



Strategic Transport Planning in Athens

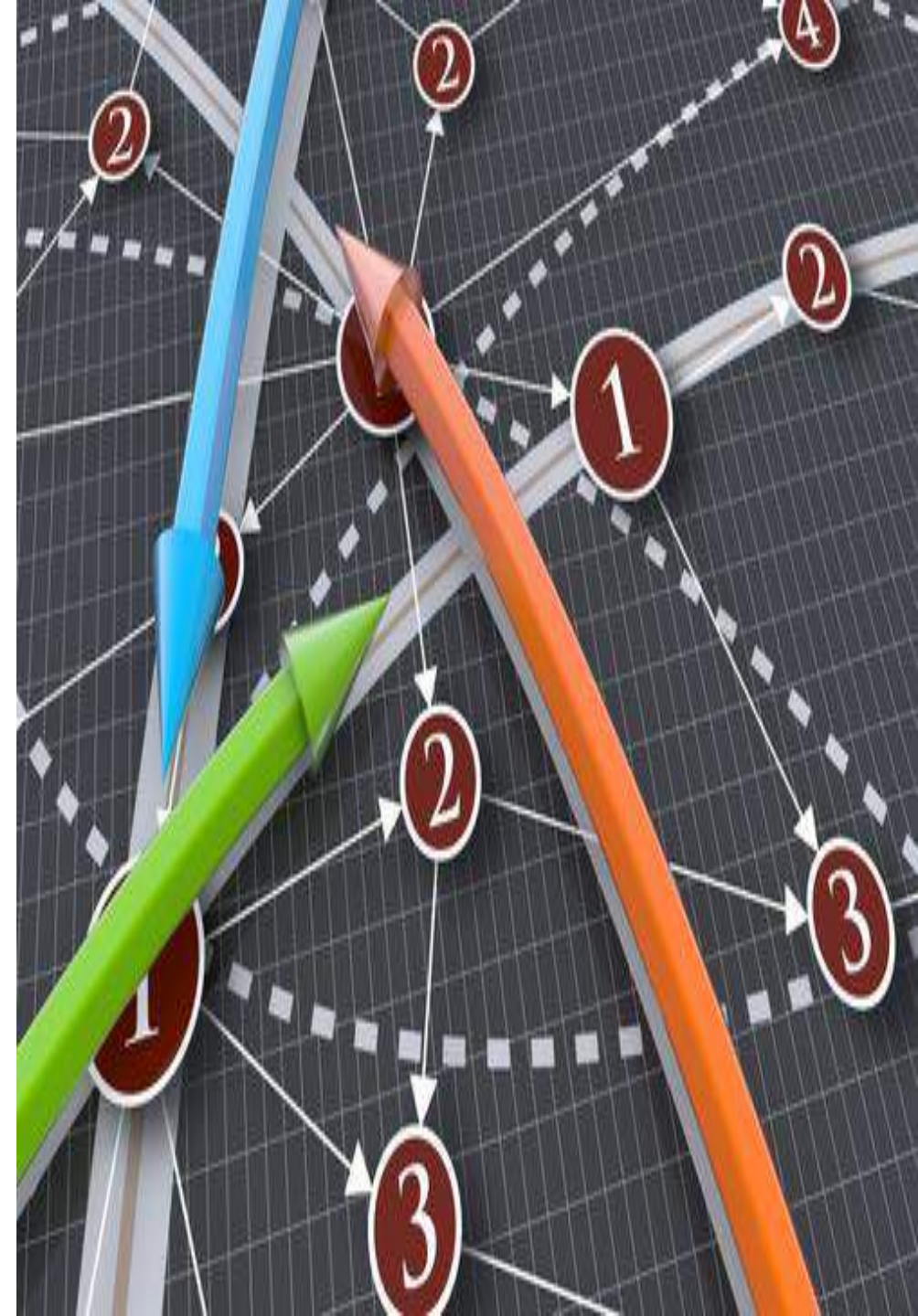


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Athens, 25 June 2020

Outline

- **Current Mobility** situation in Athens
- The effect of **COVID-19** in Traffic and Road Safety
- New **Mobility Interventions**
- **Conclusions**



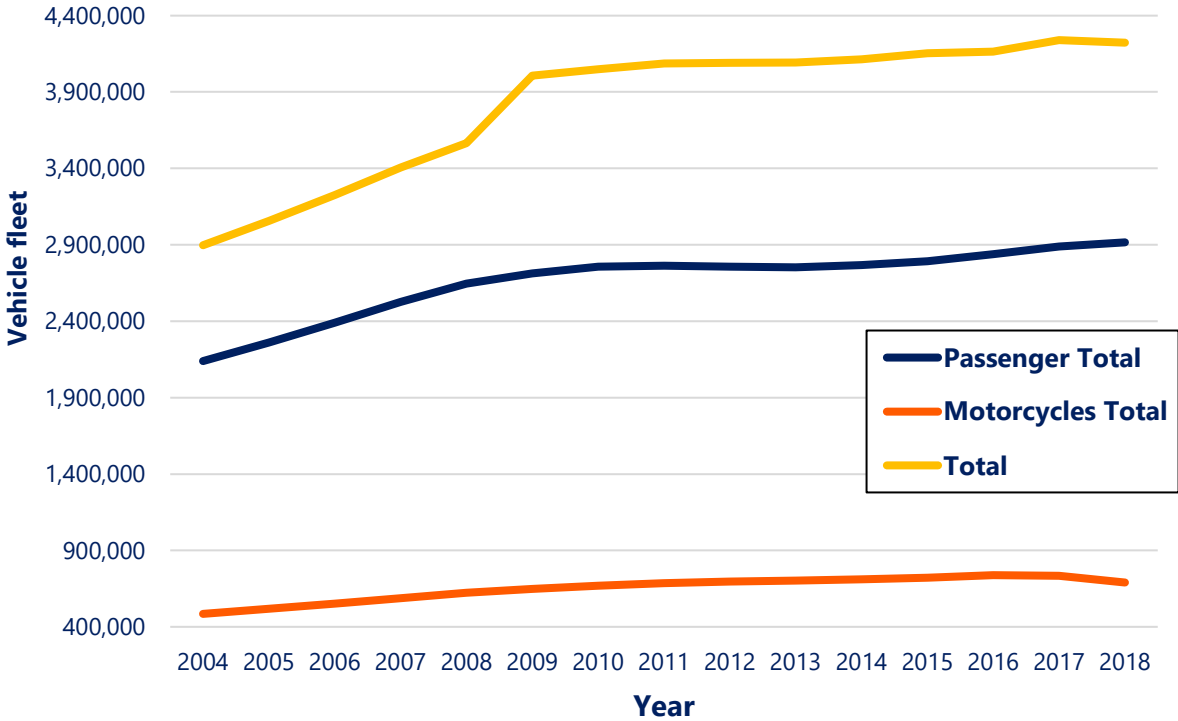
Current Mobility situation in Athens

- 
- A detailed topographic map of Athens, Greece, showing the city's layout, roads, and surrounding terrain. The map is rendered in a light blue and white color scheme. A large, semi-transparent dark blue rectangle is overlaid on the map, containing a list of mobility-related topics.
- Vehicle fleet
 - Road Infrastructure
 - Traffic
 - Parking
 - Road Safety
 - Public Transport
 - Supply chain
 - Environment
 - Intelligent Transportation Systems

Vehicle Fleet (1/2)

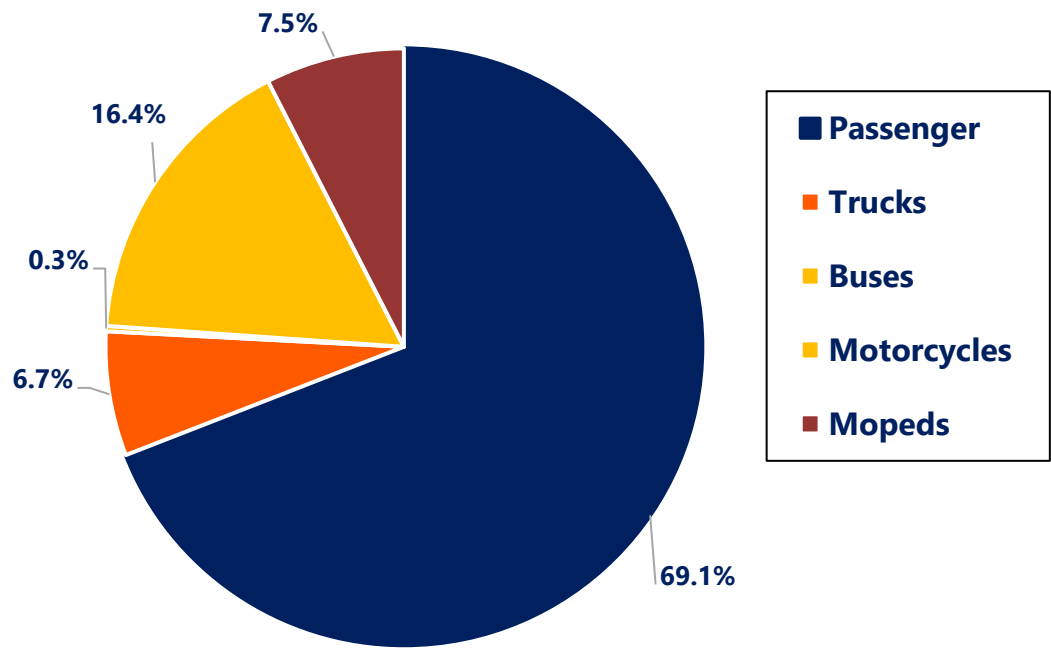
Vehicle fleet in Region of Attica

Source: EL.STAT., Data processing: NTUA



Vehicle fleet by transport mode

Source: EL.STAT., Data processing: NTUA

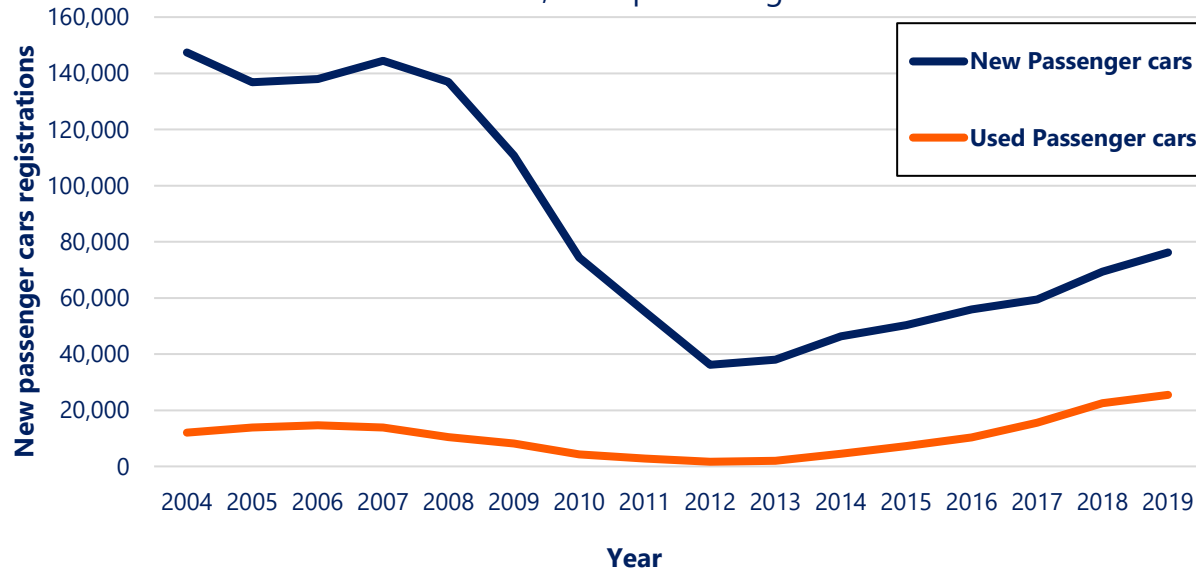


- The increase of vehicle fleet was stopped by 2008 due to the economic recession
- Passenger cars constitute 69% of the total vehicle fleet, while two-wheelers constitute 24%

