



10<sup>th</sup> INTERNATIONAL CONGRESS  
ON TRANSPORTATION  
RESEARCH



**ICTR 2021**

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Rhodes, Greece**

# Analysis of traffic and parking characteristics in Athens

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Together with:

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# Introduction

- The aim of this study is **the analysis of traffic and parking characteristics** in the Municipality of Athens.
- **Utilizing data** from the Municipality of Athens, the Region of Attica, OASA, and other Greek and International Authorities



# Background

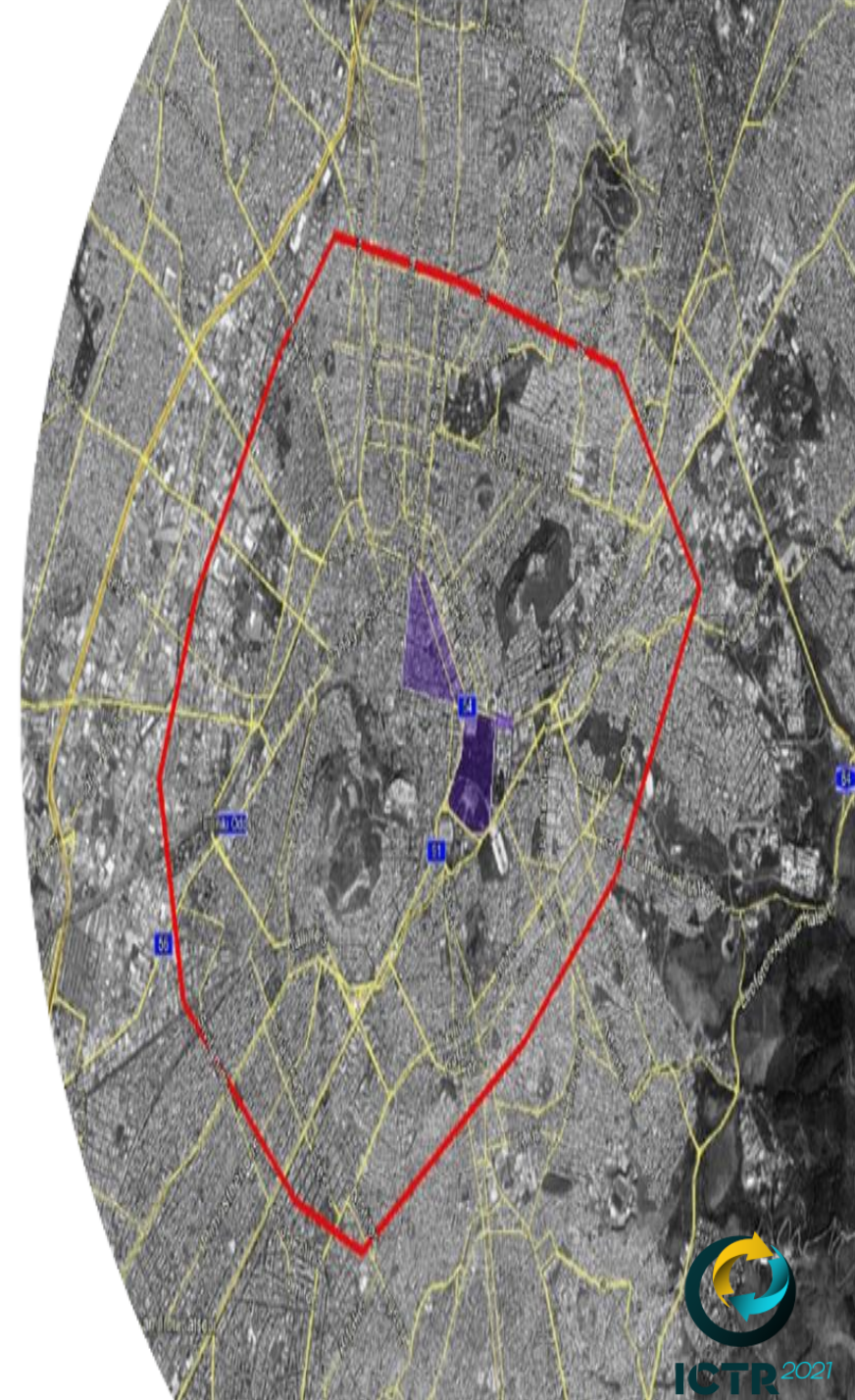
- **Urban population** continuously increases (55% lives in urban areas) (United Nations, 2018)
- Ever increasing traffic demand creates **unsustainable conditions** such as traffic congestion, road crashes, air pollution, greenhouse gas emissions, traffic noise and energy consumption. (Gudmundsson et al., 2016; IEA, 2019; Bosetti et al., 2014)
- **Sustainable urban mobility** is one of the main challenges globally (European Commission, European Court of Auditors, 2020)





# Study Area

- The **Study Area** is bounded by the following roads:  
Vas. Sofias, Irodou Attikou, Vas. Olgas, Vas. Amalias, Mitropoleos, Athenas and Panepistimiou.
- A **wider area**, affected from the interventions within the study area was also considered.



