

Showing appreciation to healthcare workers - the *LightItBlue Campaign*



Summary

- Technology-readiness has enabled LTA to continue carrying out our core functions without affecting service levels
- ITS has provided valuable insights to traffic and public transport trends, gaining additional level of understanding into travel behavior arising from COVID-19 situation
- Maintenance regimes has to be adjusted, whilst maintaining safety for road users as priority
- Digital platforms and technology allow continued support of community and staff through these challenging times



Thank You



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LTAsg



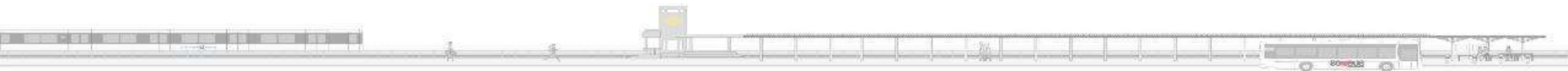
LTAsg



LTASingapore



LTA Singapore





COVID-19 Webinar

COVID-19 Impact on Traffic Modes

Martin Margreiter

Technical University of Munich & MobilityPartners, Germany

Member of PIARC Committee 2.4 on Road Network Operations / ITS

June 2020

Short Bio – Martin Margreiter



2010 - now: Doctoral Candidate, Research Group Leader and Lecturer
Chair of Traffic Engineering and Control, TUM, Munich, Germany



2013 - now: Lecturer
German Institute of Science and Technology, TUM Asia, Singapore



2016: Guest Researcher and Lecturer
California Polytechnic State University (Cal Poly), San Luis Obispo, USA



2016 - now: Founder and Partner
MobilityPartners, Consultancy for Traffic and Mobility, Munich, Germany



2018 - 2020: Director Innovation Hub Central
EIT Urban Mobility, Munich, Germany & Barcelona, Spain



2018 - now Member of Committee 2.4 on Road Network Operations /ITS
PIARC World Road Association, Paris, France



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https://www.researchgate.net/profile/martin_margreiter



https://mobility-partners.com/en/?team=martin-margreiter_en



<https://scholar.google.de/citations?imgq=martin+margreiter>



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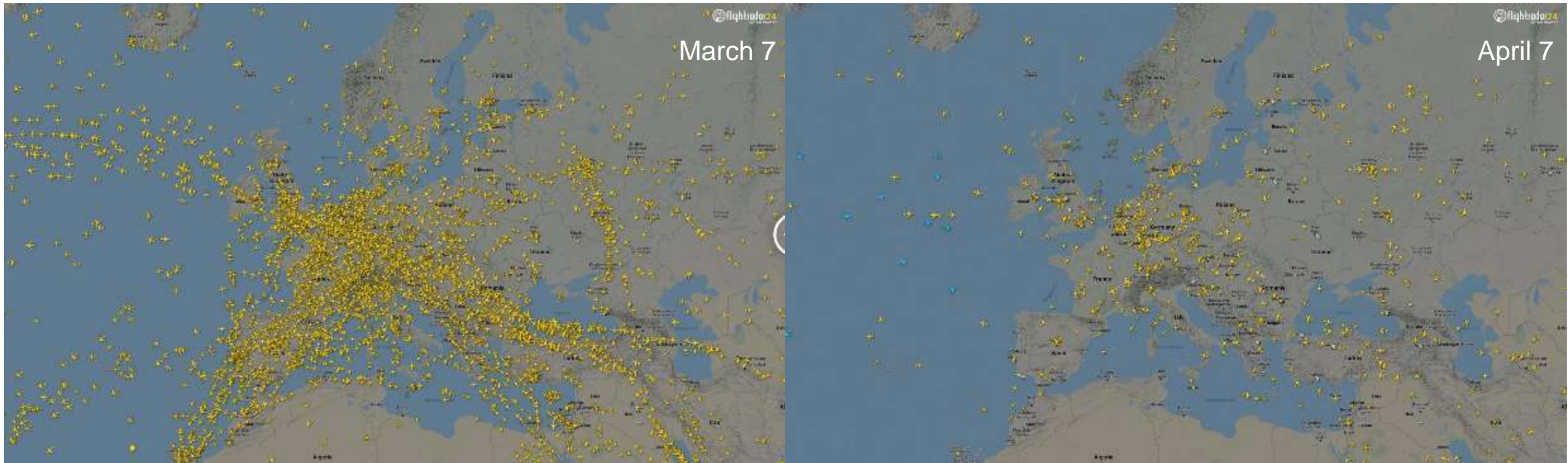


Air Traffic

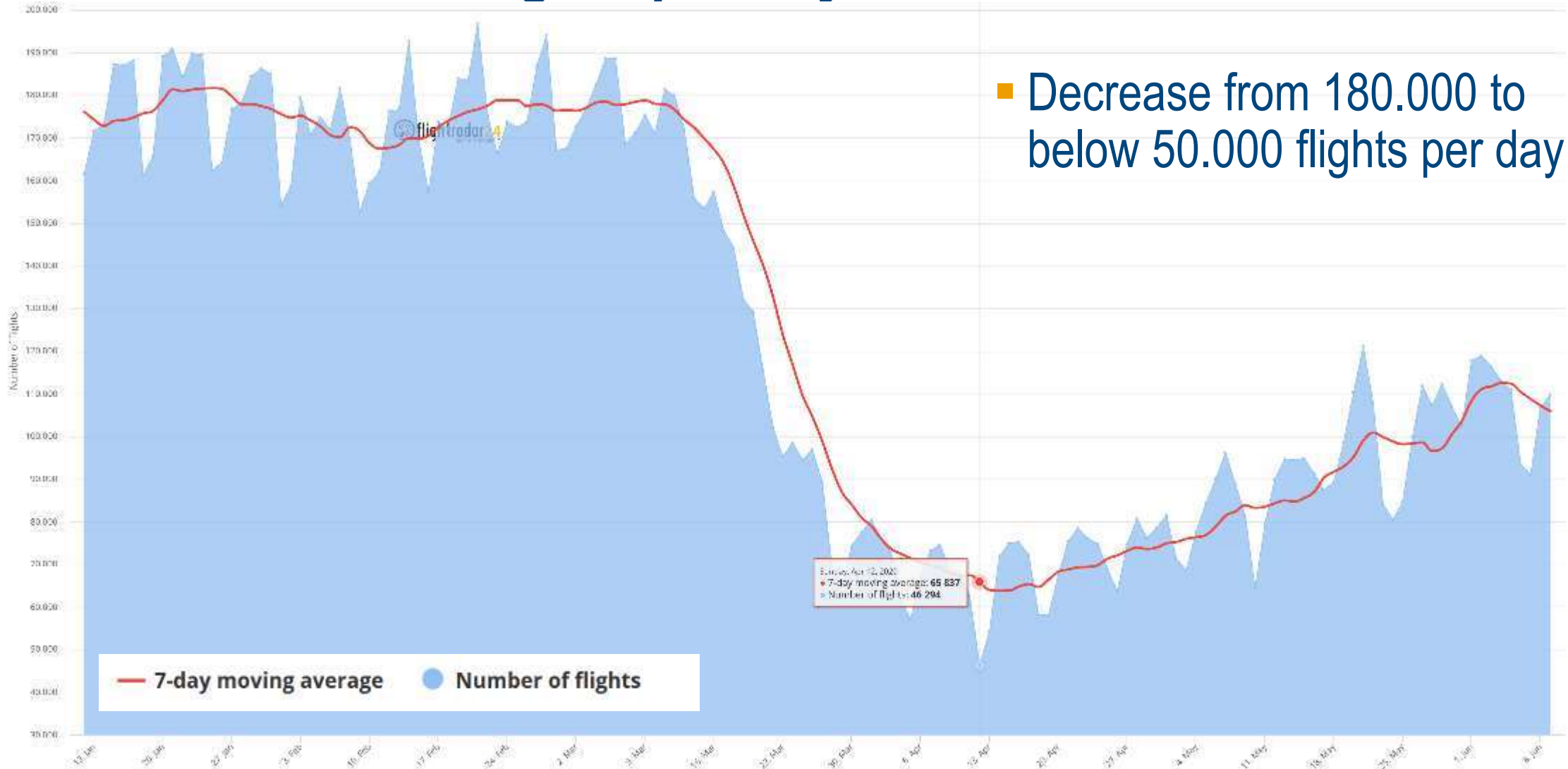


European air traffic – Comparison of March 7 and April 7 2020

- Drastic decrease in air traffic above Europe

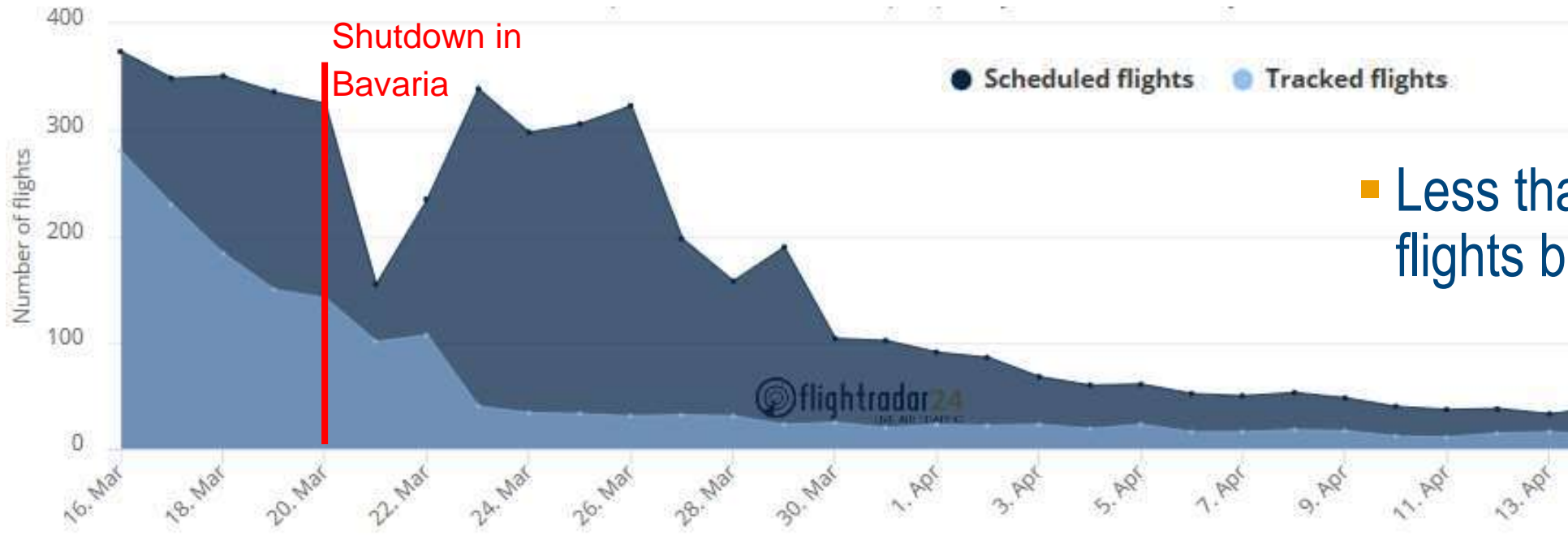


Total number of flights per day worldwide



- Decrease from 180.000 to below 50.000 flights per day

Total departures from Munich airport (MUC)

