



5<sup>th</sup> Road Safety Expert Group (RSEG)  
Meeting on Thematic Area 5 –  
Transport Safety and COVID-19

Online meeting, 27 May 2021



# COVID-19 impact on mobility and safety

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# Introduction

- **COVID-19** disease initially diagnosed in patients in Wuhan, China in December 2019
- Declared as **a pandemic** on the beginning of March 2020
- The majority of countries in a **"lockdown"** restricting everyday life activities to only the most essential
- As a result, road **traffic volumes and mobility activities** in general have immensely dropped



# Background

## Traffic Volumes

- Travel demand was decreased and many countries have witnessed sizeable drops in car traffic and public transport ridership
- A 37% and 35% decrease in driving days per week and vehicle miles driven, respectively among adolescents was identified

## Driving Behavior



- Fixed safety cameras detected that speed violations have been increased by 39% and average driving speed by 6–11%
- Reduced traffic volumes due to lockdown, led to more frequent harsh accelerations and harsh brakings per 100km (up to 12%)

## Road Traffic Crashes

- The total number of road traffic crashes, serious and slight injuries was decreased by half, mainly due to the dramatic traffic reduction
- Fewer fatalities were observed but, unfortunately, the rate of reduction has slowed



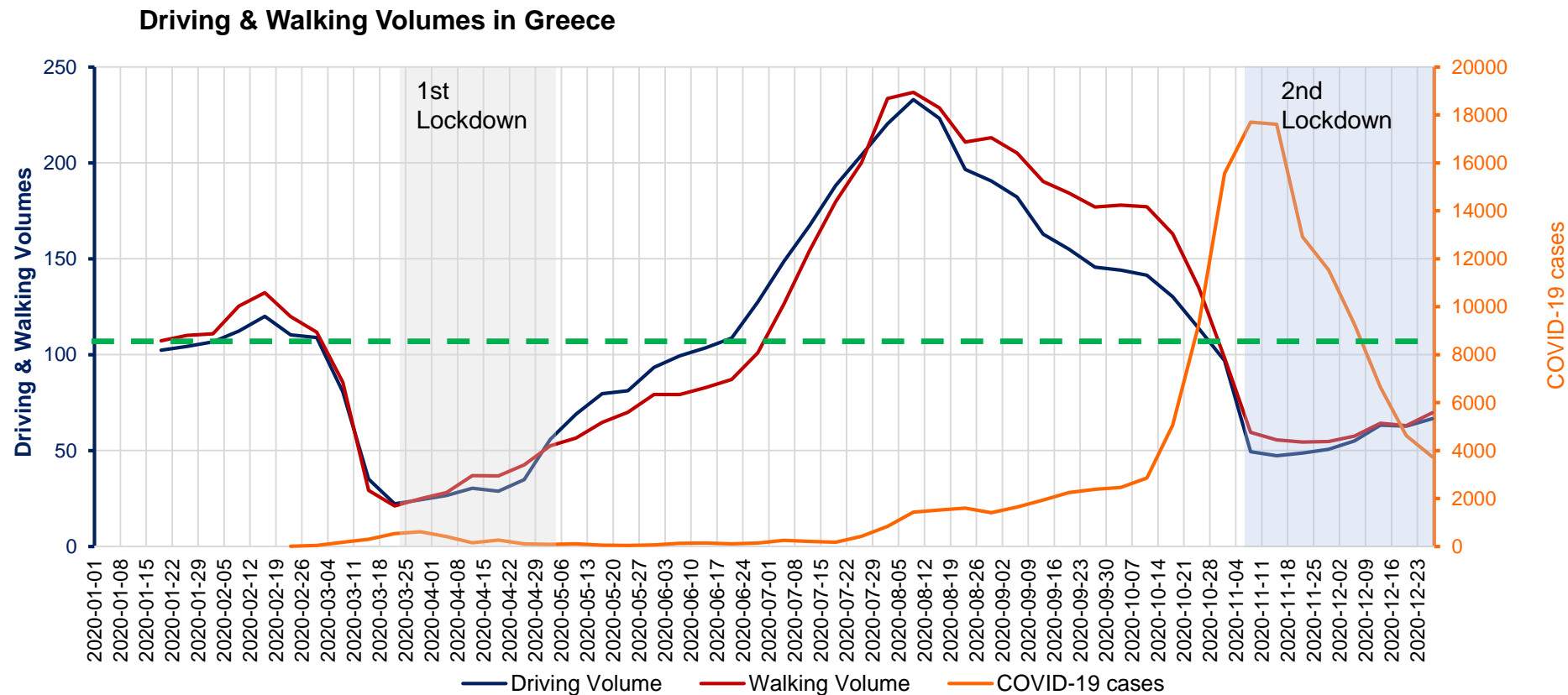
# Data Collection and Analyses

- Data from the [Mobility Trend Report of Apple](#)
- Data from the smartphone sensors were collected using the smartphone applications technology that has been developed by [OSeven](#) 
- Monthly road traffic crashes, fatalities, and slight injuries data were derived from the [Hellenic Statistical Authority](#) 
- Advanced **Statistical** Analyses
  - Machine Learning (XG Boost, Clustering, Neural Networks)
  - Time-series (ARIMA, SARIMA, SARIMAX)



# Traffic Volumes

- The total number of trips as well as the **distance travelled** was reduced considerably
- Increased **driving and walking volumes**, roughly by 100%, during the 2<sup>nd</sup> COVID-19 lockdown compared to the 1<sup>st</sup> one
- A **57% and 58% reduction** on people driving and walking was identified in the 2<sup>nd</sup> lockdown compared to the period between the 1<sup>st</sup> and the 2<sup>nd</sup> lockdown