# Data Collection

## Greek sources

Municipality of Athens, Region of Attica, Hellenic Statistical Authority (EL.STAT.), Hellenic Police, Municipal Police of Athens, Athens Urban Transport Organization (OASA), Attikes Diadromes , Ministry of Infrastructure and Transport, Ministry of Environment and Energy, National Observatory of Athens, Athens Master Plan



## International sources

EUROSTAT, CARE, IRTAD, ITF, UN/ECE, WHO, IRF

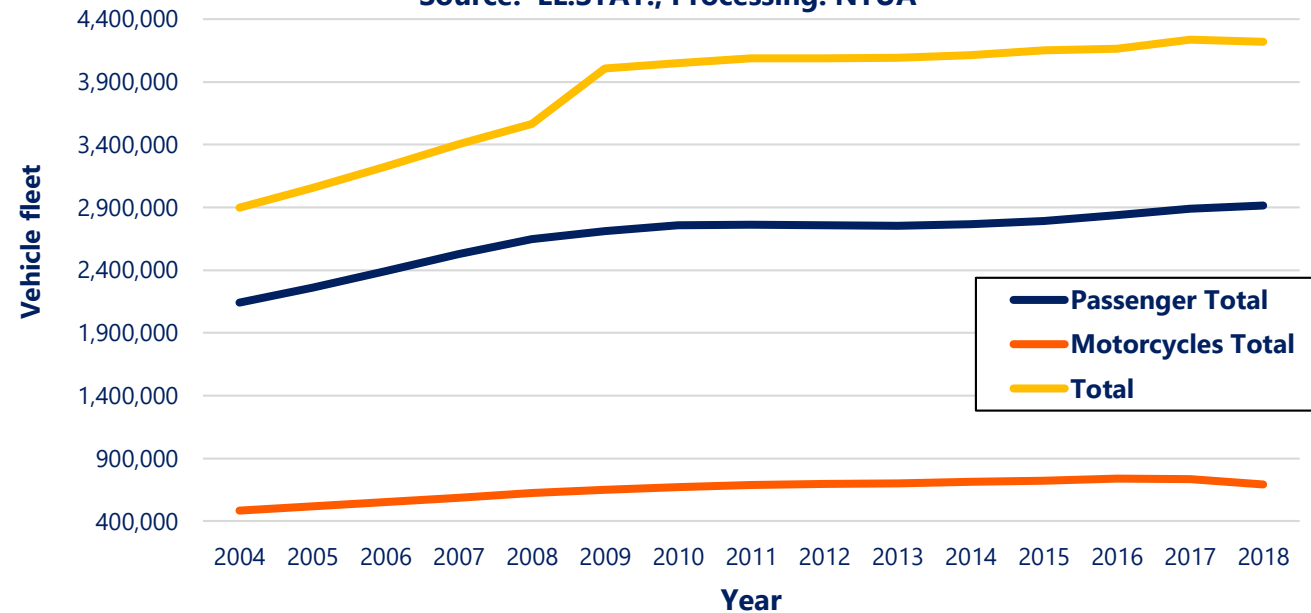


# Vehicle Fleet

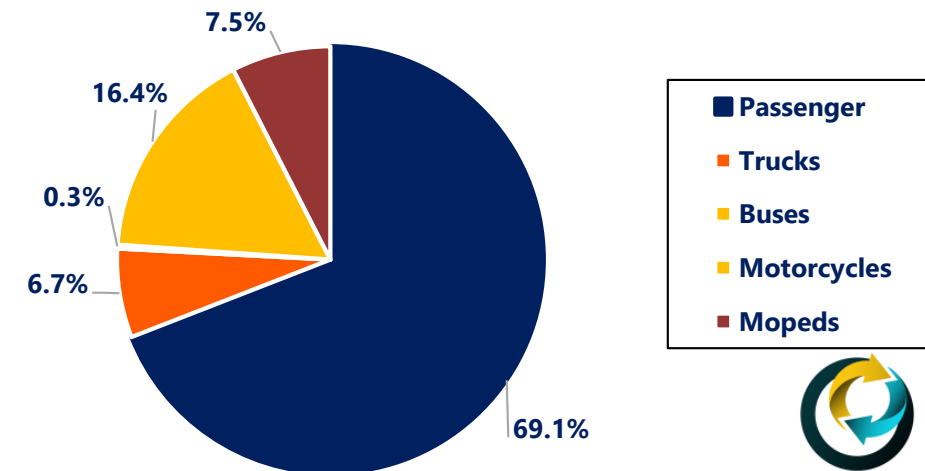
- Vehicle fleet has been **rising** since 2004, with a slight decrease during the financial recession
- **Stable average annual increase** (~ 1.2%) of passenger vehicles in Attica after 2013
- Passengers vehicles account for a **69%** of the total fleet while the two-wheelers for the **24%**