Vehicle Fleet (2/2)

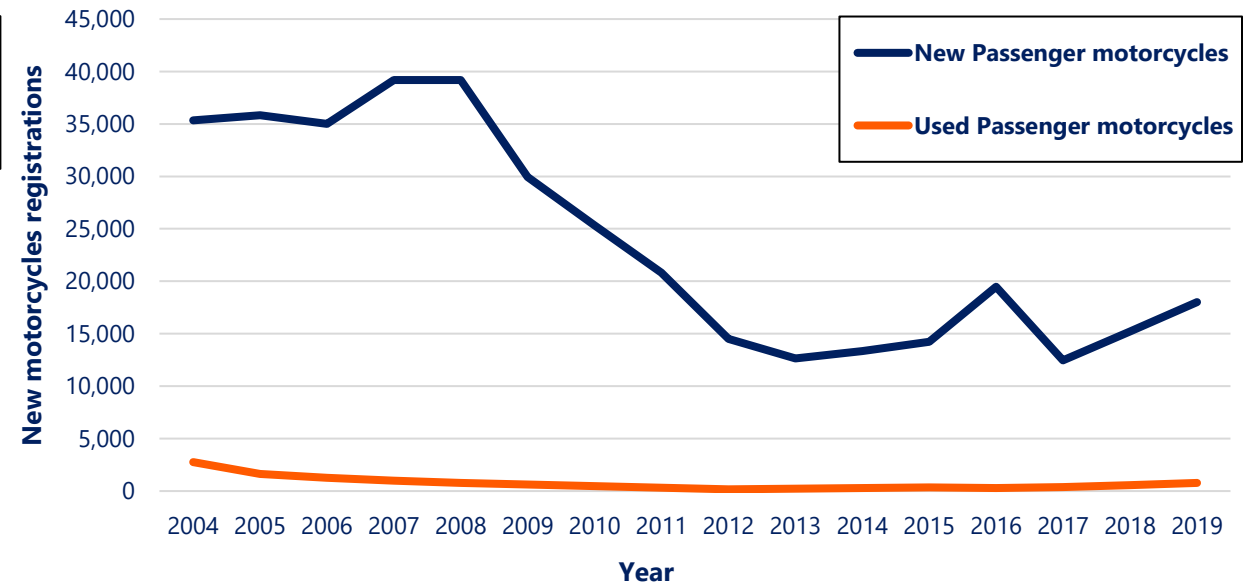
New passenger cars registrations

Source: EL.STAT., Data processing: NTUA



New motorcycles registrations

Source: EL.STAT., Data processing: NTUA

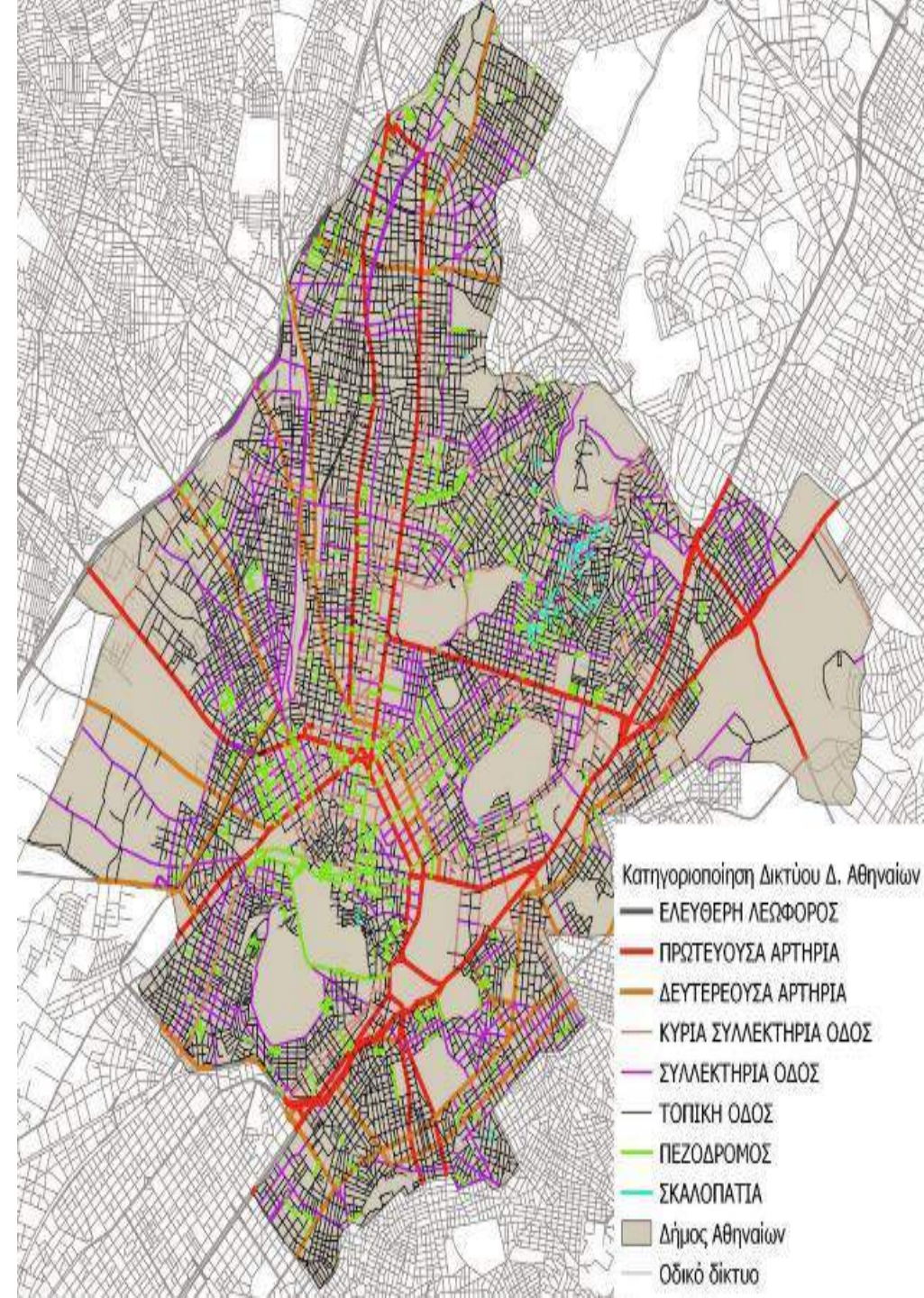


- During 2009-2013, a remarkable reduction of new passenger cars and motorcycles registrations was identified
- There are approximately 14.000 taxis operating in Athens
- During 2019, vehicle fleet of OASA consisted of 1.725 thermal and 291 electric buses
- Since early 2019, micromobility services are operating in Athens

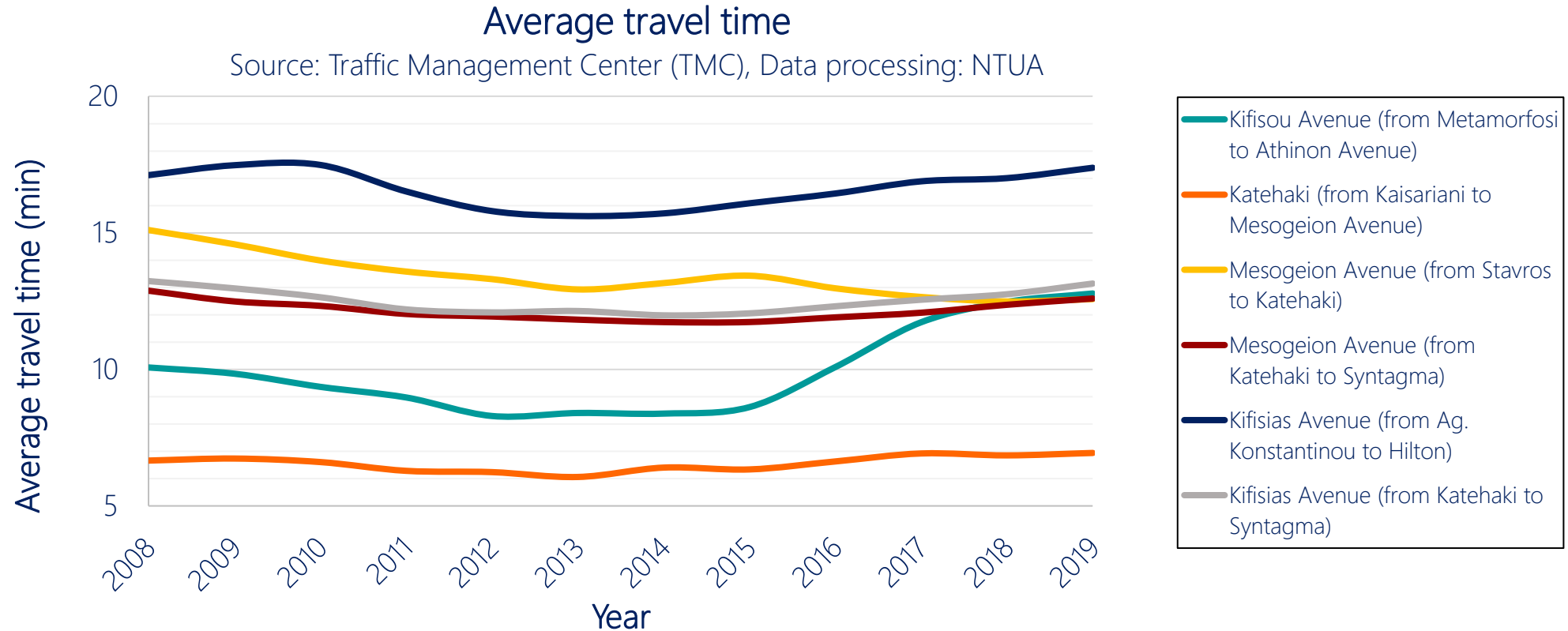


Road infrastructure

- Total road infrastructure **868 km**
- Pedestrian network **48 km**
- More than **400 marked nodes**



Traffic (1/3)