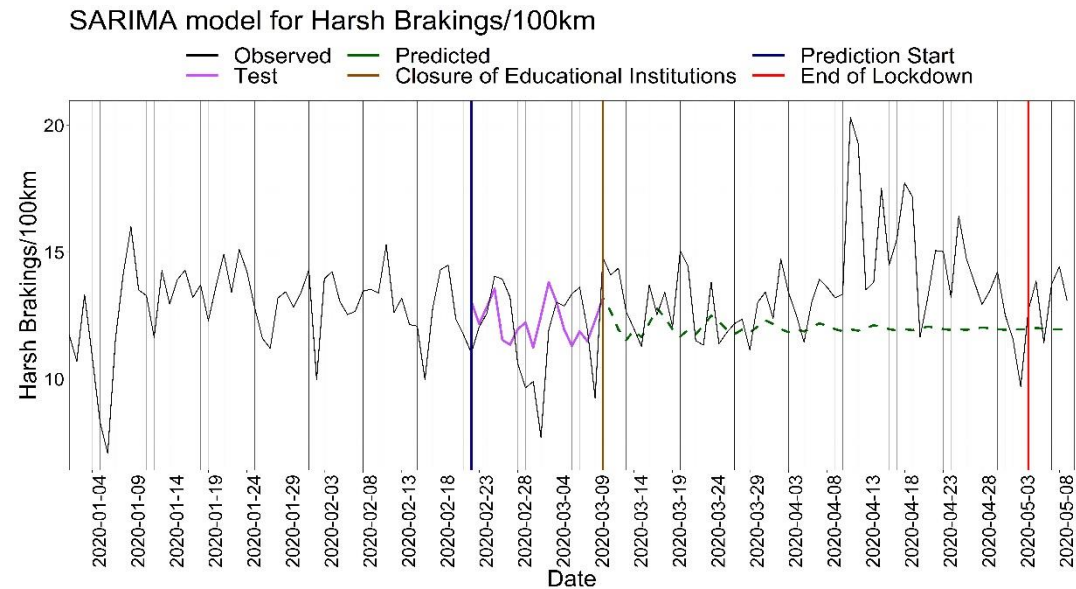
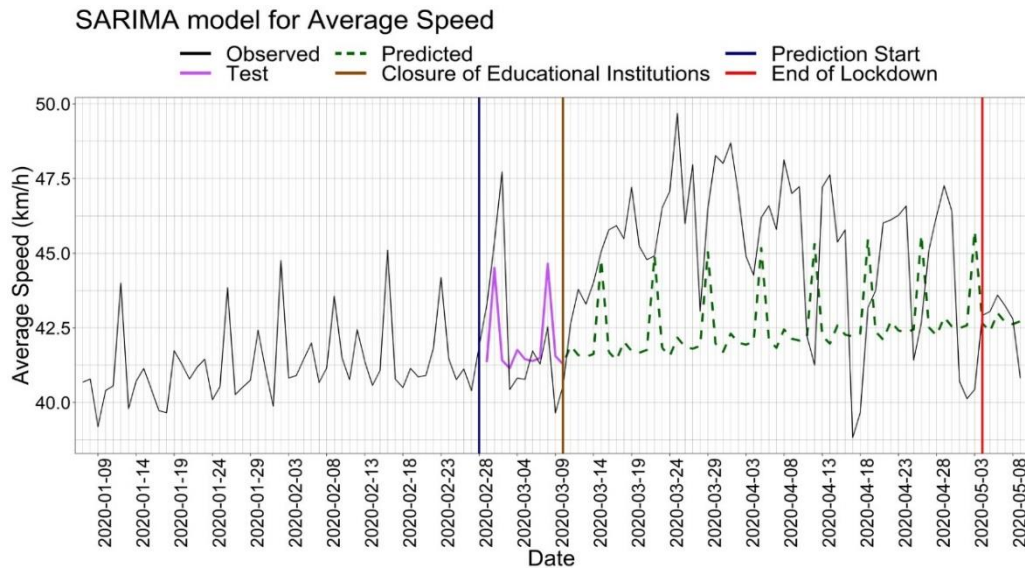


Source: [Apple](#)