Vehicle fleet in Region of Attica

Source: EL.STAT., Processing: NTUA

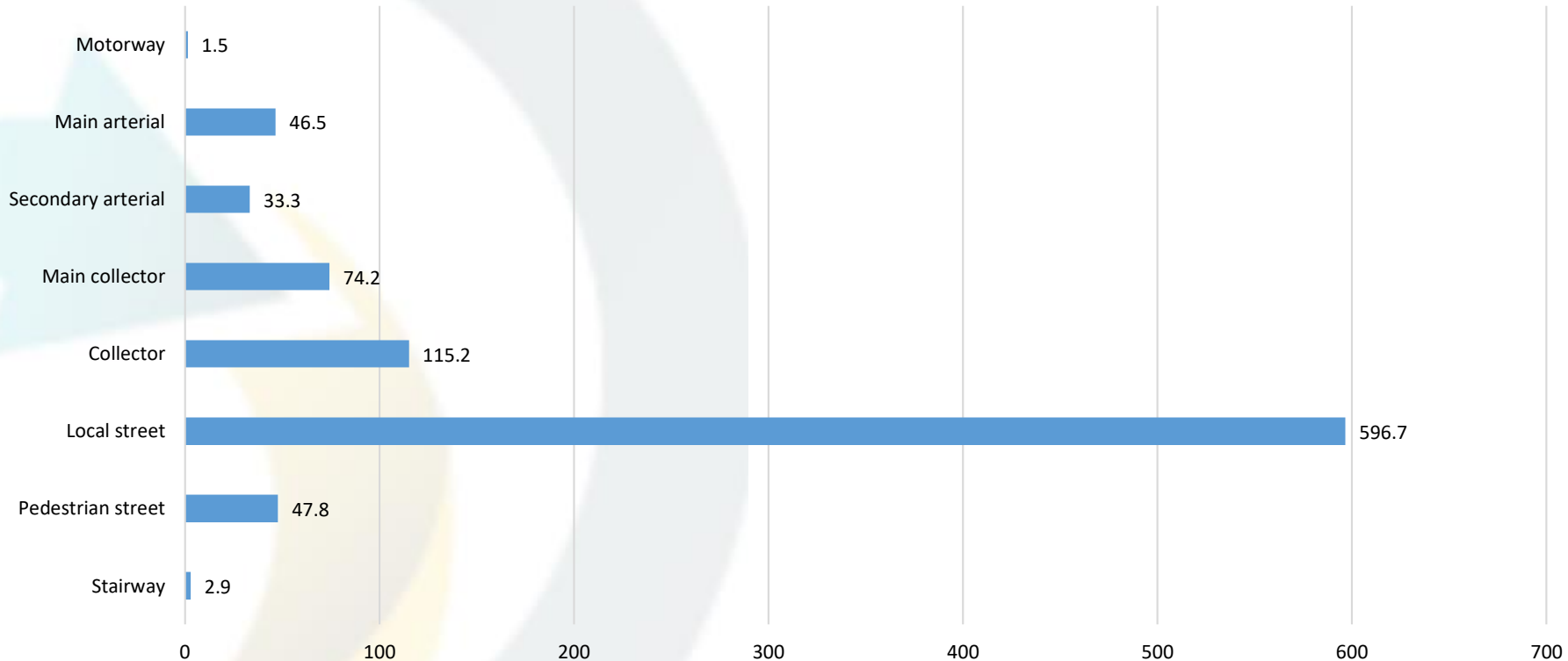


Motor vehicles in circulation by category