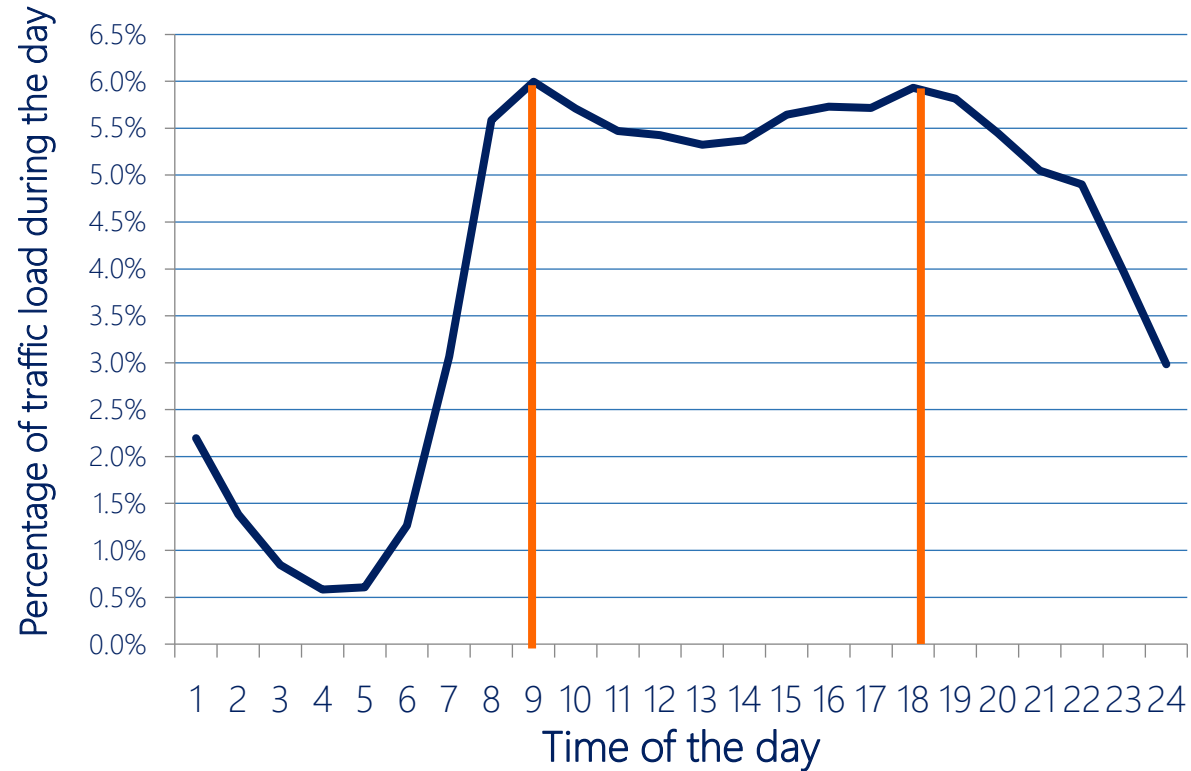
- An **increase in average travel time** was identified in the period 2016-2019 for the specific routes
- A remarkable increase was identified in **Kifisou Avenue** from Metamorfosi to Athinon Avenue and in **Kifisias Avenue** from Ag. Konstantinou to Hilton



Traffic (2/3)

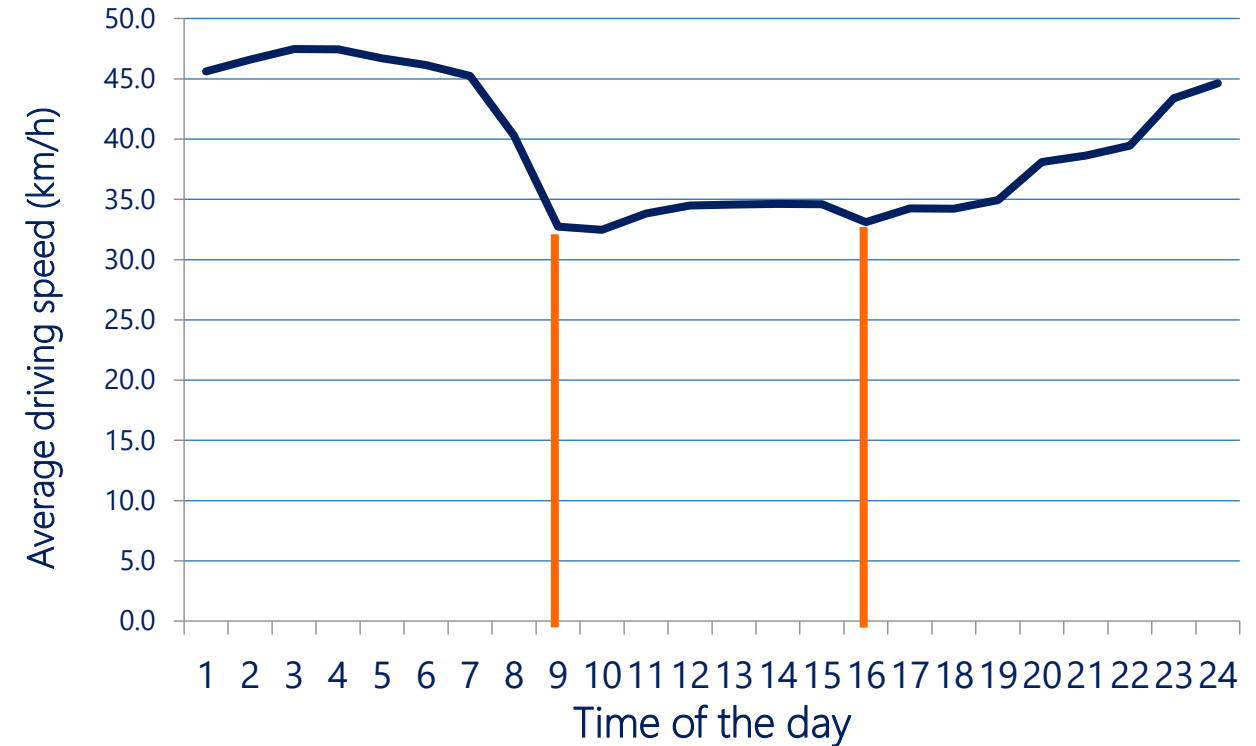
Average traffic variation per hour

Source: Traffic Management Center (TMC), Data processing: NTUA



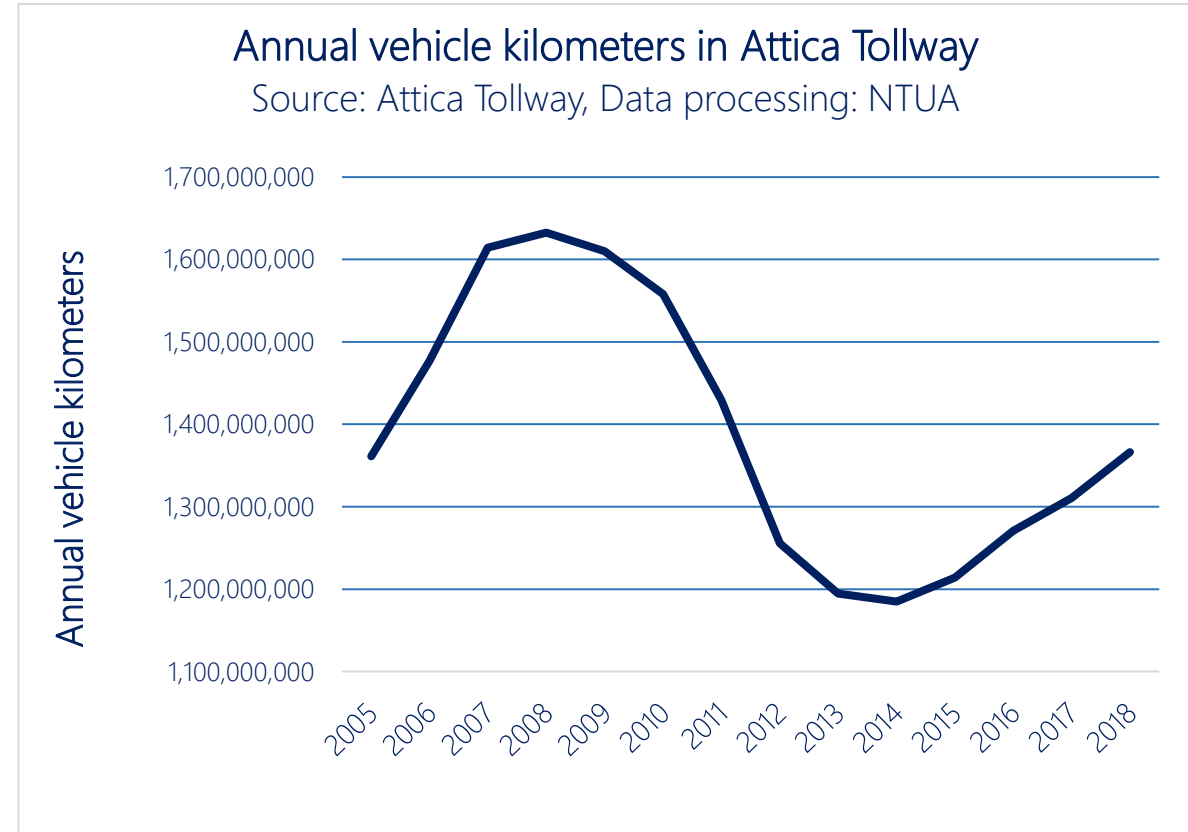
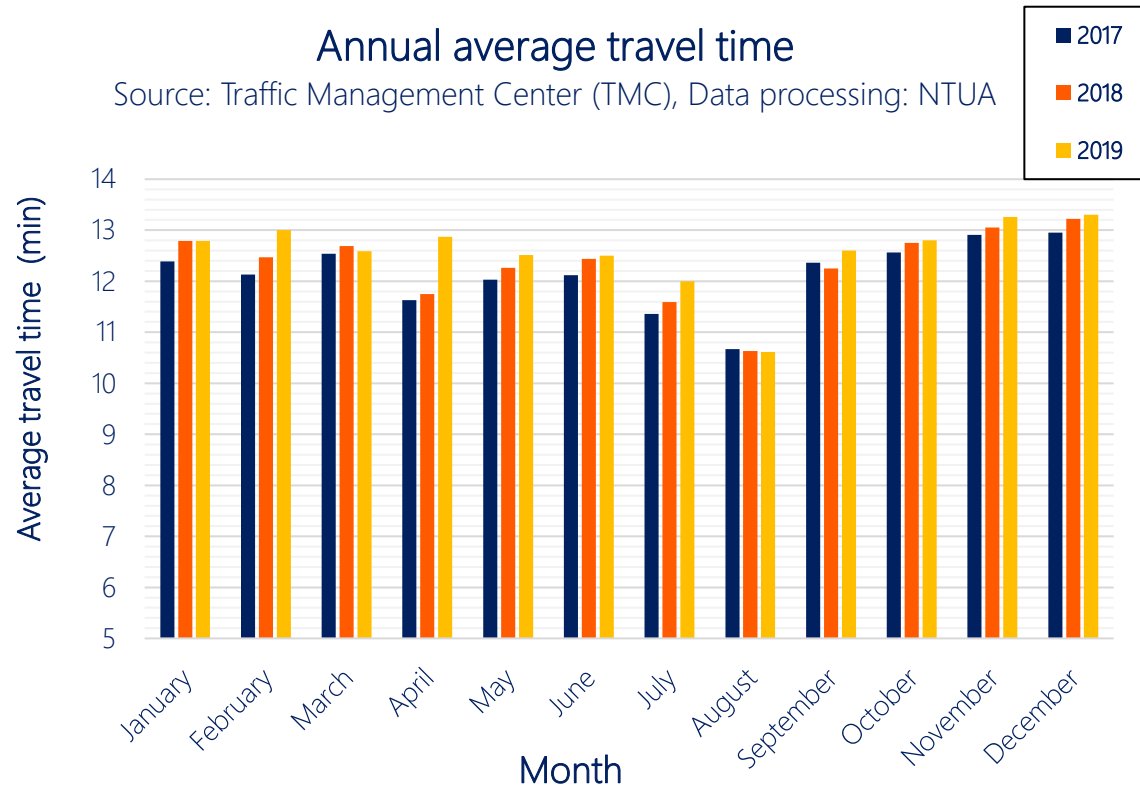
Average speed variation per hour

Source: Traffic Management Center (TMC), Data processing: NTUA



- Morning rush hours period: 07:30 – 09:30
6% of daily traffic, Average speed: 32.5 km/h
- Evening rush hours period: 16:00 – 18:00
5.9% of daily traffic, Average speed: 33.1 km/h

Traffic (3/3)