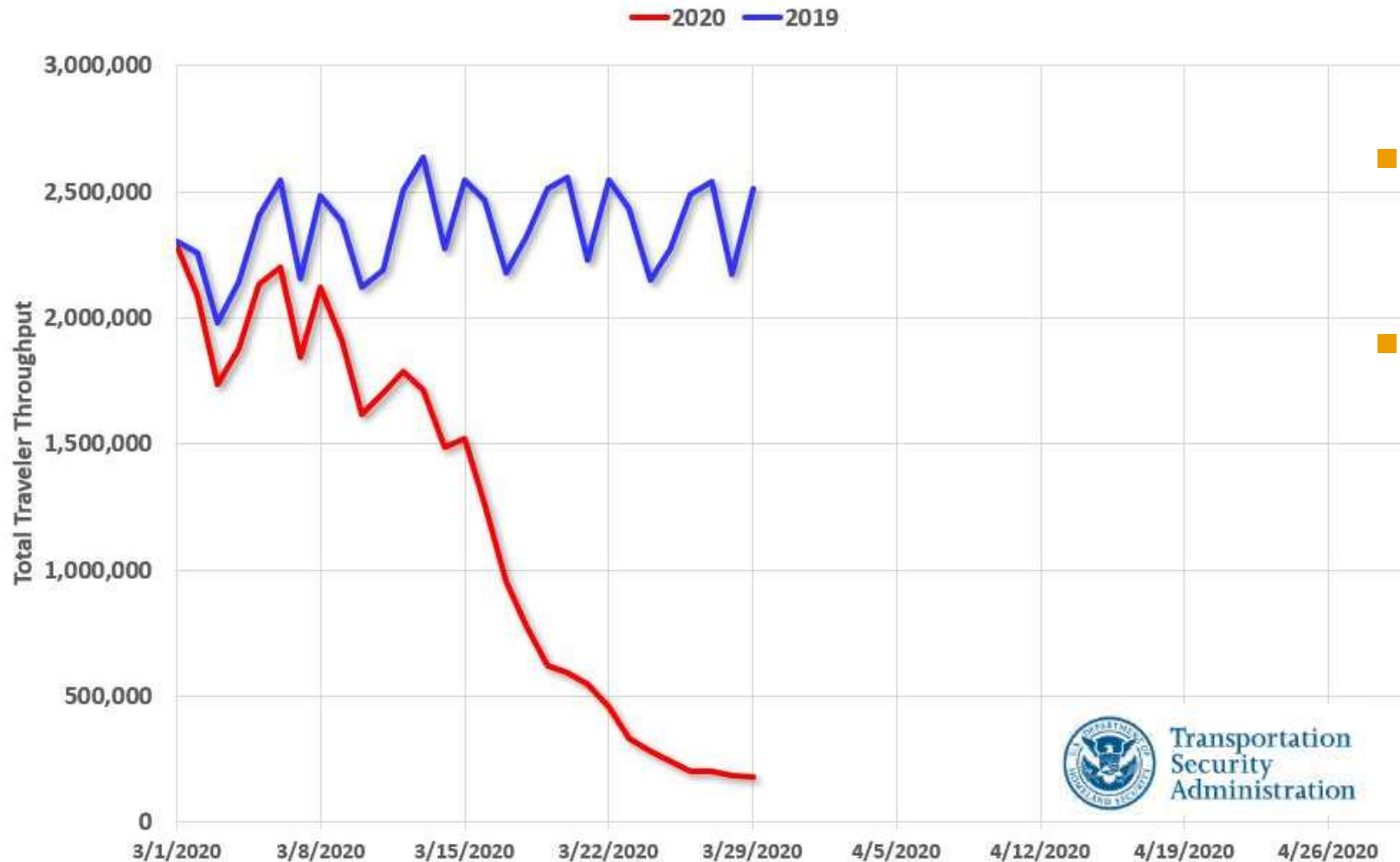


- Less than 10 % of the flights before COVID-19

- Situation now still the same (different scaling)



TSA checkpoint travel numbers in US



- Similar situation in US
- Up to 90% less travelers



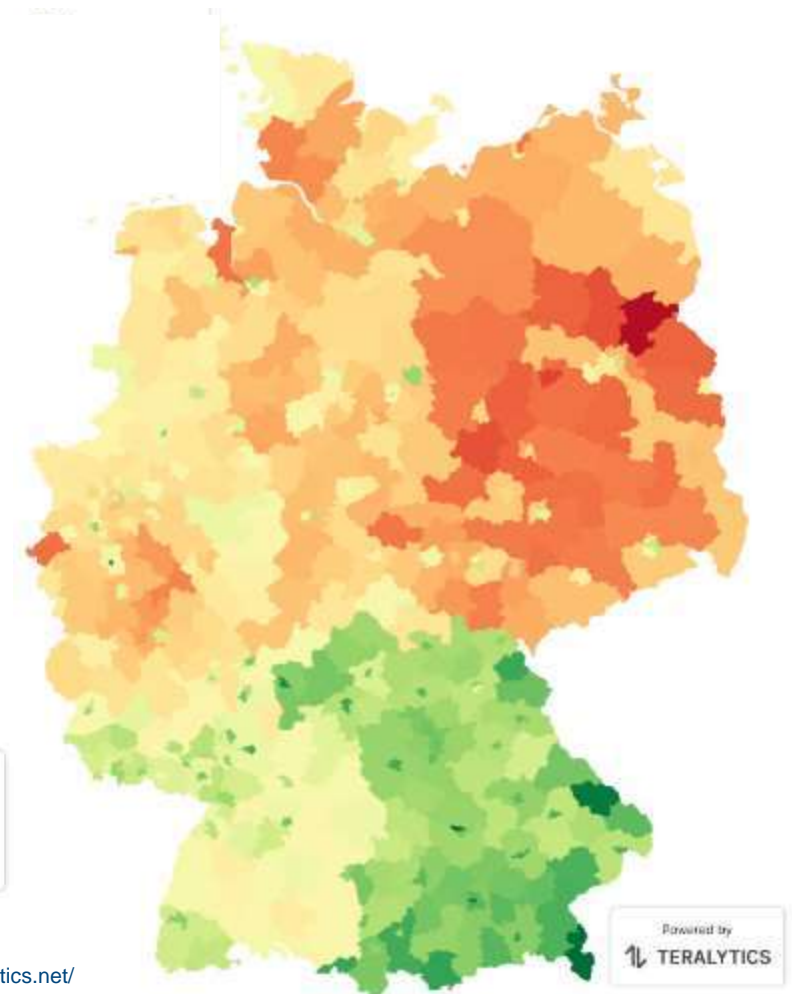
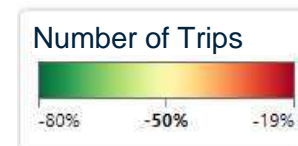
Mobility Profiles from Cellular Data



Most drastic change in number of trips after the introduction of movement restrictions in Bavaria

- Comparison between 21.03.2020 and 07.03.2020 (after movement restrictions in Bavaria)
- Green color shows the most drastic decrease in number of trips

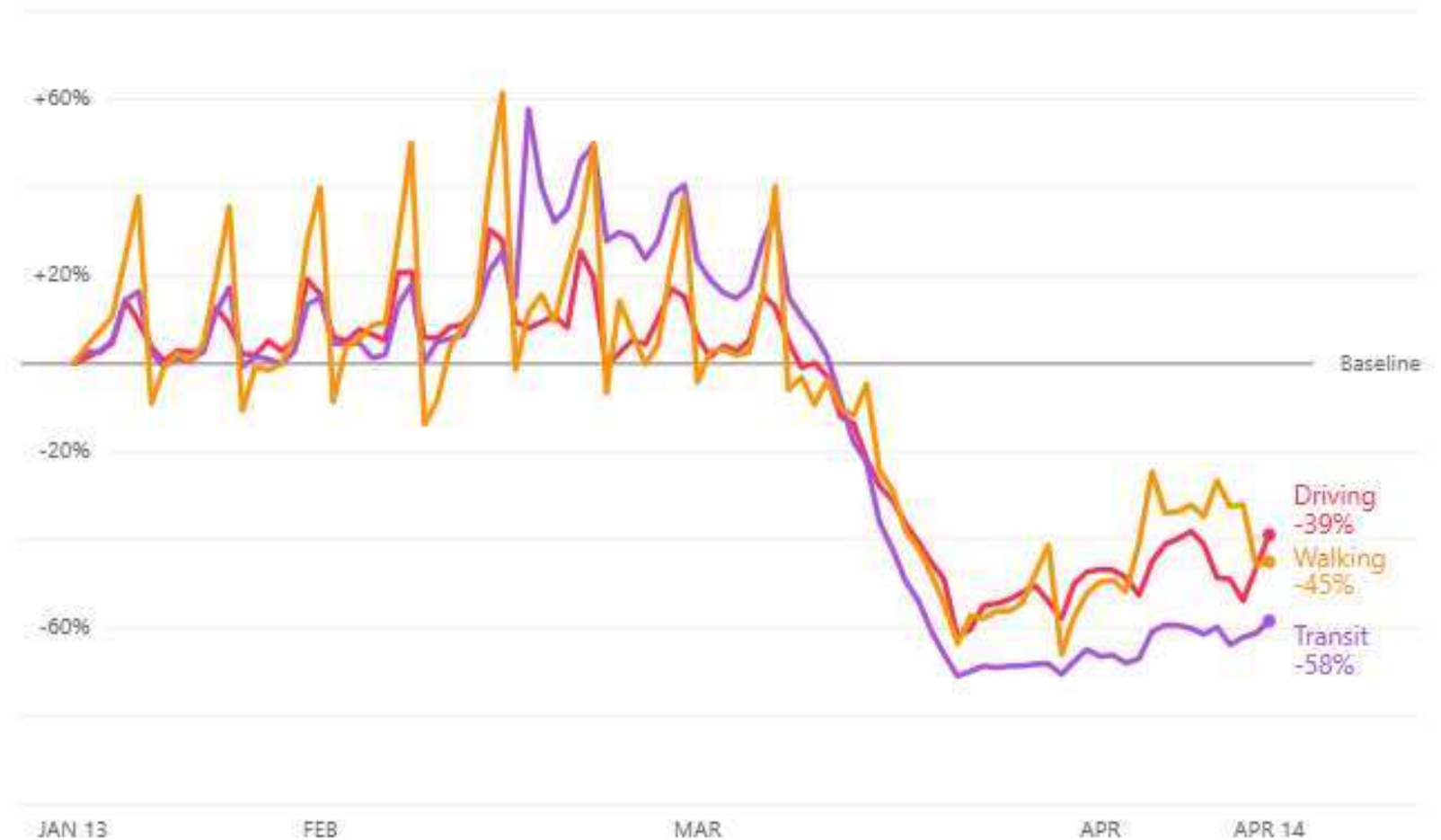
(Based on more than 30 Mio. anonymized datasets from cellular providers)