# Road Infrastructure

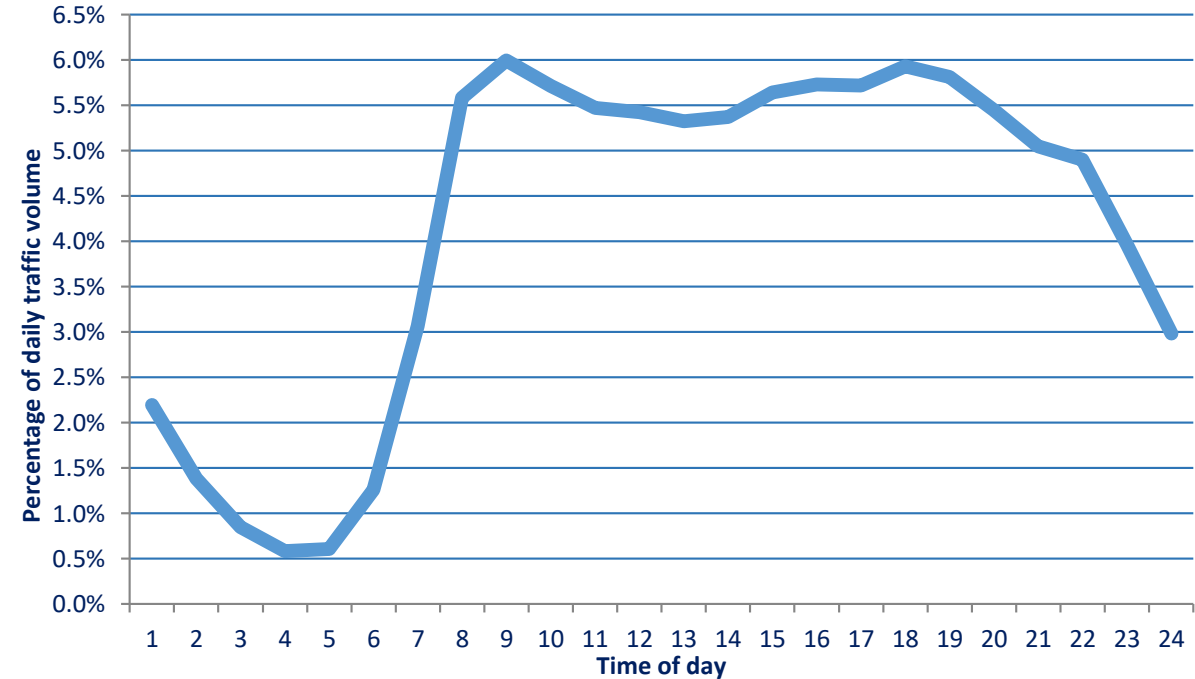
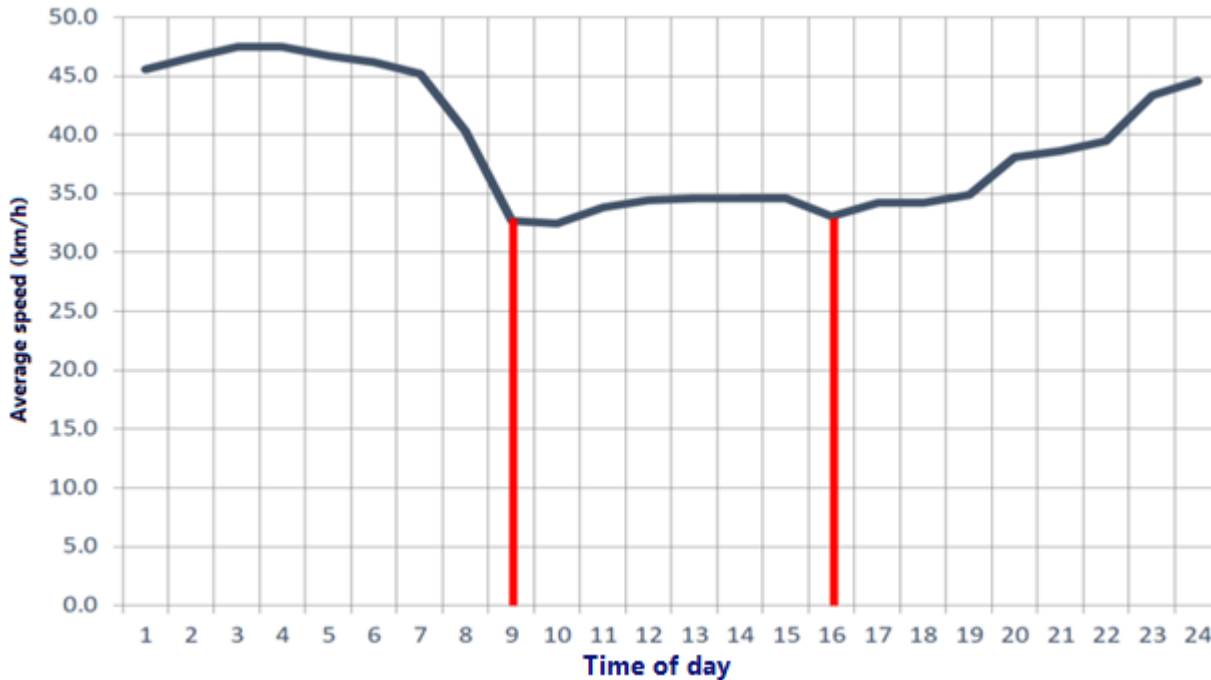
Length of road sections per category of the Municipality of Athens