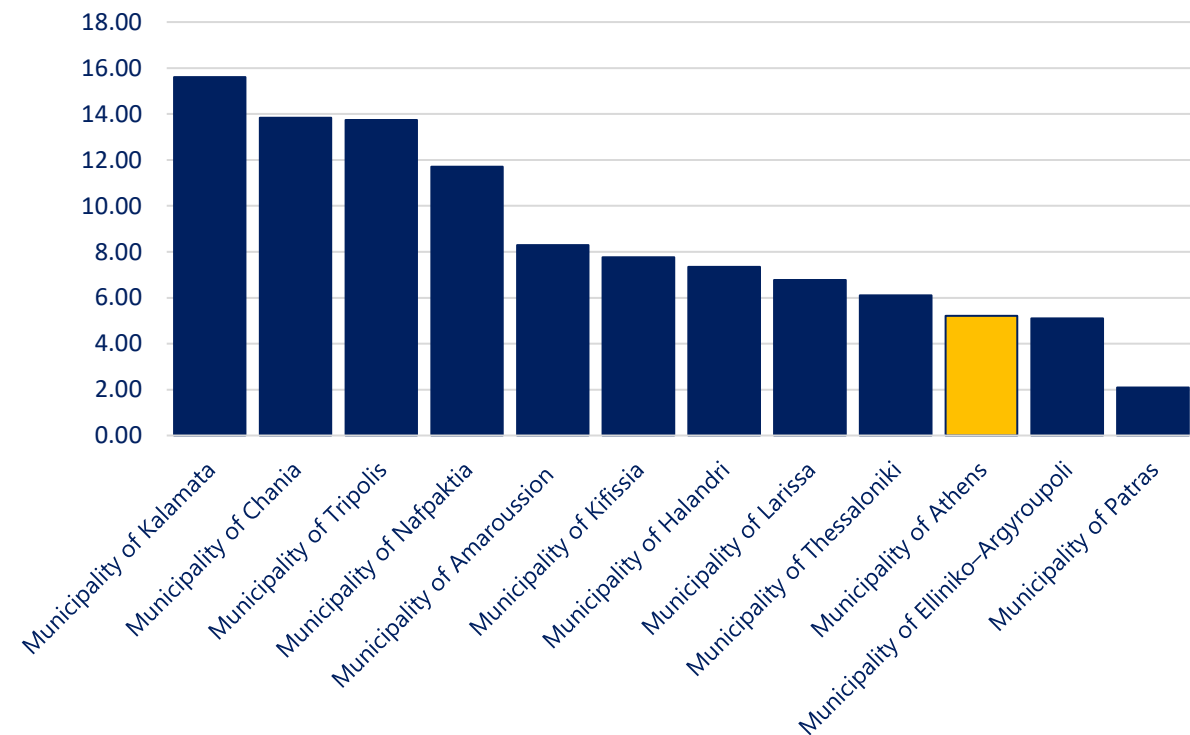


- The higher **average travel time** is in November and December, while the lower in August
- **An increase in average travel time** was identified in 2019, compared to the last three years
- **A remarkable increase in annual vehicle kilometers in Attica Tollway** was found during 2014-2018

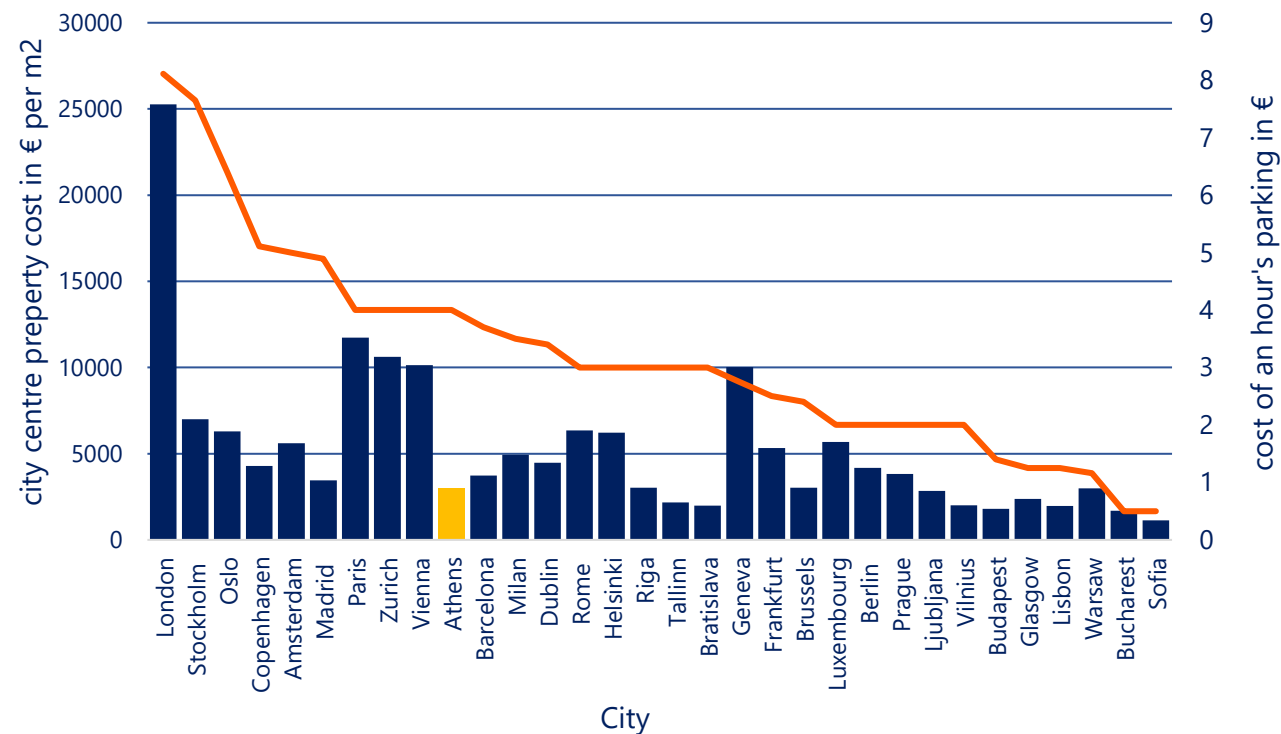


Parking

Visitors' parking spaces per 1.000 inhabitants



Hourly fee of private parking

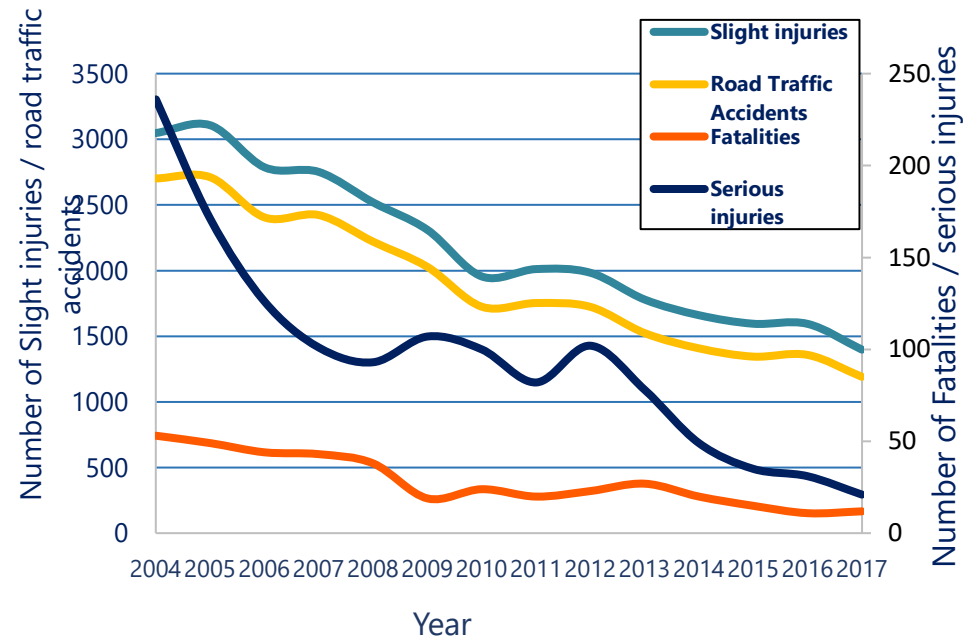


- Athens the 3rd lower index of visitors' parking spaces per 1.000 inhabitants compared to other Greek cities
- The average hourly parking in 32 European cities is 3 euros while in Athens it is approximately 4 euros

Road Safety (1/2)

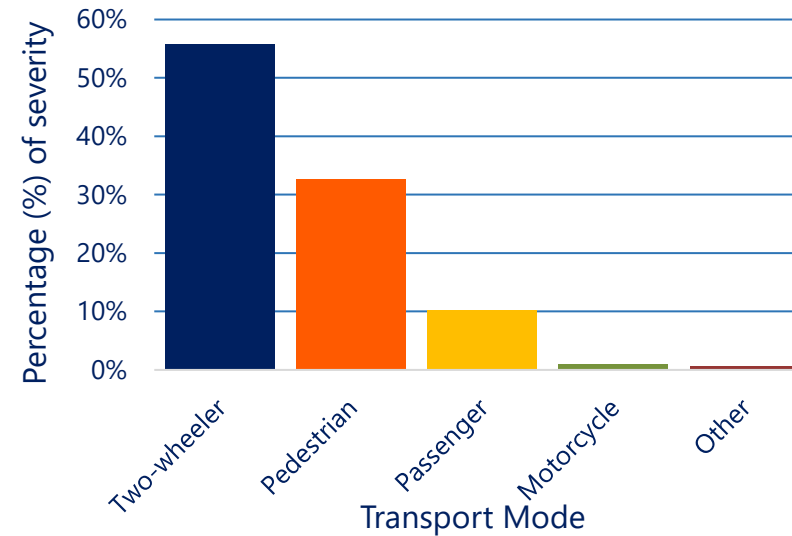
Basic Road Safety Figures (2004-2017)

Source: EL.STAT., Data processing: NTUA



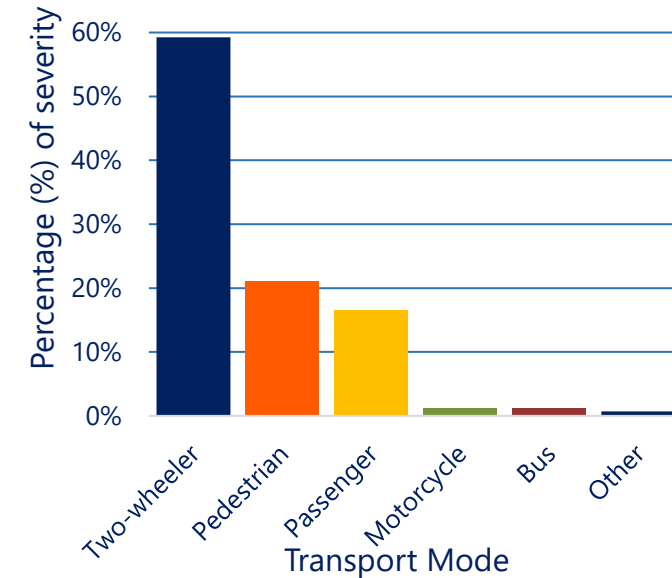
Fatalities and serious injuries (2013-2017)

Source: EL.STAT., Data processing: NTUA



Slight injuries (2013-2017)