Source: <https://deutschland-bleibt-zu-hause.teralytics.net/>
<https://www.bild.de/news/inland/news-inland/coronavirus-so-viel-weniger-sind-die-deutschen-jetzt-unterwegs-69528460.bild.html>

App requests in Germany (Apple Maps)

- Most drastic decrease in requests for public transport



Source: Apple

Road Traffic



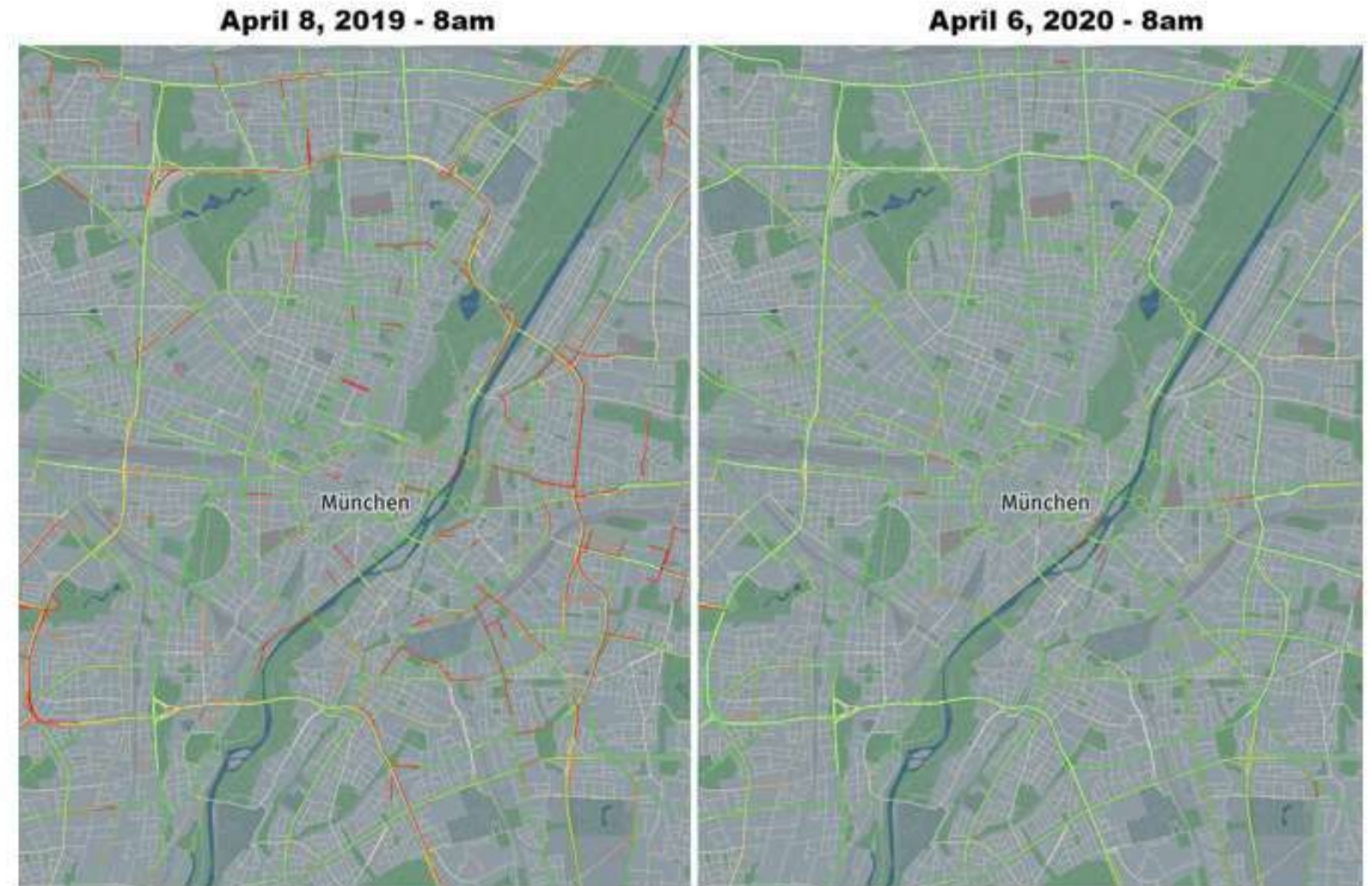
Autobahn at Leipzig Airport



Major arterial
in Munich

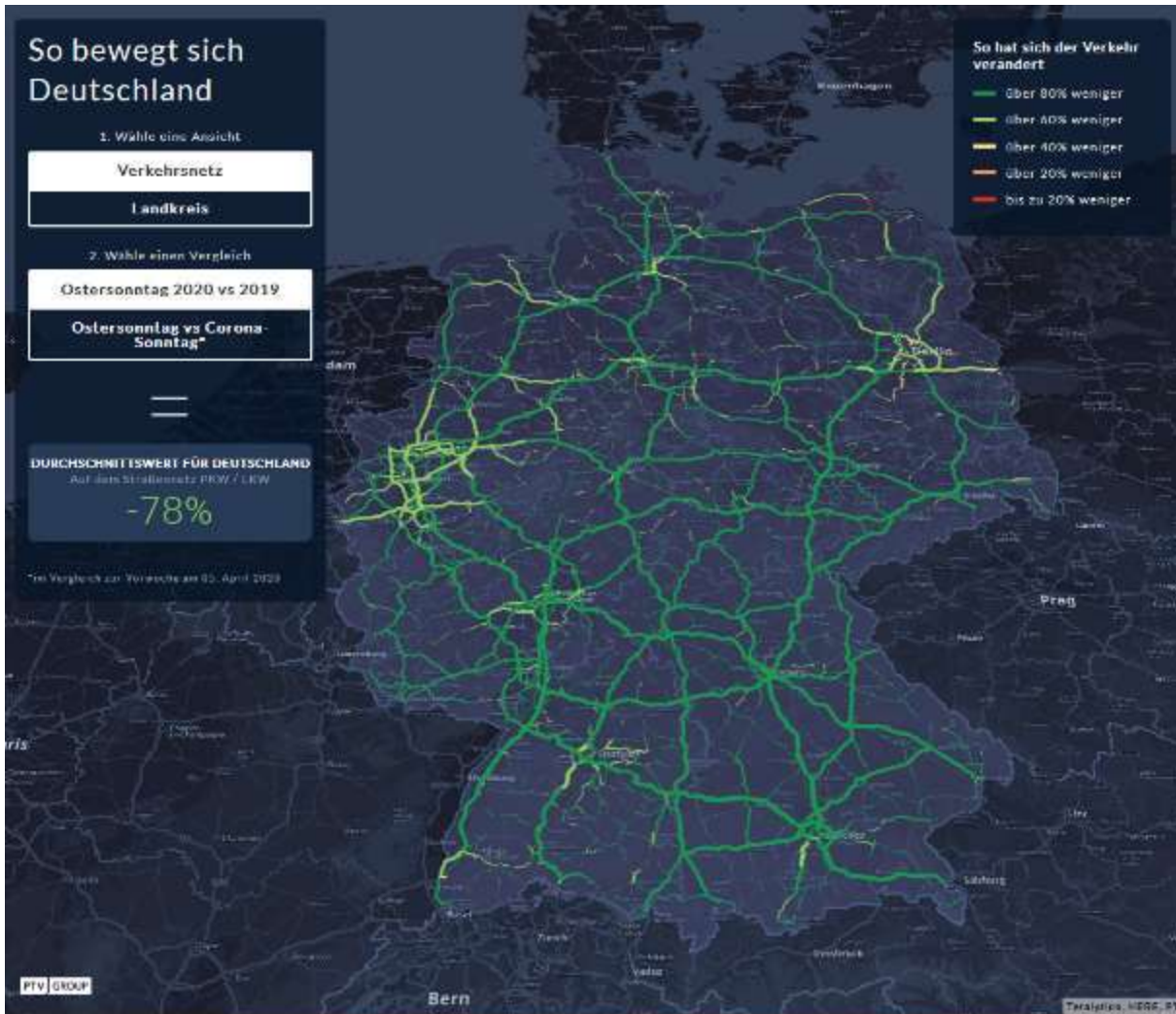
Vizualization of congestion in peak hour in Munich

- Comparison of Congestion Monday Morning
- 2019: Congestion on almost 20% of all roads
- 2020: Congestion on only 2% of all roads



Decrease in road traffic all over Germany (by road network)