- Total road length **868 km**
- Bus lane length **52 km**
- Sidewalks **48 km**



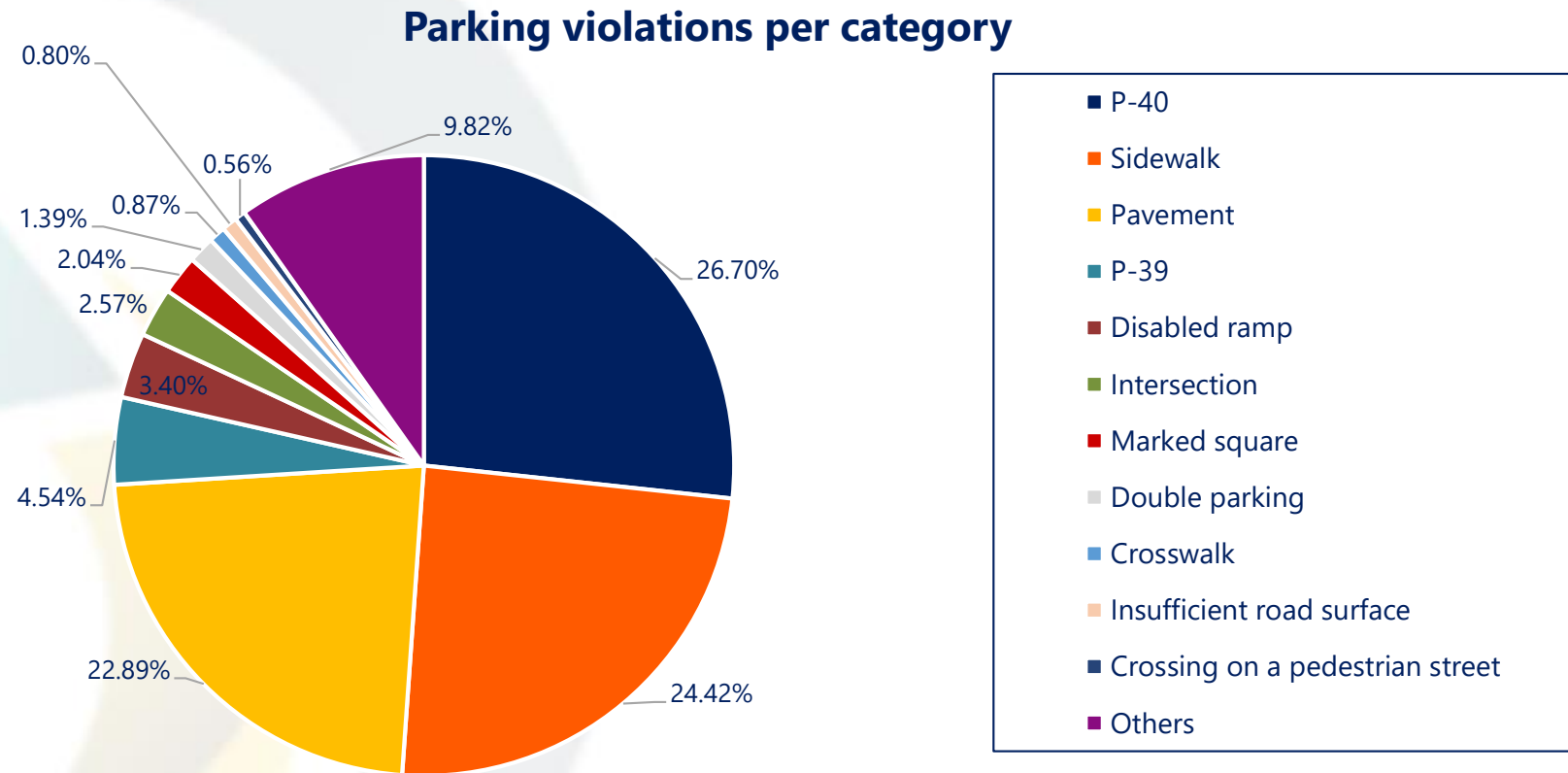
# Traffic



- Morning peak: 08:00 - 10:00, with an average speed of 32.5 km/h & 6% of the daily traffic
- Afternoon peak: 15:00 - 17:00, with an average speed of 33.1 km/h & 5.9% of the daily traffic