Source: EL.STAT., Data processing: NTUA



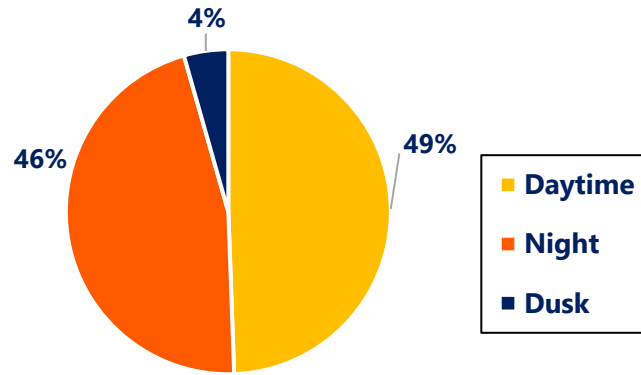
- During the last years, a **significant decrease** in traffic accidents and fatalities was identified
- The greater percentage of fatalities and serious injuries constitute to **two-wheeler** (56%) and **pedestrians** (33%) – Similar percentages refer to slight injuries



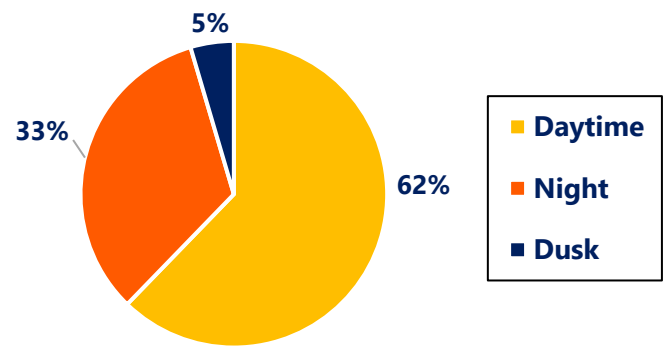
Road Safety (2/2)

- The percentage of fatalities and serious injuries **during night time** is particularly high (46%), while for slight injuries is 33%
- **Higher percentages of fatalities in junction** (51% fatalities and serious injuries, 61% slight injuries)

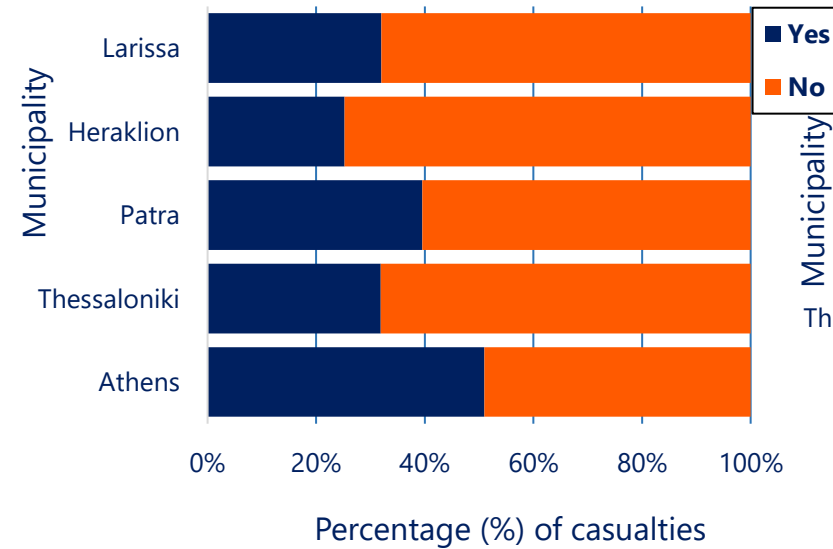
Fatalities and serious injuries (2013-2017)
Source: EL.STAT., Data processing: NTUA



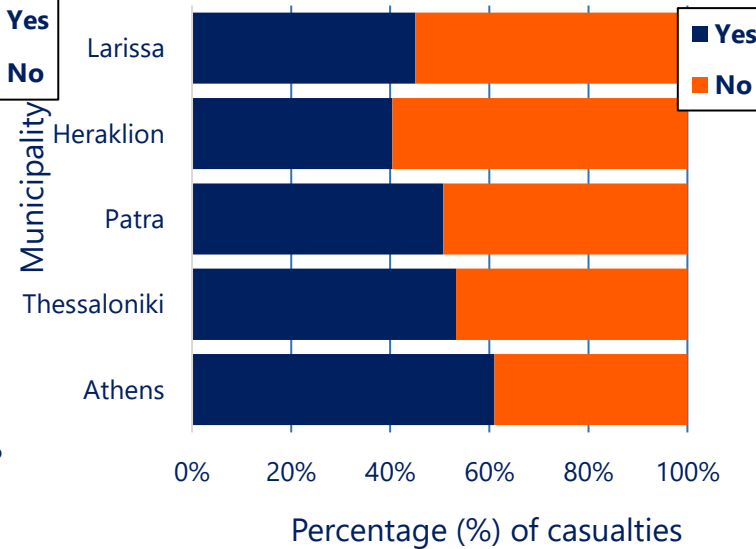
Slight injuries (2013-2017)
Source: EL.STAT., Data processing: NTUA



Fatalities and serious injuries in junctions (2013-2017)
Source: EL.STAT., Data processing: NTUA



Slight injuries in junctions (2013-2017)
Source: EL.STAT., Data processing: NTUA

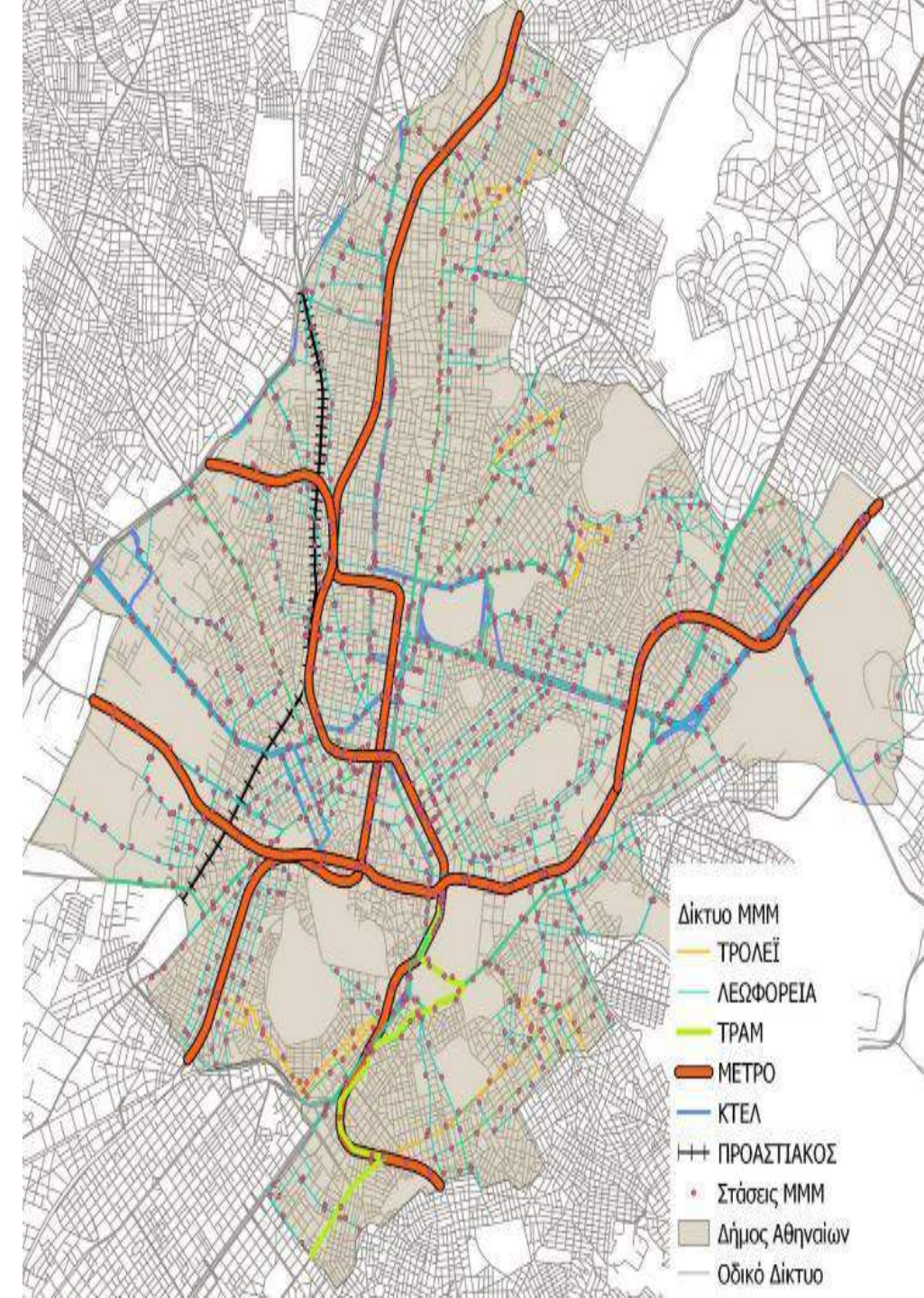


Public Transport (1/2)

➤ 170 lines

- Bus: 95
- Electric Trolley: 14
- Metro: 4
- Tram: 2
- Suburban Railway: 5
- KTEL: 50

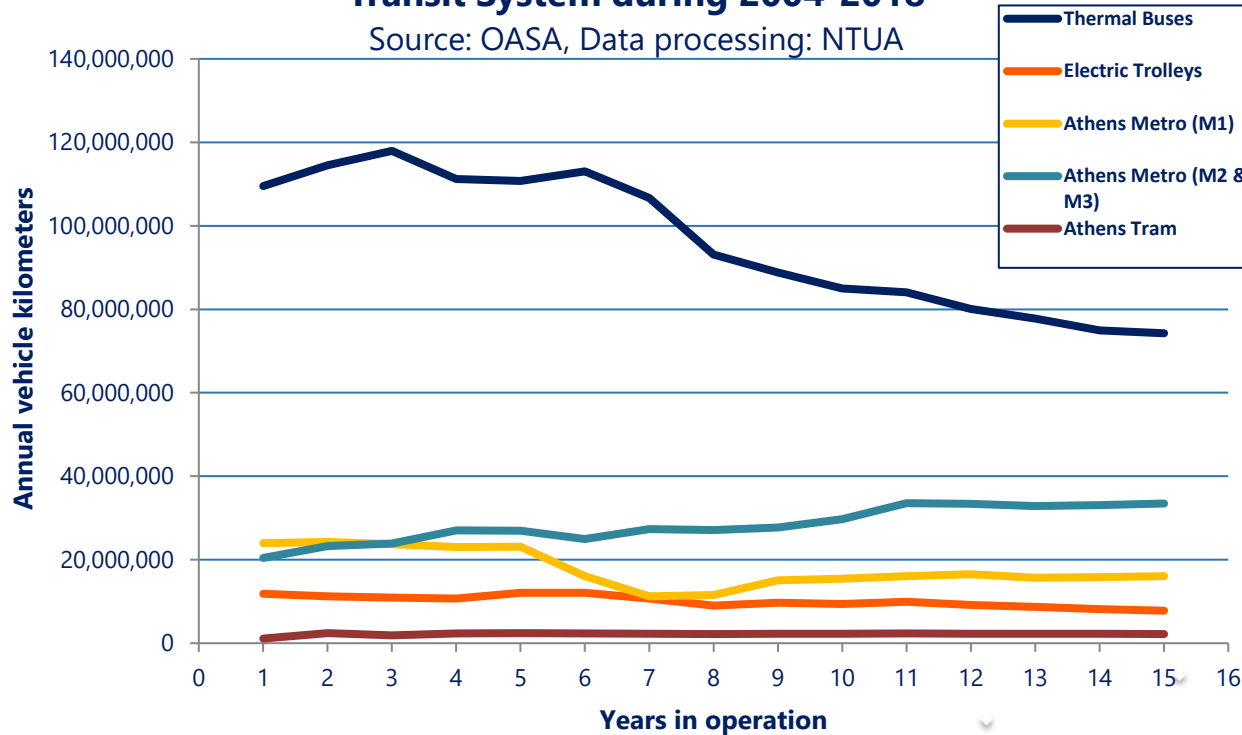
➤ 1.030 stations



Public Transport (2/2)