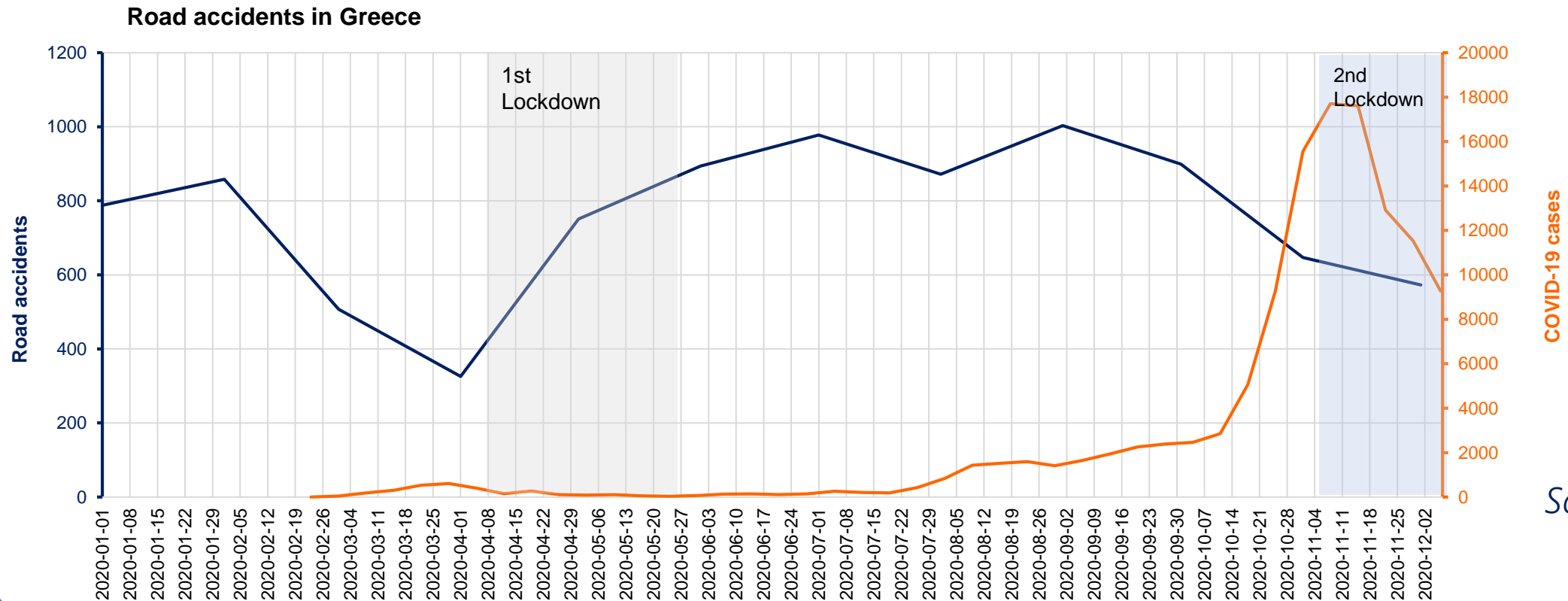
# Driving Behavior

- During the 1<sup>st</sup> lockdown period, an **overall 10% increase** in average speed was identified compared to the period before the appearance of COVID-19 pandemic. Interestingly, during the 2<sup>nd</sup> lockdown period, a 6% decrease in average speed was identified in Greece compared to the 1<sup>st</sup> one
- **Comparison** between normal evolution and COVID-19 period data
  - Higher **speed** values up to 7.5 km/h more than the “normal” time-series evolution
  - Values for harsh brakings/100km were **much higher** than the forecasted values



# Road Traffic Crashes

- After the appearance of COVID-19 pandemic in 2020, a **significant 15% reduction** in road traffic crashes was found compared to 2019
- A **32% reduction in road traffic crashes** was observed in November-December 2020 compared to the period between the 1<sup>st</sup> and the 2<sup>nd</sup> lockdown
- During the 2<sup>nd</sup> lockdown period, a **46% increase in the total number of road traffic crashes** was identified compared to the 1<sup>st</sup> one



Source: [ELSTAT](#)



# Significant Findings

- A dramatic change in traffic was observed and traffic volumes **were substantially increased** when comparing the 1<sup>st</sup> and the 2<sup>nd</sup> lockdown
- As traffic levels reduced and police time was spent on other things, **speeding went up** and in some cases **more casualties per traffic** were occurred
- Increased **average speed** and more **frequent harsh events** per distance were demonstrated. This indicates that with fewer vehicles on city streets, slightly more drivers were blowing the speed limit
- The **fatality and slight injuries rates** per crash were increased compared to assumed conditions without COVID-19



# Scientific and Social Impact

- The COVID-19 pandemic has shown how quickly **global mobility and safety conditions** can change
- **Road safety is also a pandemic**, and should also be treated as such
- On a positive note, as cities put in place new cycling infrastructure, **cycling use numbers increased**
- After the pandemic, we need to build a safer and more equal system for all road users – giving back separated space for healthier and sustainable **active travelling**



# Future Challenges

- A more **in-depth understanding** of how the pandemic has affected road safety, and how a gradual re-opening and possible subsequent restrictions may affect driver behaviors is still to be determined
- The impetus that COVID-19 is placing on installations of **temporary or permanent infrastructure** to facilitate more pedestrians and cyclists, is a positive result of this crisis and should be further explored, whereas the regain of Public Transport passengers is a challenge
- COVID-19 crisis can be the trigger also for a new and **serious behavior of the Authorities** and the citizens for safer roads for all, everywhere in the world





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