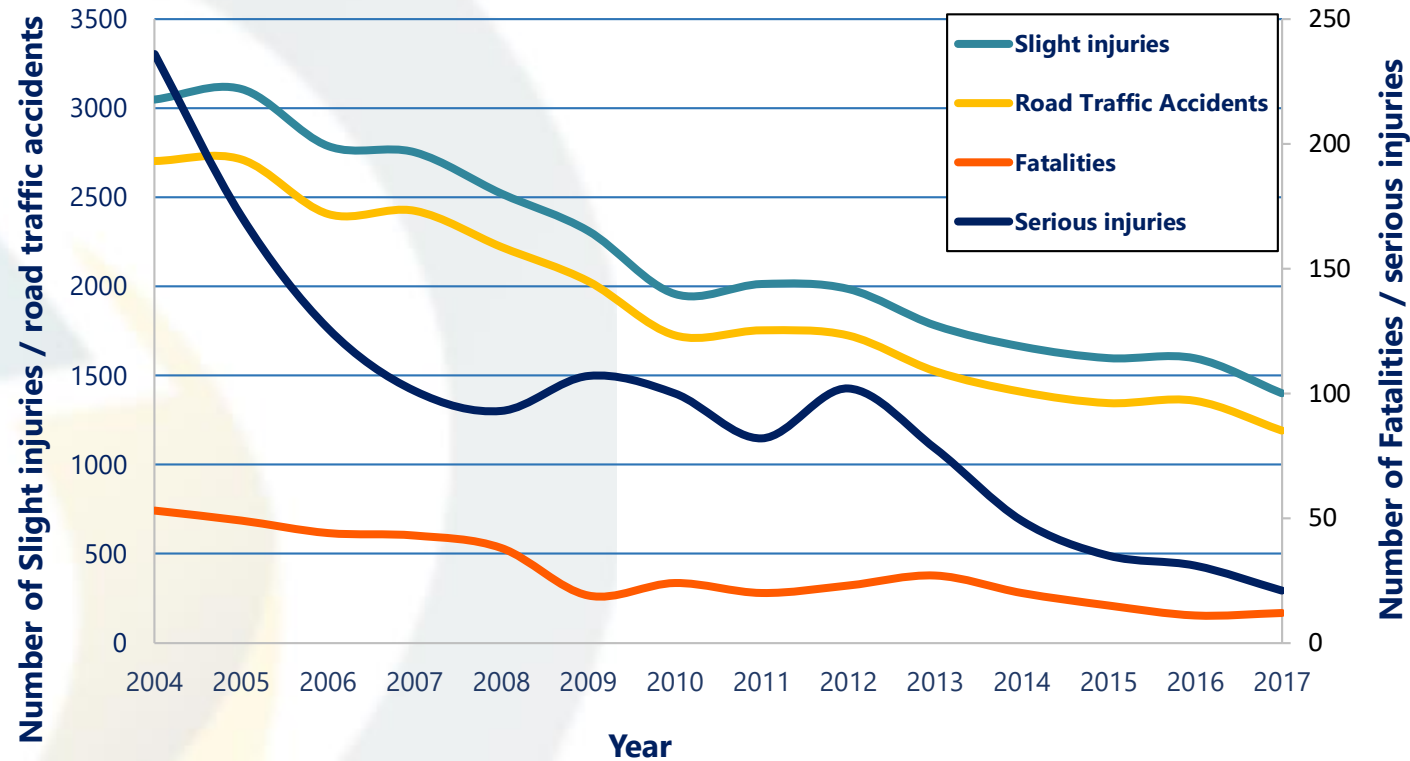
# Parking Violations



- Total **Parking Violations** from all Municipal Police Departments (September - December 2019): **34.186**

# Road Safety

Basic Road Safety Figures (2004-2017)



- Road crashes and casualties have **decreased** significantly in recent years
- In 2017, road accidents were reduced by 56%, deaths by 77% and serious injuries by 91% compared to 2004

# Public Transport

- Average time-distance value
  - Bus  $20,5 \pm 11,5$  min
  - Electric Trolley  $13,1 \pm 5,1$  min
  - Athens Metro 4 min
  - Athens Tram 15 min