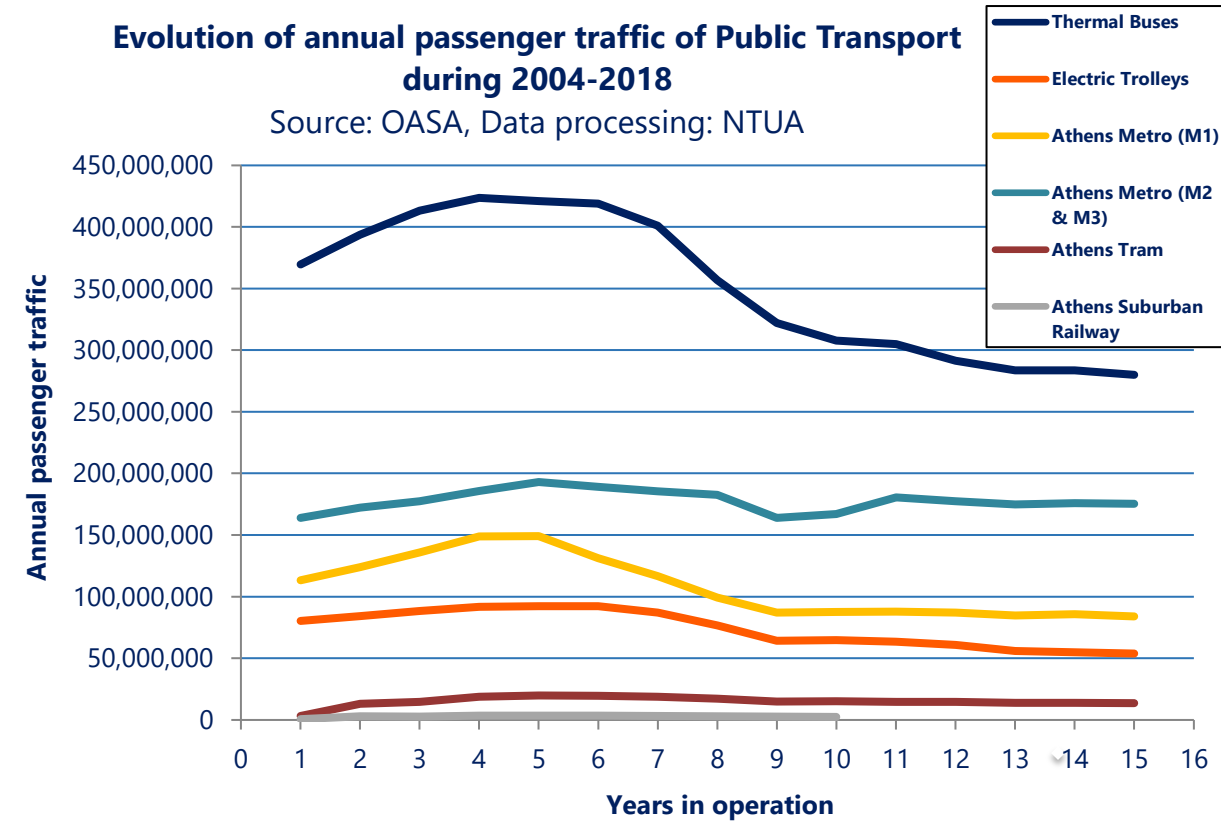
Evolution of annual vehicle distance driven of Mass Transit System during 2004-2018

Source: OASA, Data processing: NTUA



Evolution of annual passenger traffic of Public Transport during 2004-2018

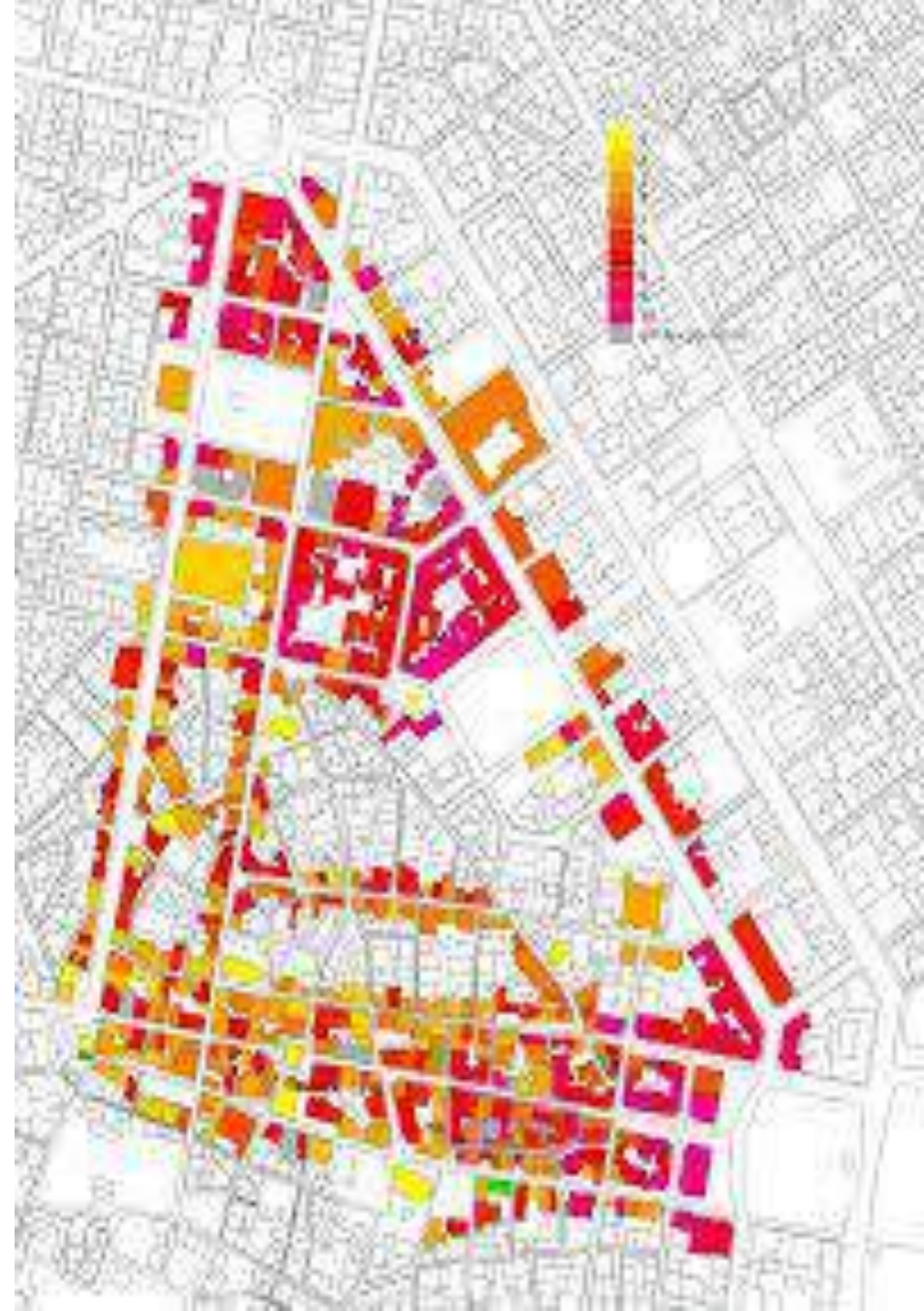
Source: OASA, Data processing: NTUA



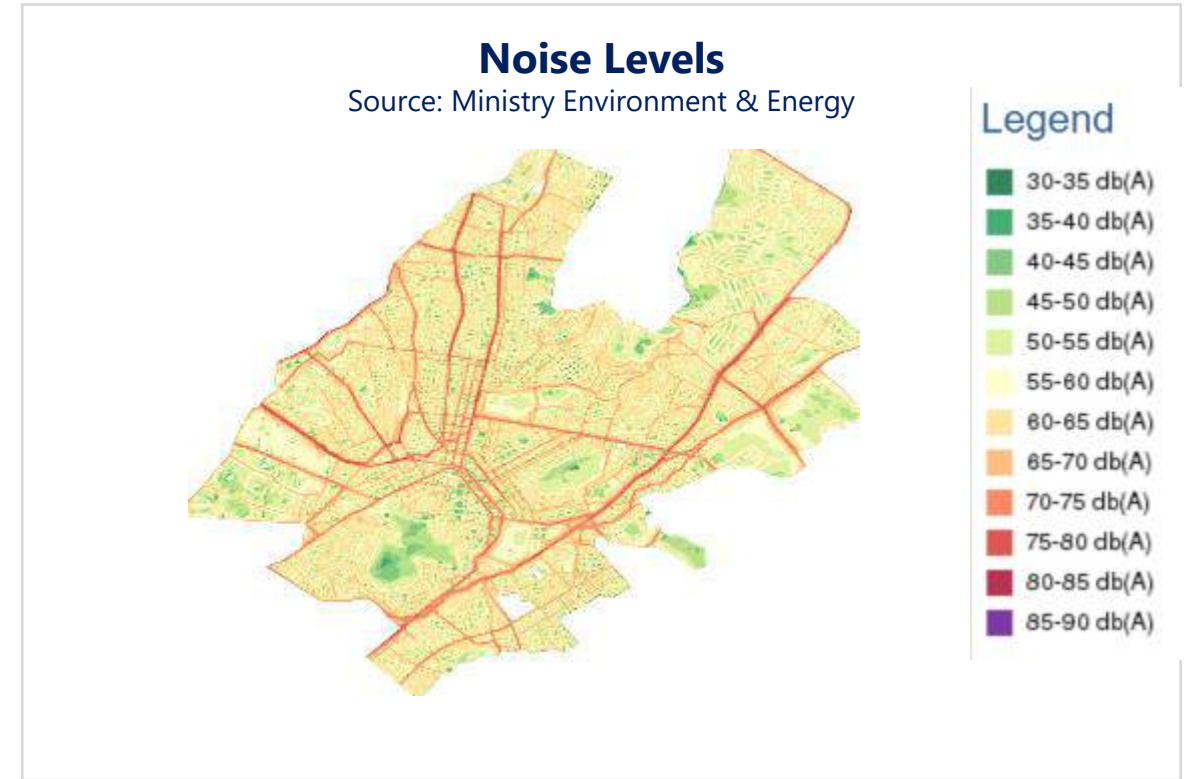
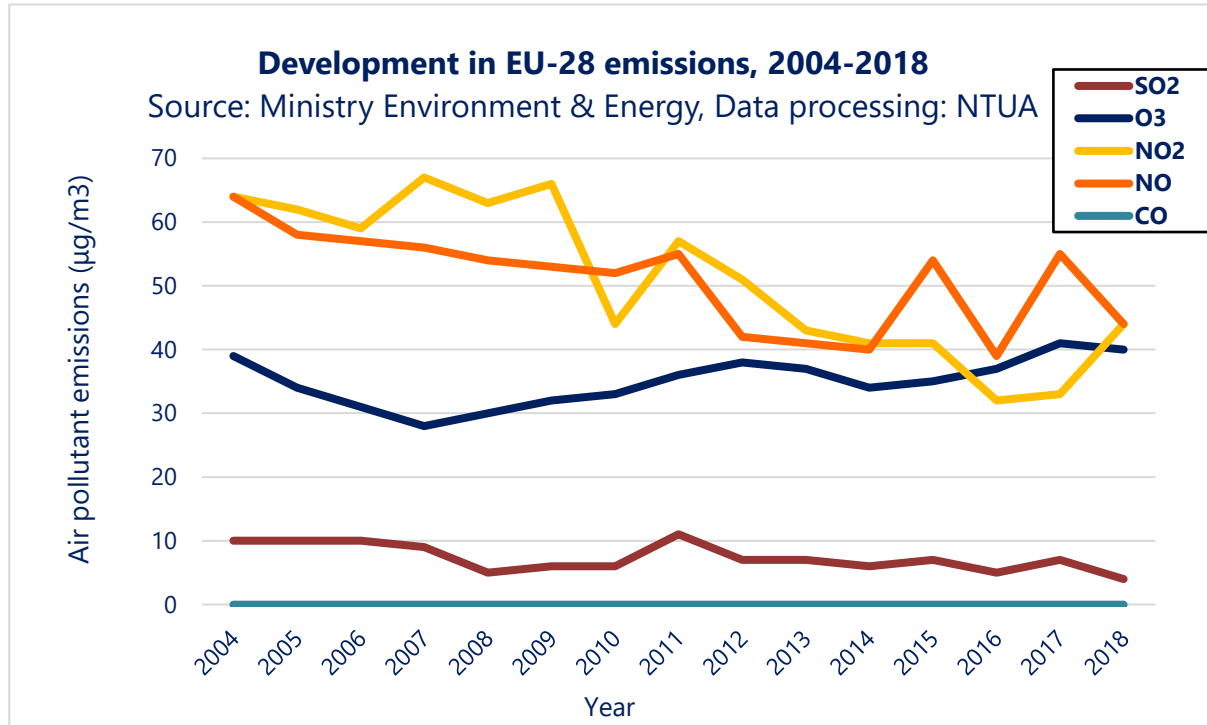
- **Reduction** of the number of passengers in buses, while vehicle kilometres of buses remained stable
- **Reduction in vehicle kilometers** of Athens Metro, while number of passengers remained stable