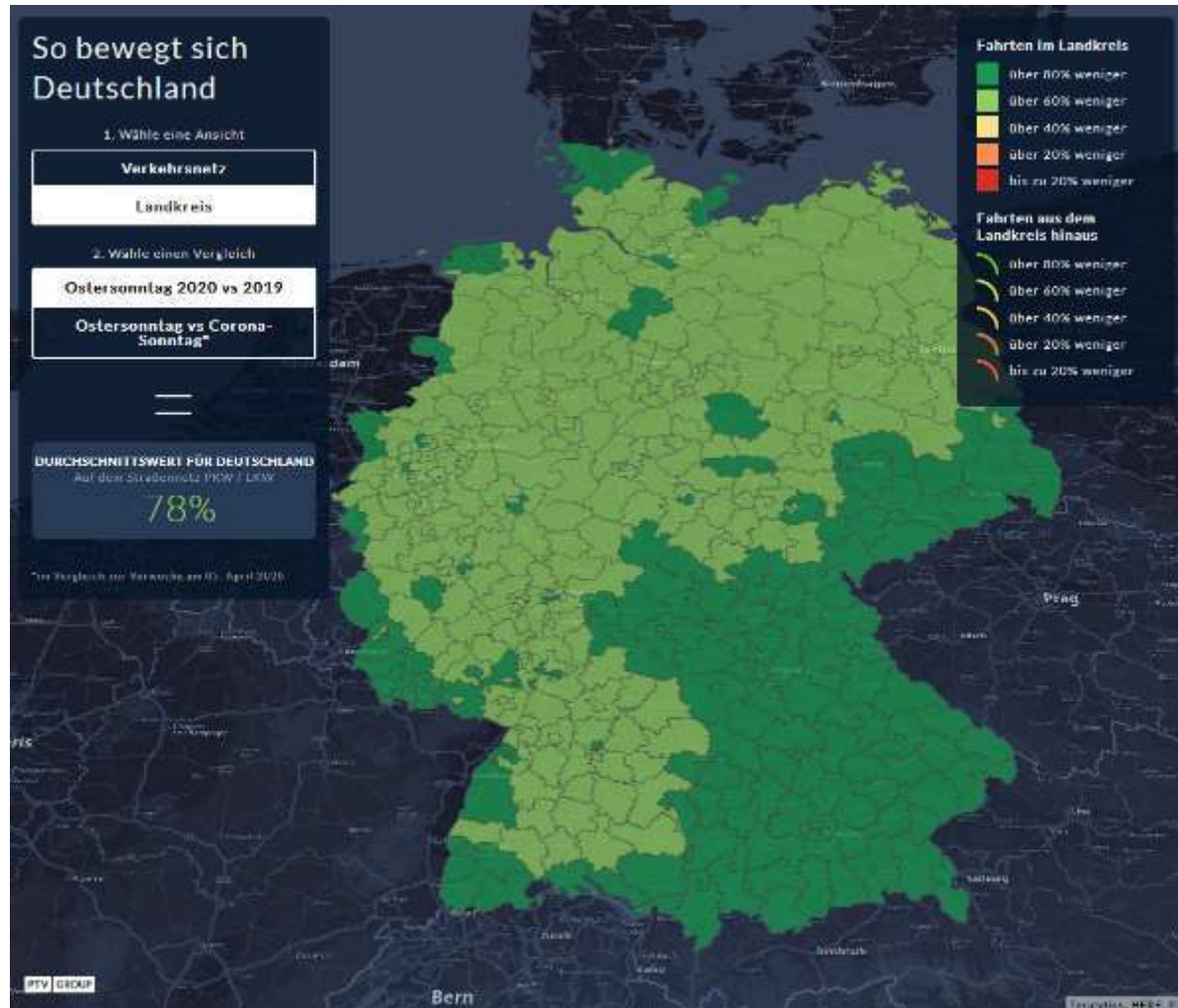
Easter
April 12th



- Most roads see a decrease in traffic of around 80%

Decrease in Road Traffic all over Germany (by County)

Easter
April 12th

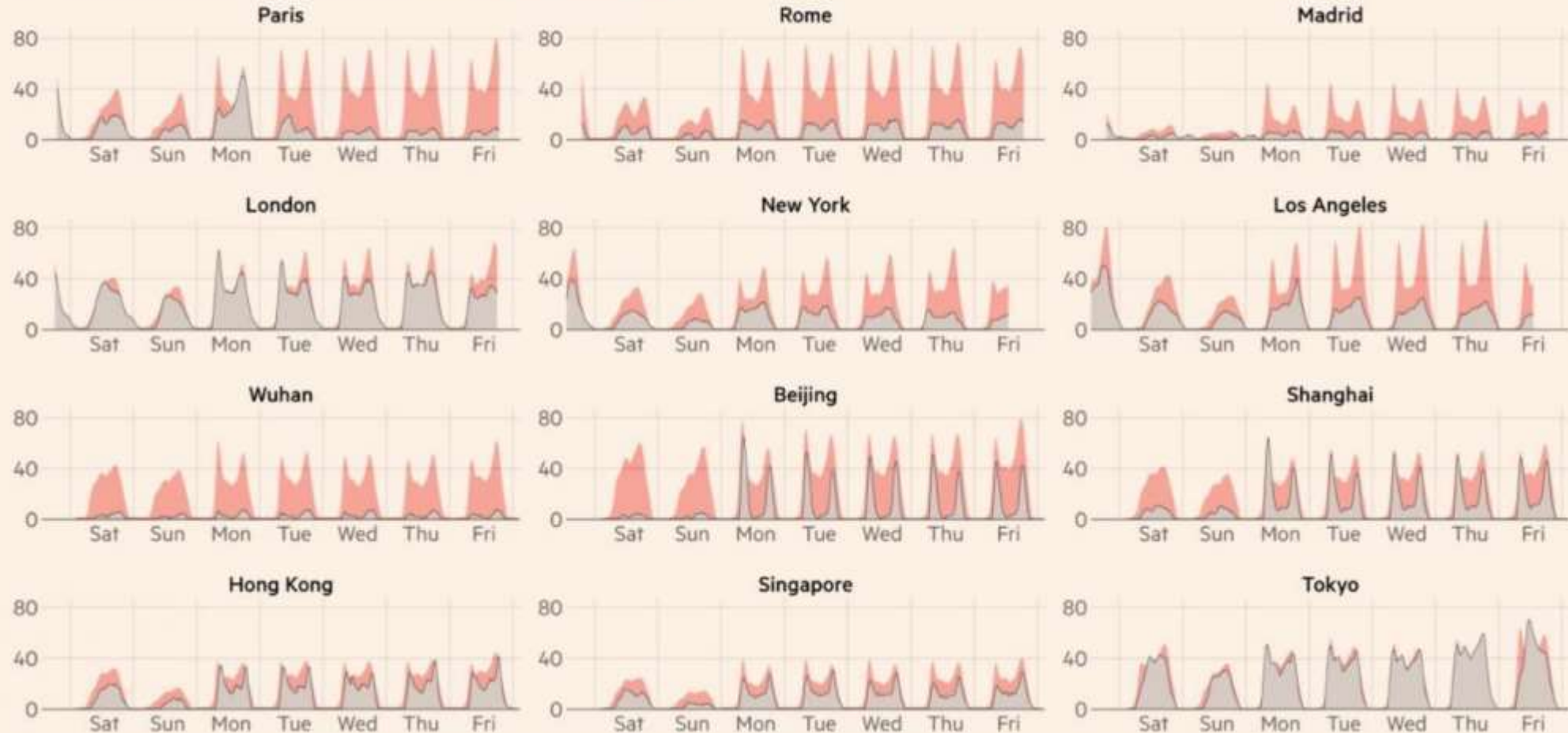


- Number of trips in counties also decreased by around 80 %
- Mostly in border regions and in Bavaria (due to stricter restrictions there)

Comparison to historical average during COVID-19 (TomTom)

Roads are emptying across the world

TomTom traffic congestion index, last seven days vs historical average (%)