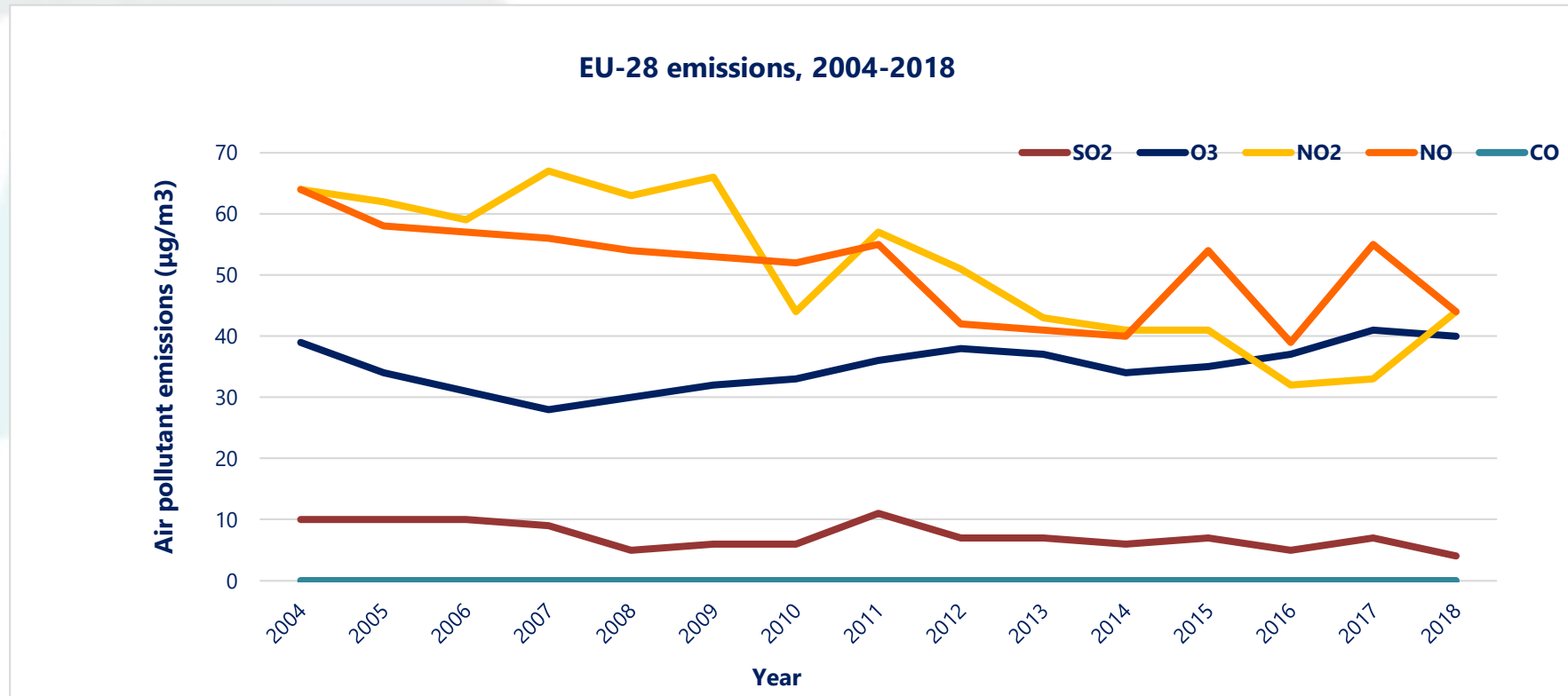
Mass Transit System	Average	Standard deviation	Minimun	Maximum
	(minutes)	(minutes)	(minutes)	(minutes)
Bus	20.47	11.51	6	70
Electric Trolley	13.07	5.07	9	25
Athens Metro	4 (30)		4	30
Athens Tram	15.00		15	15
Athens Suburban Railway	80	30.98	60	120
KTEL	93.78	52.69	30	240

- **Transportation** and **passenger traffic** have declined significantly in the Public transport over the last decade





# Emissions



- The evolution of emissions since 2004 shows a **downward trend or a tendency to stabilize**, depending on the type of emission
- A **spike in NO2 measurements** was observed in 2018 (highest value in the last 5 years)

# Conclusions (1/2)

- The analysis highlighted several weaknesses **negatively affecting mobility** in Athens, such as: poor condition of sidewalks and road pavements, on-street parking, illegal parking, and bus lane violations
- **Road Safety**: the highest percentage of killed and seriously injured concerns vulnerable road users (56% two-wheelers and 33% pedestrians). The percentage of killed and seriously injured at night is high (46%), while for the slightly injured, the percentage during the day is much higher (62%) compared to the night