Supply chain

- The "Low Emission Zone", the "Athens Ring" and the "Athens' Commercial Triangle" have been created for heavy vehicles and the supply chain in Athens
- Prohibition of heavy vehicles entrance for the supply chain from 7:00 to 10:30 inside the Athens Ring and on the perimeter roads of Athens Ring
- Vehicle restriction measurements at the Athens' Commercial Triangle. It is exceptionally allowed to supply (vehicles that are equipped with valid documents) from 07:00 to 10:30 and from 14:30 to 17:30



Environment



- During 2018, **the highest NO₂** air pollution emissions of the last five years were identified
- Very **high noise levels** were found in the main arteries of the Attica Region

Intelligent Transportation Systems (1/2)

Parking

My Athens Pass



Parkaround



Cityzen



Parkguru



Public Transport

OASA telematics



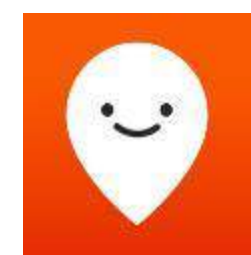
Pame Stasi



Athens Transportation



Moovit



Road Infrastructure

Crosswalk

Intelligent Transportation Systems (2/2)

Traffic

Oseven



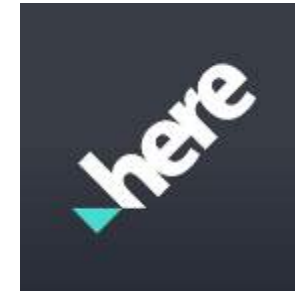
Carky



Google maps



Here maps



X-GPS Tracker



Transport modes

Lime



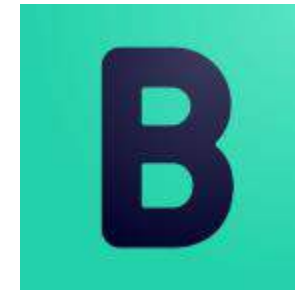
Hive



EasyBike



Beat



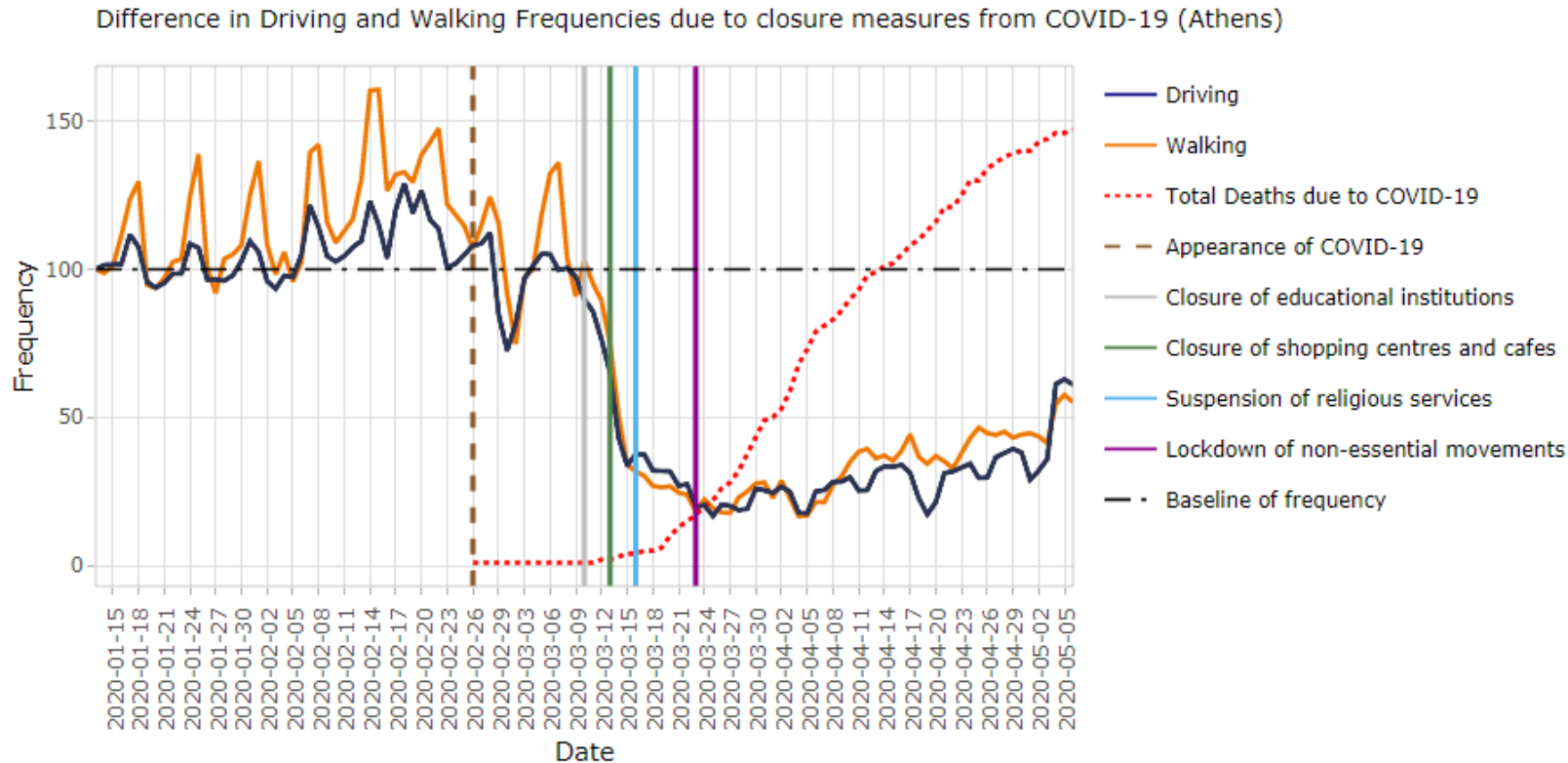
Taxiplon



The effect of COVID-19 in Traffic and Road Safety

- 
- Traffic
 - Speed
 - Road Accidents

Short term traffic trends in Athens

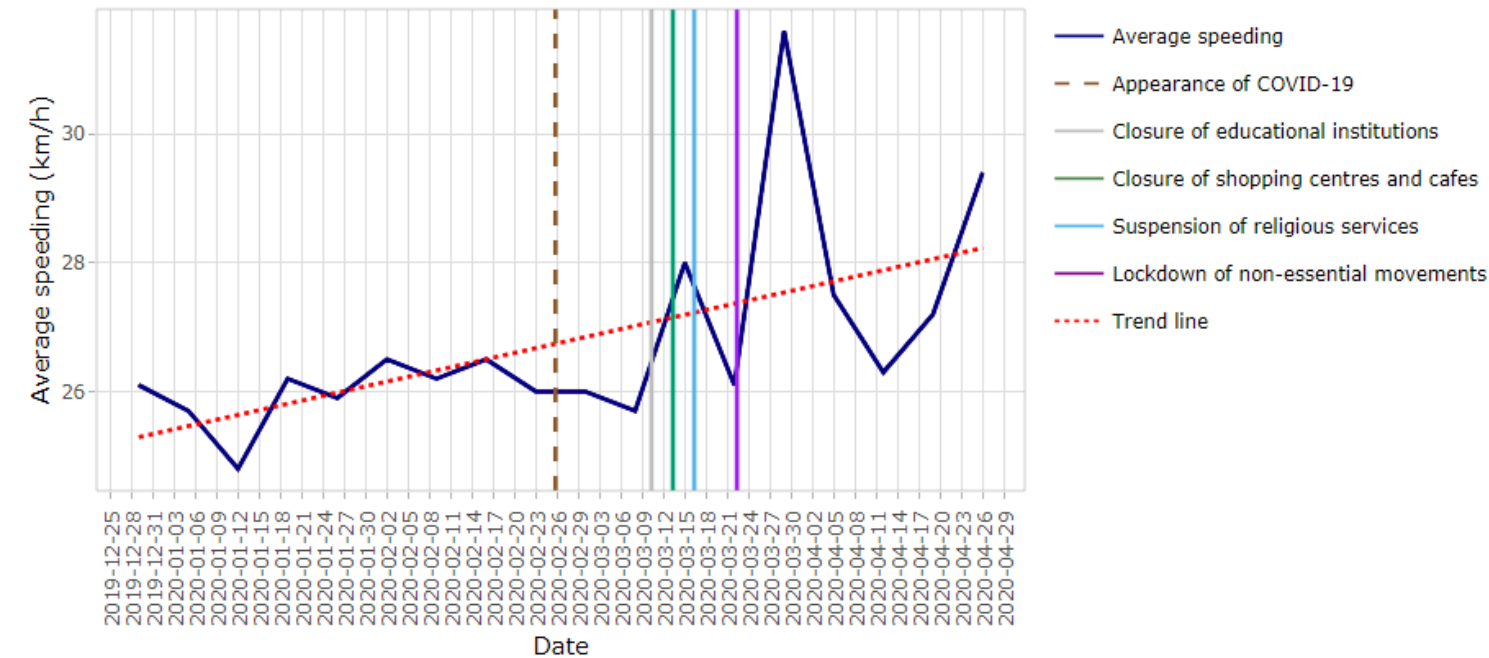


- 46.26% reduction in driving trips and 42.54% reduction in pedestrian trips in March compared to February
- Significant 74.37% reduction in driving trips and 72.18% reduction in pedestrian trips in April compared to February

Source: Apple

Speed Limit Overrun Evolution - Greece

Average speed over the speed limit (Greece)