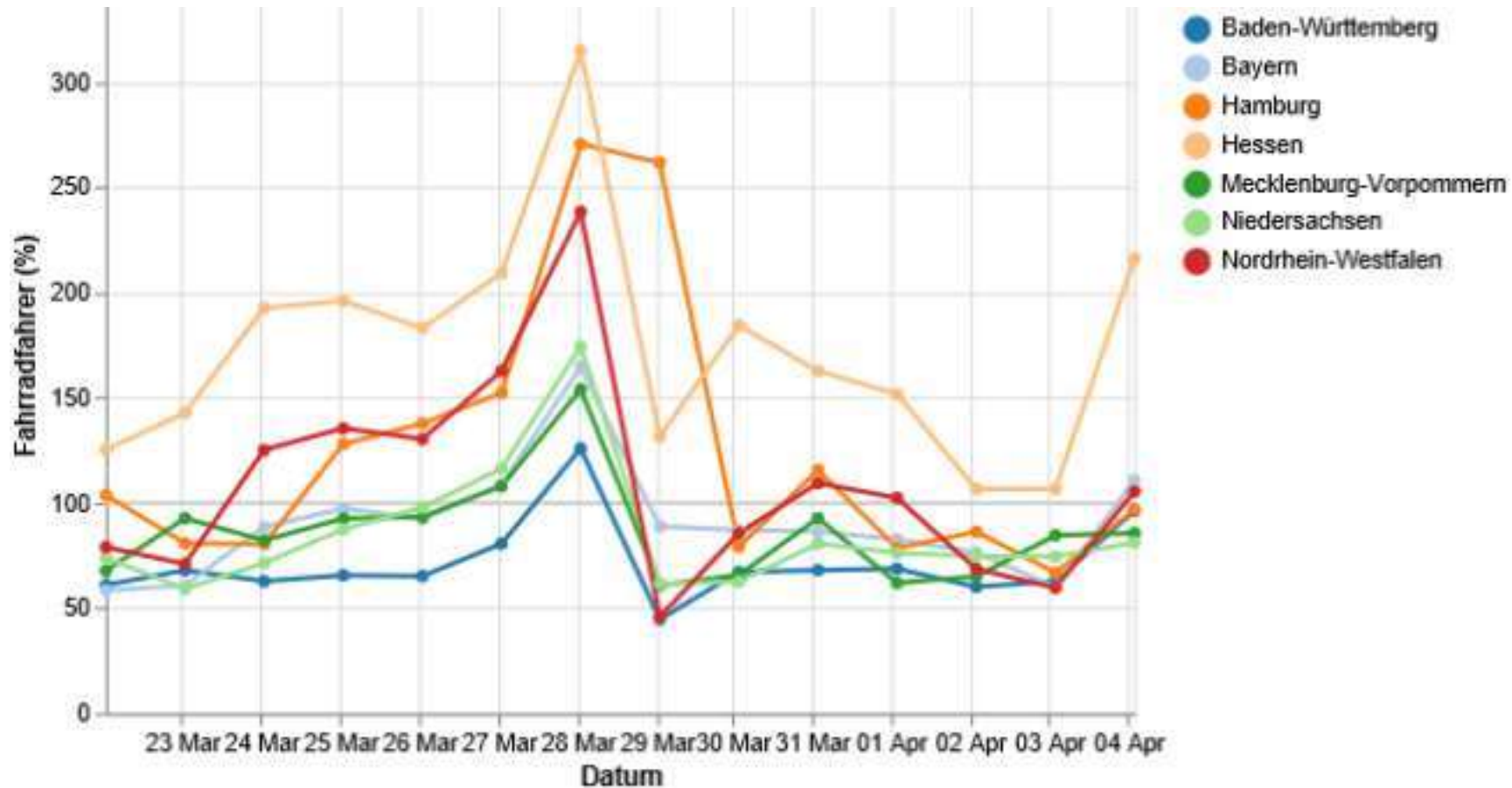


Bicycle Traffic



Temporary bike lane in Berlin, Photograph: Annegret Hilse/Reuters

No drastic changes in bicycle rides

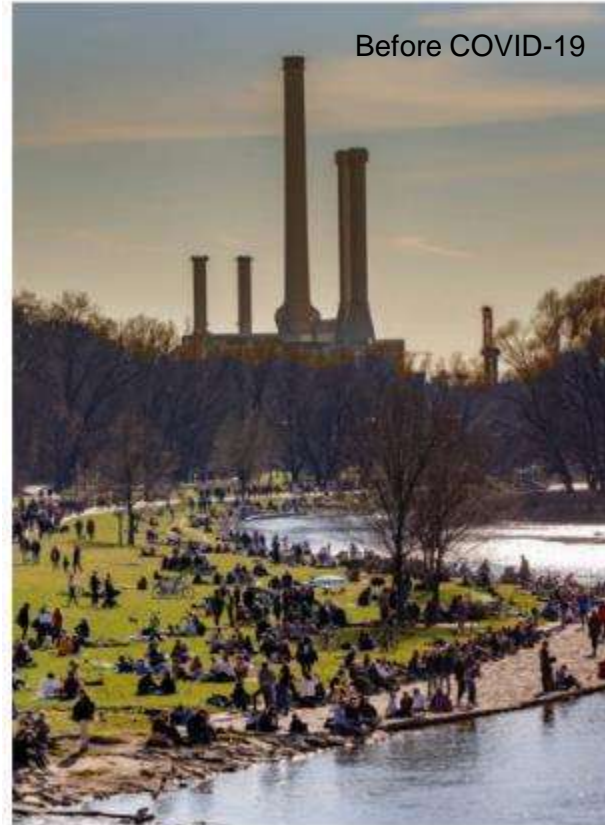


Pedestrian Traffic



Place de Trocadéro, Paris

Source: www.stern.de



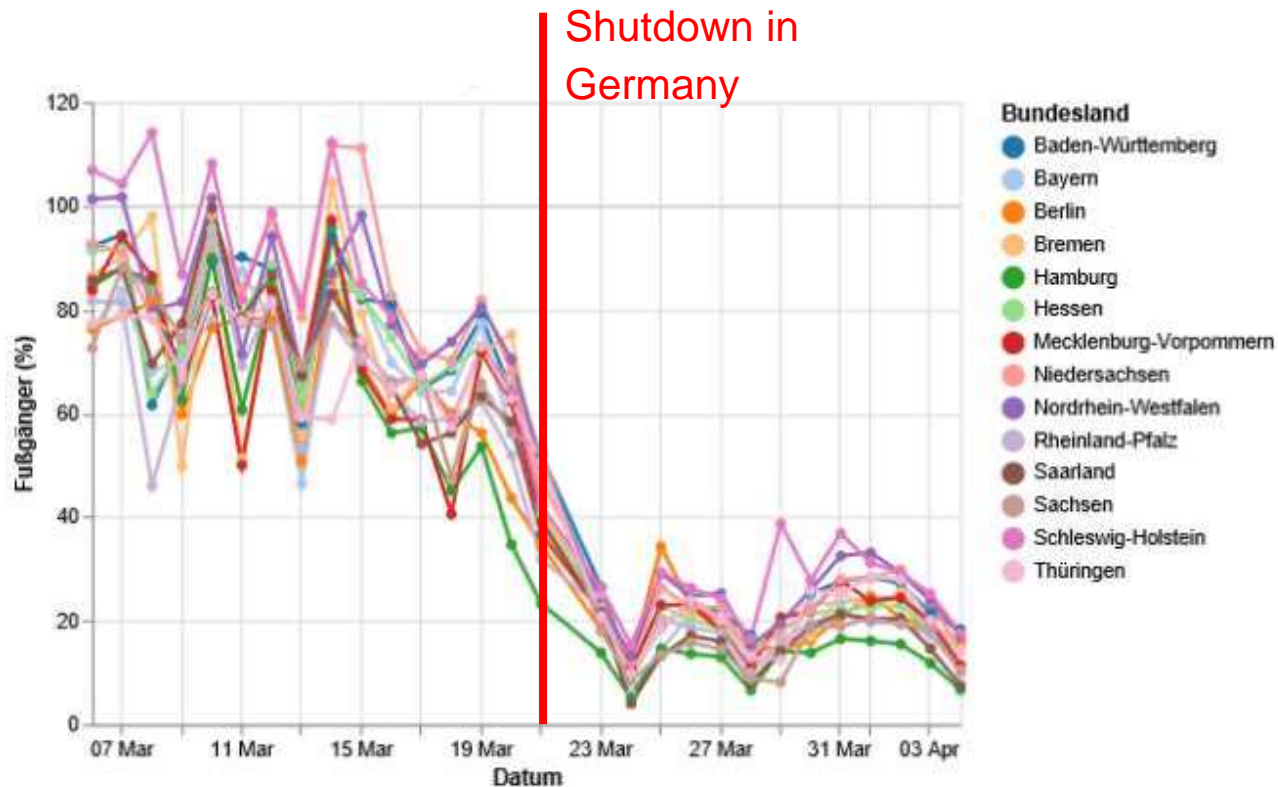
River Isar, Munich



Quelle: Oversteert(imago)/Sebastian Gabriel

Pedestrian counts in German city centers

- Germany



- Munich



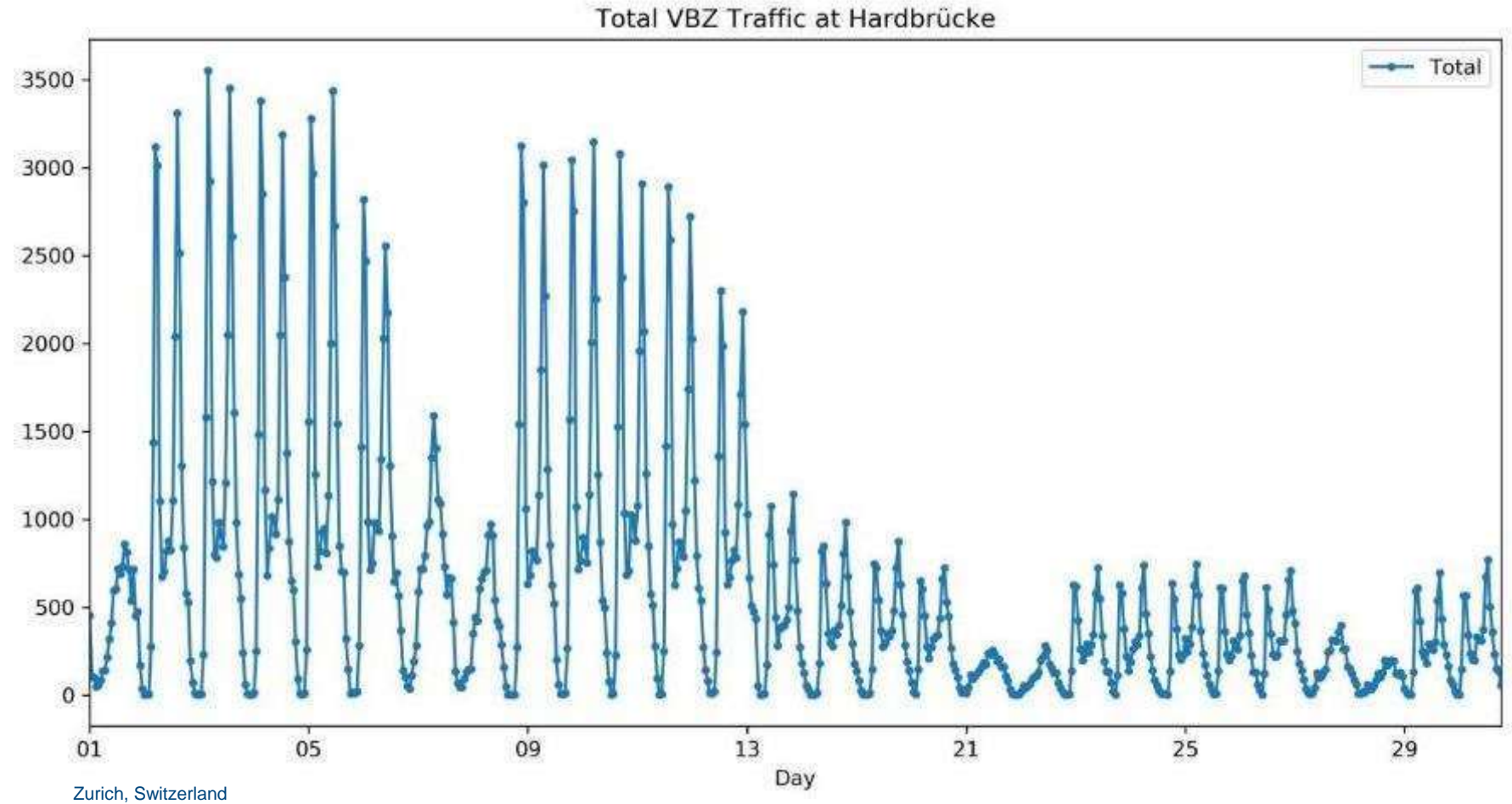
Public Transport



Empty Metro Station in Munich

Public transport ridership in Zurich, Switzerland

- Passengers in March 2020



Source: https://www.linkedin.com/posts/milos-balac-76ba7b2a_ethzurich-stadtzaesrich-stadtbasel-activity-6651058149786812416-Ly02/