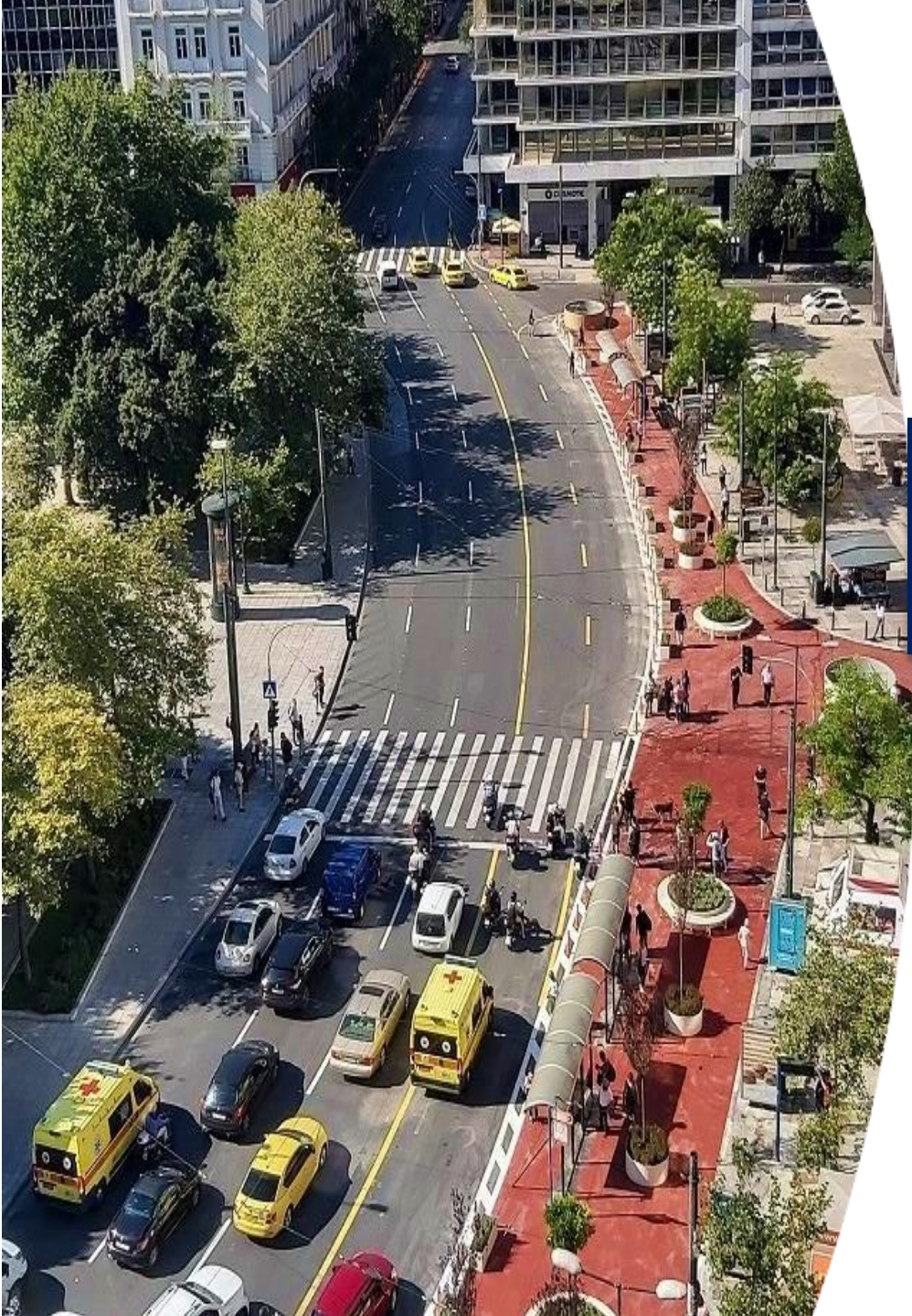


# Conclusions (2/2)

- **Traffic:** Athens holds the 29<sup>th</sup> place in the world concerning traffic congestion (11<sup>th</sup> place among European cities) according to 2018 data
- **Public Transport:** Public transport ridership has declined significantly over the last decade
- **Emissions:** More than 70% of GHG emissions comes from road transport (cars, vans, trucks, buses). The main problem is the high number of old vehicles and the use of outdated anti-pollution technology







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