Measures & Current Research



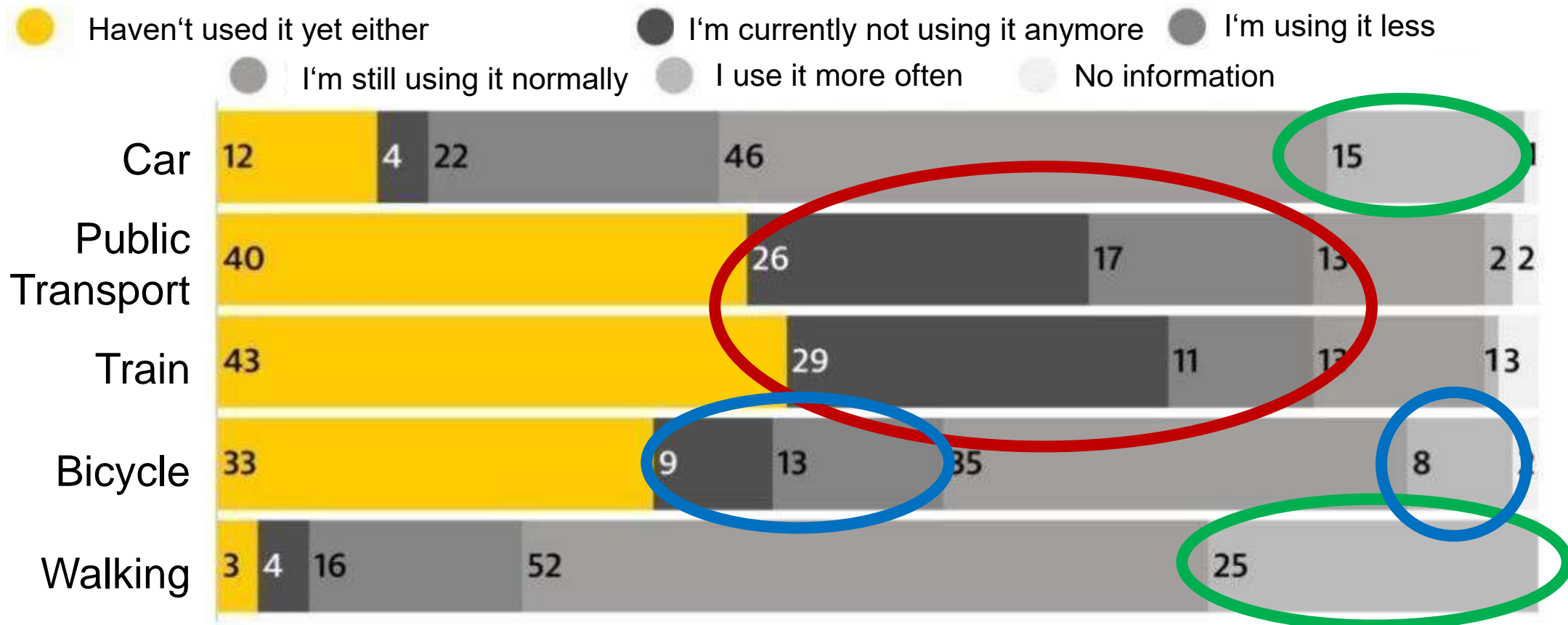
Blocked seats in Dublin Buses (Source: The Irish Times)



Marked standing spaces and seats in Singapore MRT (Source: The Straits Times)

Impacts of COVID-19 on mobility behavior in Germany

- Survey: How did your mobility behavior change in the Corona Crisis?



Pop-up bike lanes and pedestrian zones



Berlin, Germany



Munich, Germany (Source: Süddeutsche Zeitung)

One way sidewalks



Boston, US



Boston, US

Social distancing in traffic research?

- Not every job allows for working from home
 - Additionally, those jobs are mostly the system-relevant jobs
 - On a trip (e.g. job or leisure) there are various contacts to other people especially when using public transport
- *How can contacts be reduced?*
- *How can the limited capacity of our traffic system be used in an optimal way?*

Current research – Mobility simulation in COVID-19 times

- Calibration and validation of new pedestrian behavior due to COVID-19
- Simulation of potential measures for social distancing
- Evaluation of number of contacts and risks in simulations



Pedestrian simulation of a Metro station

Thank you for your attention!



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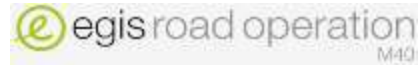
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Association PIARC



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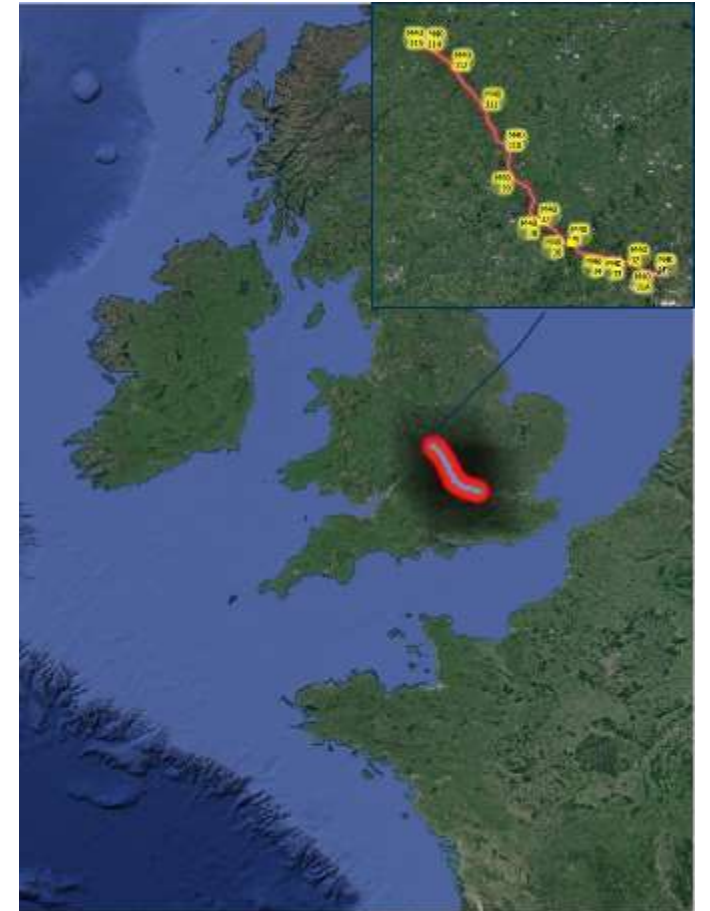
www.piarc.org





Utilising Technology For Smarter Working

Presenter – **Graham Kingston**
Business Optimisation & Hand Back manager



June 2020

Key discussion Points

- Introduction to Egis M40
- Digital Network Display Technology
- GIS DashCam – An Aid to Inspection
- Business Applications – Customised low code platform



Introduction to Egis M40

What is the M40 project



Introduction to Egis M40

Overview

DBFO-30 is a 30yr (1997) Design Build Finance and Operate contract awarded to UK Highways M40 Ltd and covers the majority of the M40 motorway (J1A-J15) the main artery connecting the UK's two largest cities: London and Birmingham.

J1A connects the M25 and Junction 15 intersects with the A46 near Warwick with the operational and maintenance project consists of **123km of 2 x 3 lane motorway, with more than 300 structures** on a 30-year contract until January 2027.

Client: Highways Agency (Highways England)- UK Department of Transport

Concession Company: UK Highways Plc + subsidiary; UK Highways M40 Ltd

Financing: Bank loan and shareholders' equity

Awarded: May 1996

Takeover of Operation: January 1997

Operations and Maintenance Company: UK Highways Services

Construction Completion: January 1999

Introduction to Egis M40

Project Location



Project description

Principle obligations of the operations and maintenance contract:

- ❖ Network Management
- ❖ Safety Inspections
- ❖ Cyclical and routine Maintenance
- ❖ Accident and Emergency Response
- ❖ Winter Maintenance



Digital Network Display Technology

How have we used it ?

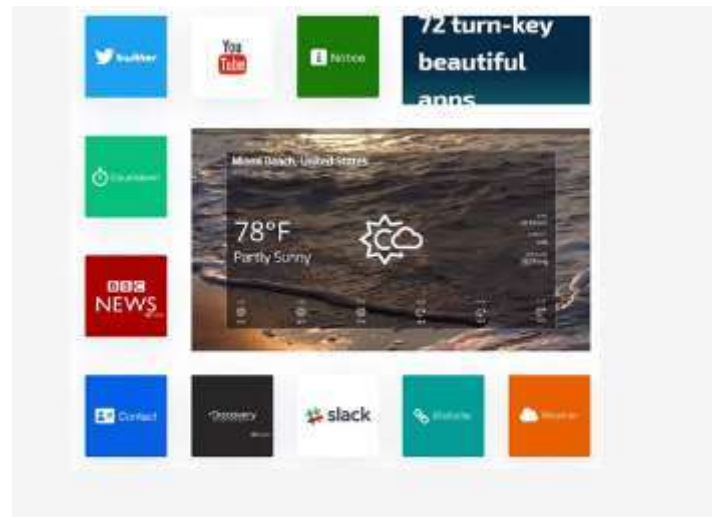


Figure 1 Telemetry TV, Cloud based media distribution

Digital Network Display Technology

- 4 Depots along 150 miles of network.
- Reduction in cross depot Contamination
- Directed message for POD Workforce
- To the Minute guided message in fluid information flow –Window to the workforce
- Good Practice



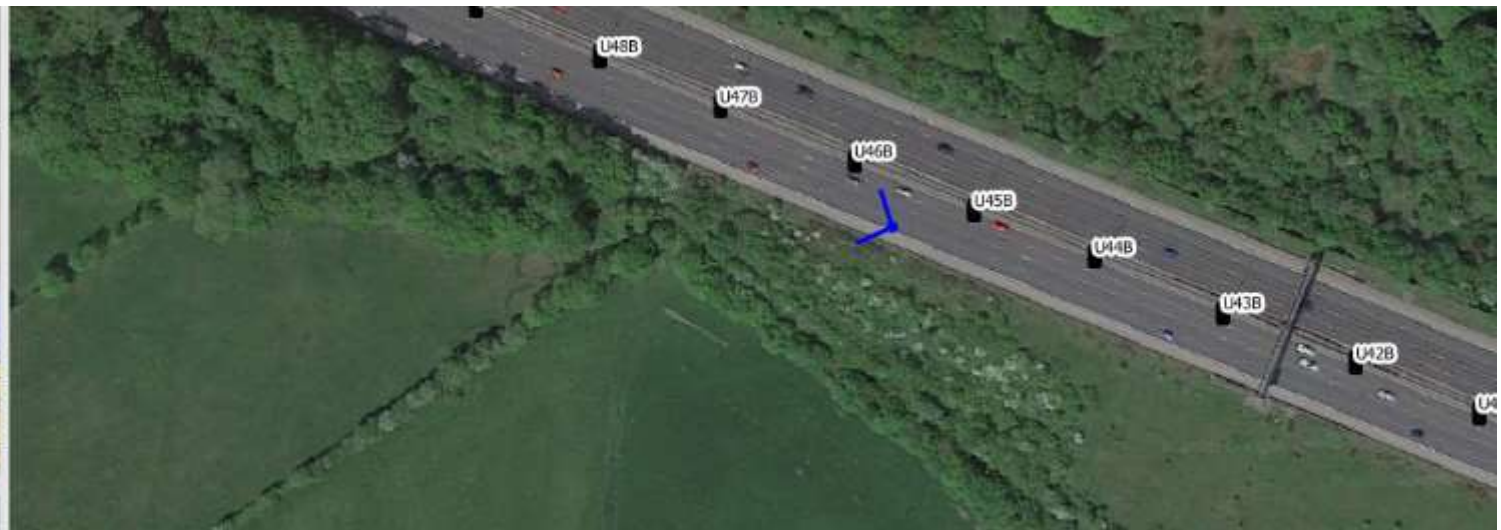
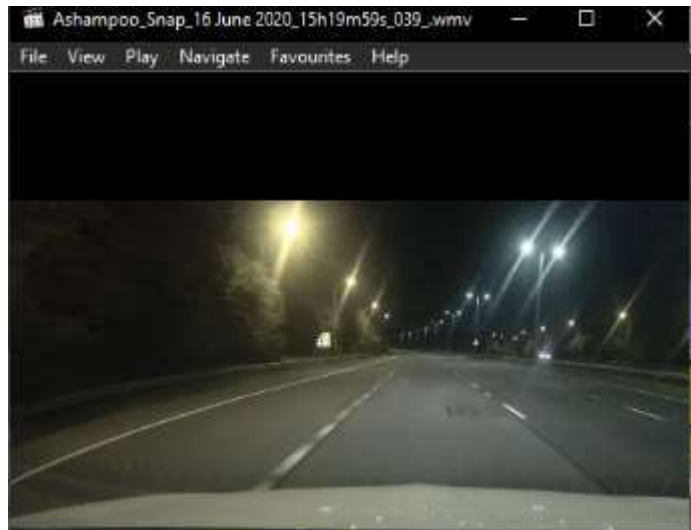
Figure 1 Telemetry TV, Cloud based media distribution



Figure 3 Image of the Telemetry tv stream

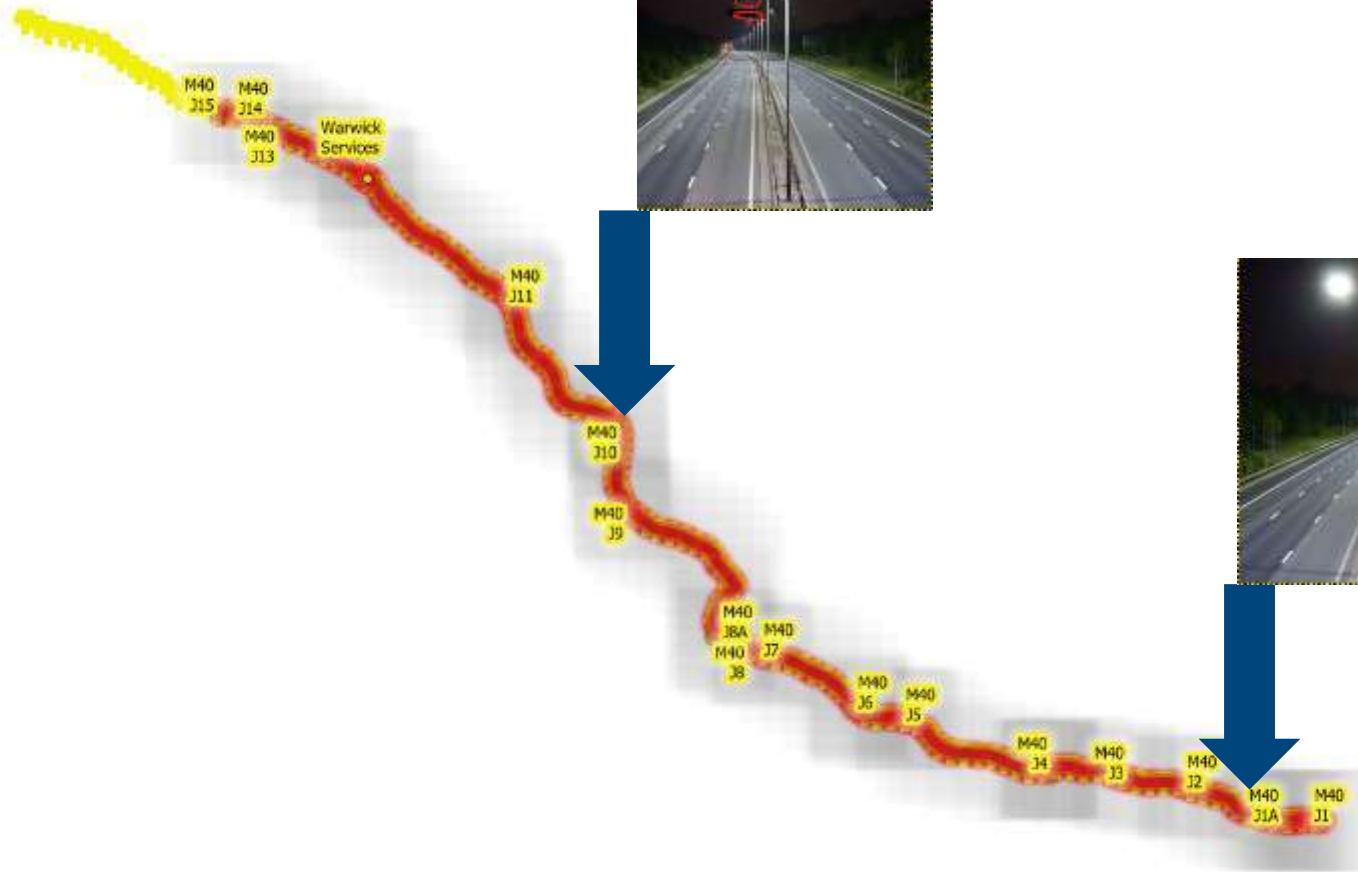
GIS DashCam – An Aid to inspection

How did this help ?



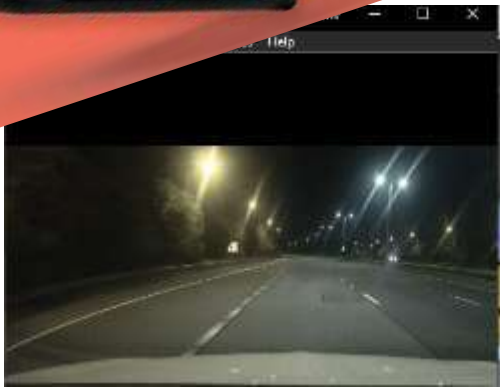
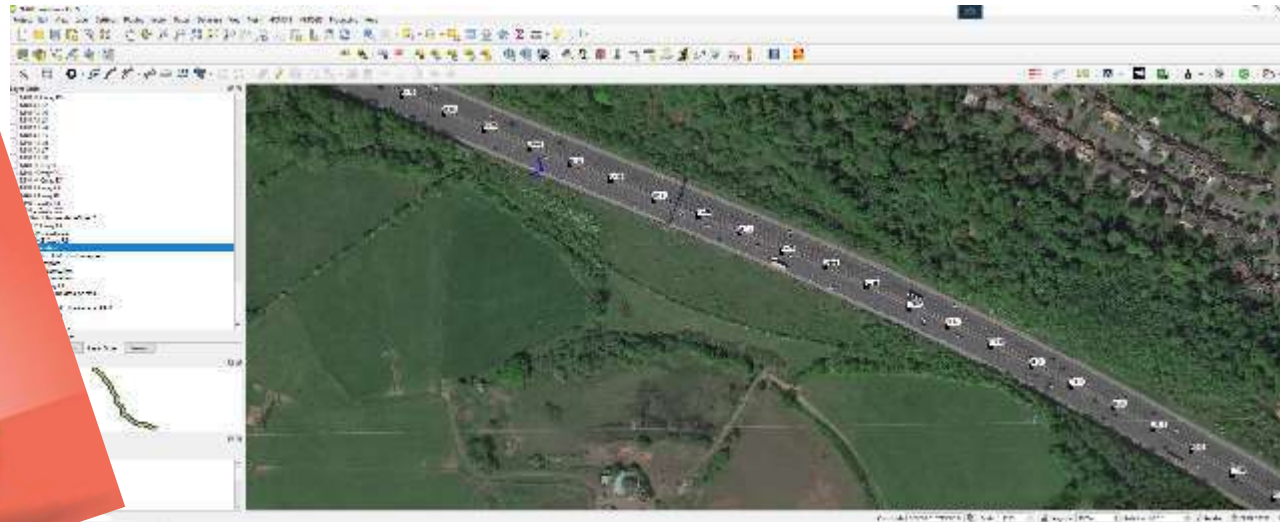
GIS DashCam – An Aid to inspection

- Reduced 2 man Inspection to one
- Consumer Equipment
- Post processing of data in safe environment
- Potential to expand to AI machine code learning in the future for inspections
- Good Practice –potential reduction in Resources and carbon footprint



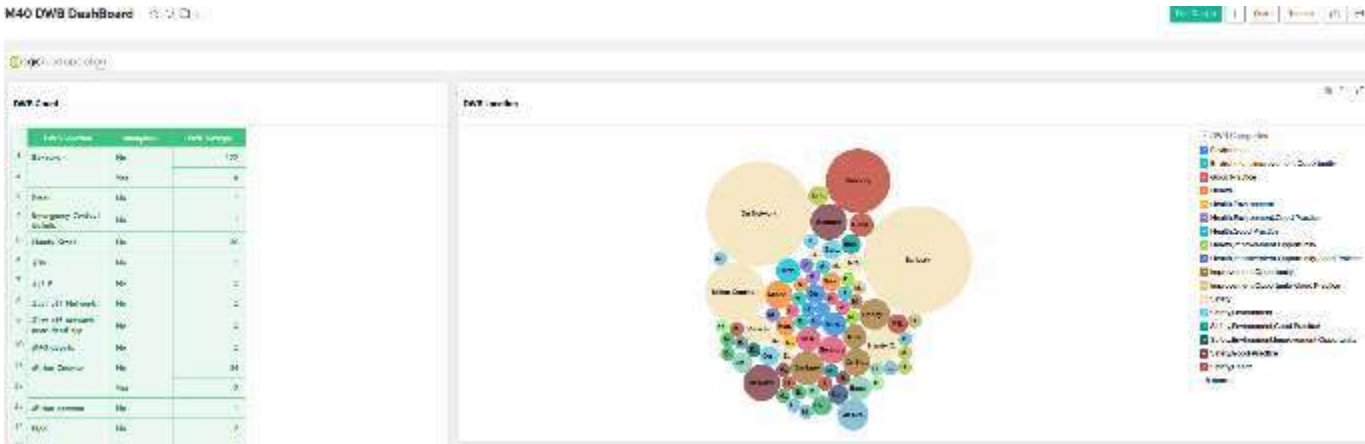
@ egis road operation
M40

Hardware and Software



Business Applications – Customised low code platform

We did it our way!



For the Creator in you
Build. Integrate. Extend.

The future of work is digital, and businesses of all sizes need to transform fast. Zoho Creator is a low-code platform that gives you the power to make the shift quick, secure, and seamless—regardless of the complexity of your requirements and coding expertise.

[ACCESS ZHO CREATOR](#)

[Watch our video](#)



Business Applications – Customised low code platform

- Ability to meet Business challenges remotely
- Customised apps produced
- Agile deployment
- Meet immediate needs without reduced supply chain support

For the Creator in you
Build. Integrate. Extend.

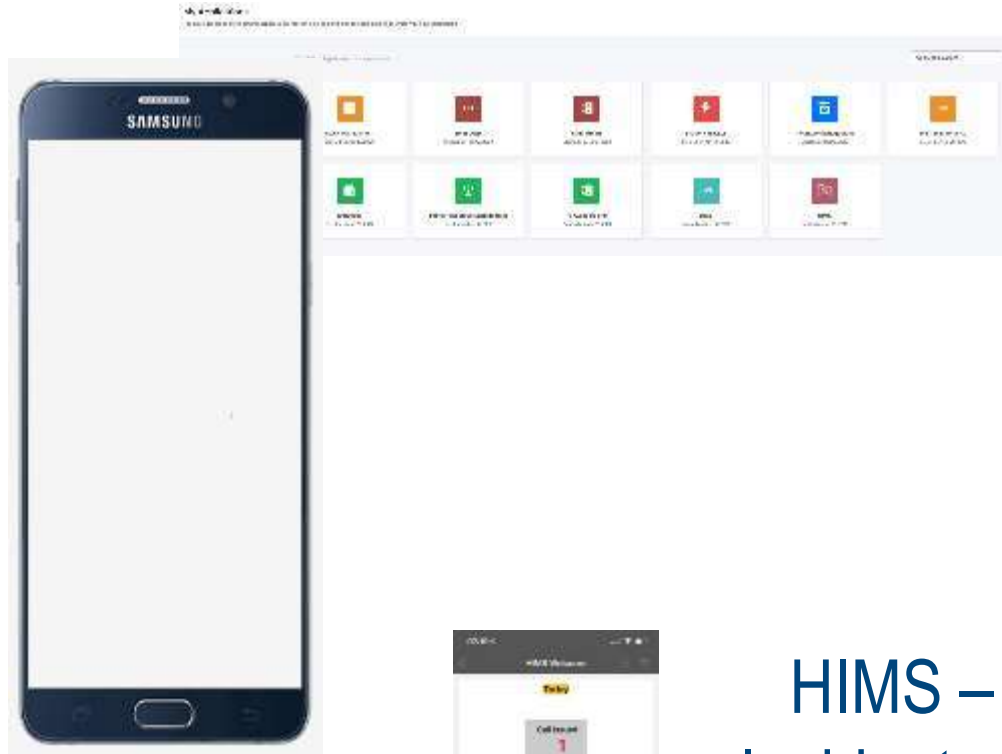
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[ACCESS ZOHO CREATOR](#)

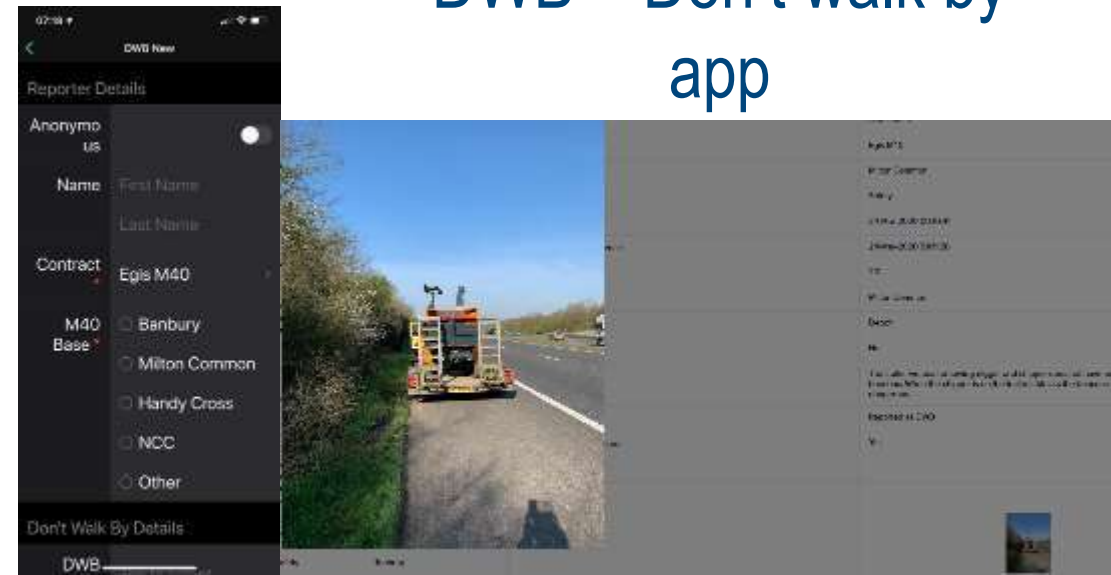
[Watch our video](#)



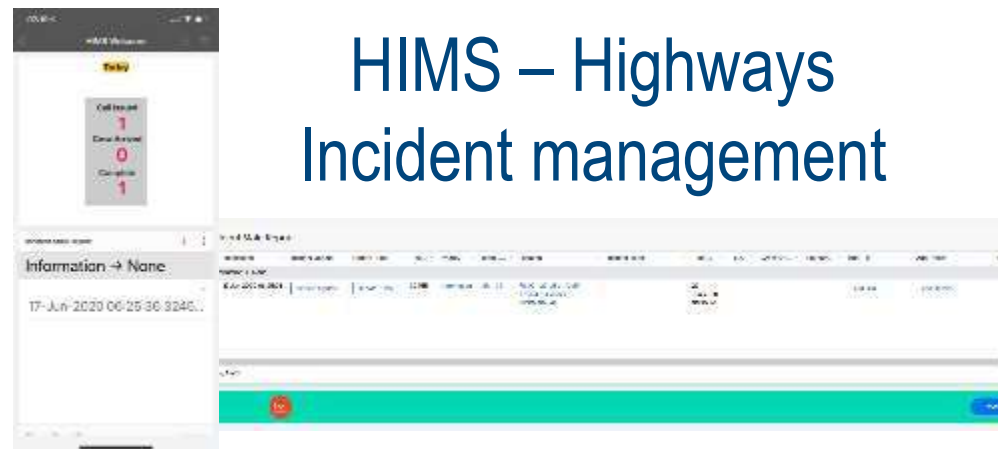
■ Applications



DWB – Don't walk by app



HIMS – Highways Incident management



Questions and Answers

Moderated by Christos Xenophontos



Our Speakers today

- Patrick Malléjacq – Secretary General, PIARC
- Prof. Seonha Lee, Korea, South Korea, Kongju National University - member of PIARC Committee 1.1 on Performance of Transport Administrations
- Chandrasekar Chandrasekar, Singapore, Land Transport Authority - member of PIARC Committee 2.4 on Road Network Operations /ITS
- Martin Margreiter, Germany, Technical University of Munich - member of PIARC Committee 2.4 on Road Network Operations /ITS
- Graham Kingston, UK, Egis M40 Business and Optimisation Manager

Conclusion and Next Steps



Disclaimer

Since time is of the essence, it is likely that knowledge and practice that is shared will not have been officially approved by each country's official authorities.

“The ideas and examples shared here are for illustration only. They do not necessarily represent official policy. Ideas presented will be subject to further evaluation and use in deriving recommendations on policy and practice in due course. While care has been taken in the preparation of this material, no responsibility is accepted for any damage that may be caused.”

Next steps

- We publish video recordings and presentations from our webinars
- Further PIARC webinars are planned, in English, Spanish and French
- We publish “Notes” with the findings from those webinars
- An in-depth report is scheduled for September
- <https://www.piarc.org/en/News-Agenda-PIARC/Coronavirus-PIARC-and-Covid-19>

Two PIARC polls are open

In order to allow everyone to contribute, two polls are now open:

- **To identify issues of concern:**

<https://forms.gle/cgi8WCeQYykCeNFQA>

- **To identify stakeholders who wish to share their practices :**

<https://forms.gle/8sPYw3qhZoySQueJ9>

Those two links are also available from PIARC's website.

PIARC's Response Team: Contact details

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Thank you for your attention!



Patrick Mallejacq

PIARC Secretary General

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