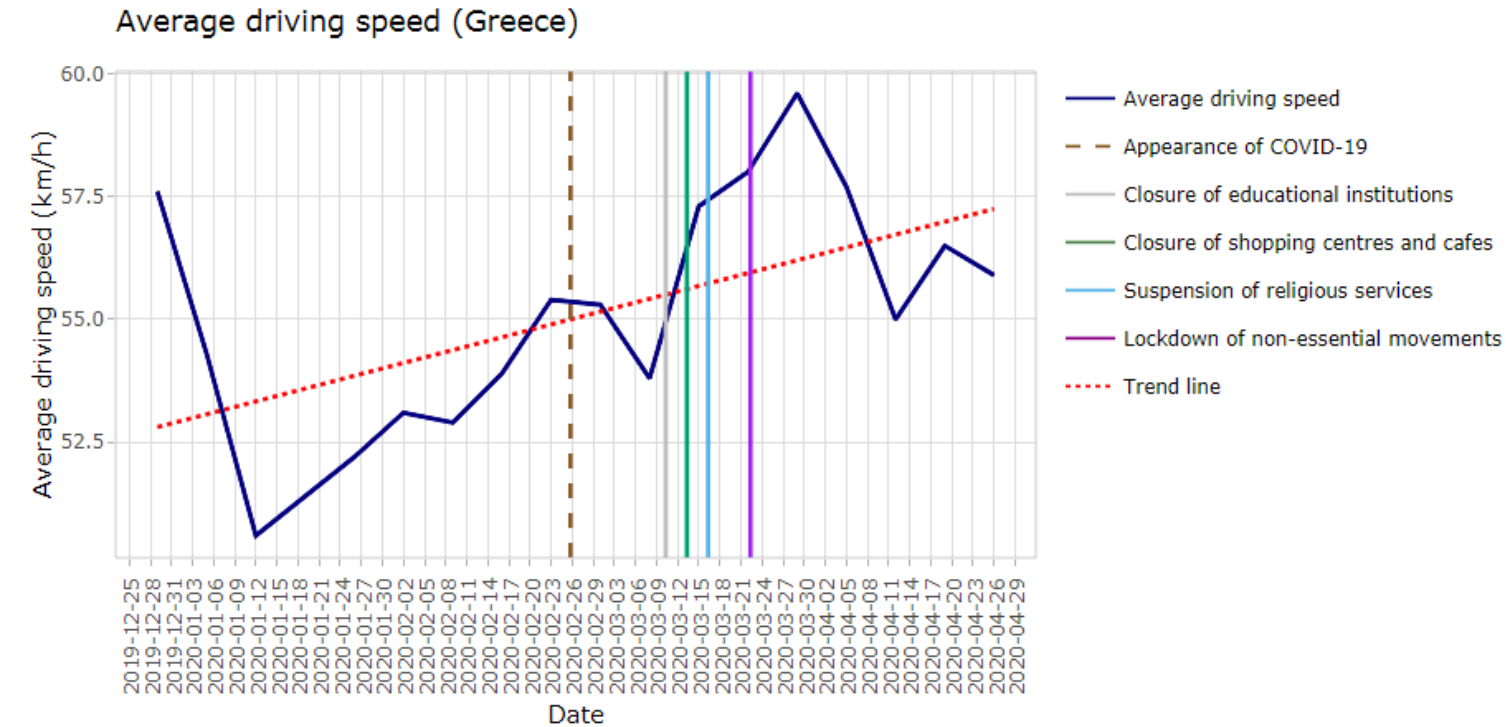


- A **2% increase** in the average speed limit exceeded in March compared to February
- A remarkable **7% increase** in the average speed limit exceeded in April compared to February

Source: OSeven



Average Speed Evolution - Greece



- **4% increase** in average speed occurred in March compared to February
- A significant **6% increase** in average speed was detected in April compared to February

Source: OSeven



Road Accidents in Attica Region

| Road Accidents | March | | | April | | |
|-----------------------|-------|------|--------|-------|------|--------|
| | 2019 | 2020 | Change | 2019 | 2020 | Change |
| Fatal | 15 | 7 | -53% | 15 | 2 | -87% |
| With serious injuries | 13 | 10 | -23% | 14 | 6 | -57% |
| With light injuries | 432 | 275 | -36% | 442 | 164 | -63% |
| Total | 460 | 292 | -37% | 471 | 172 | -63% |

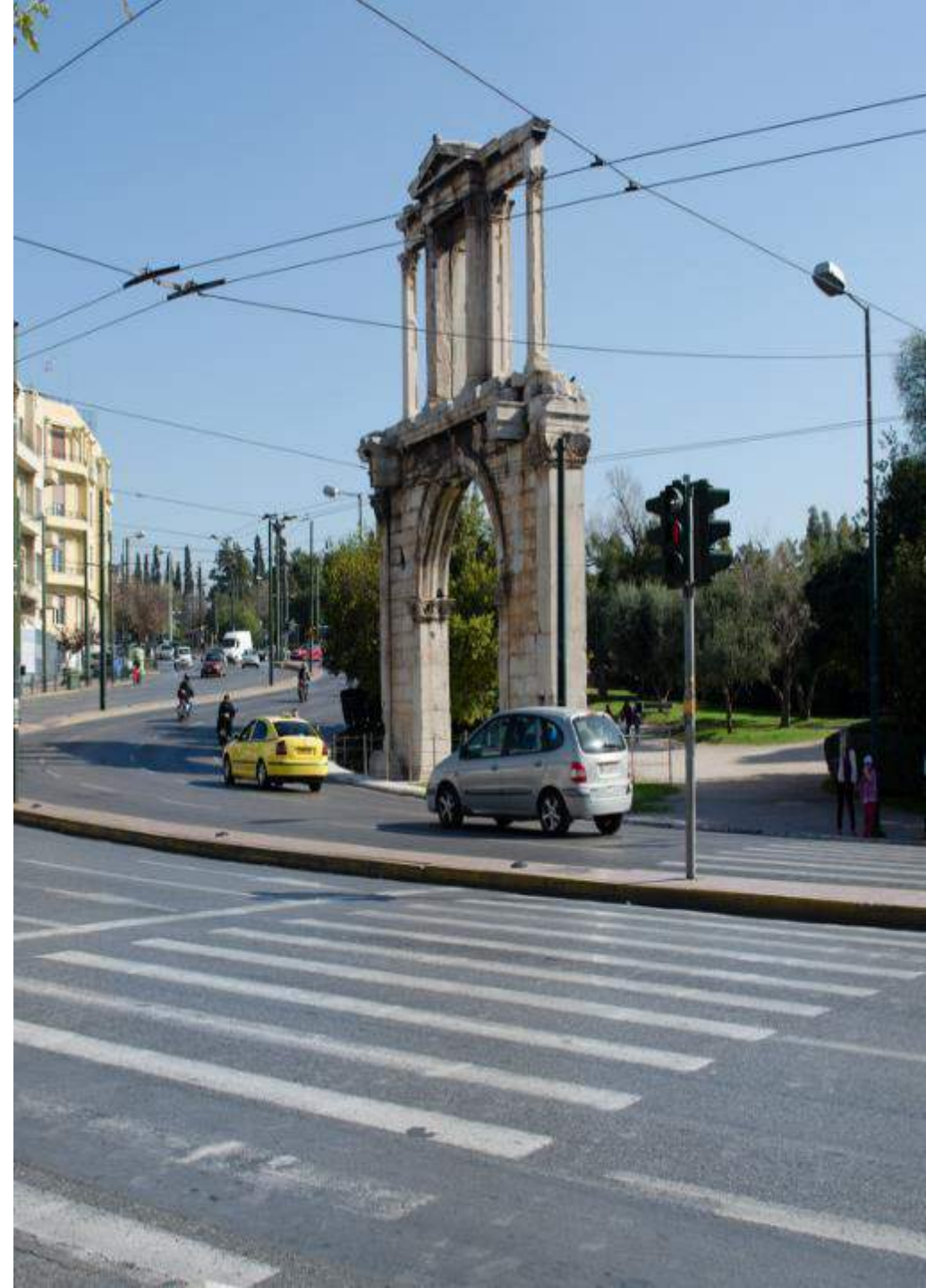
Source: Attica Traffic Police



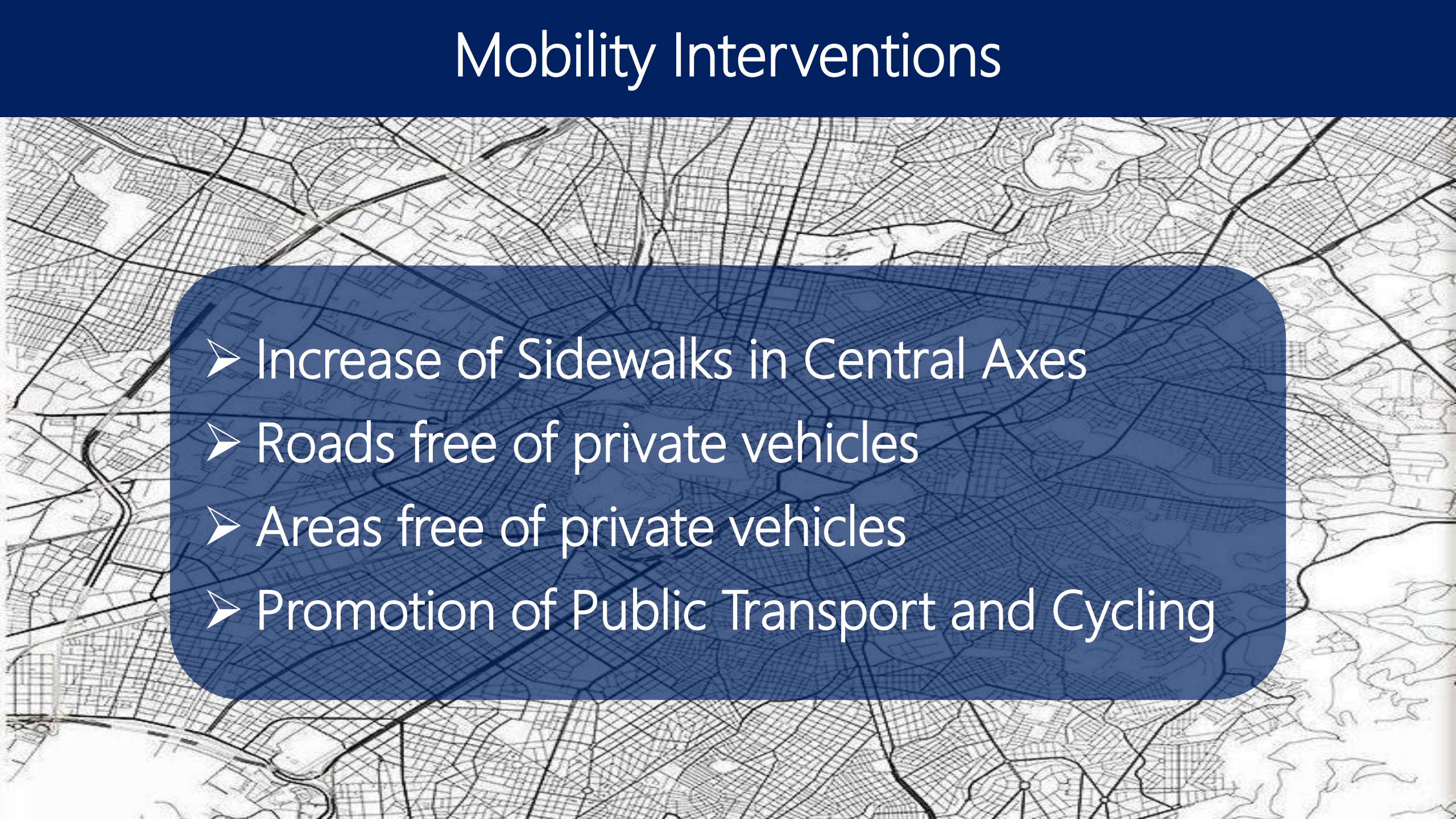
Change in Traffic Parameters

Change of Traffic Parameters compared to February

| | March | April |
|-------------------------|-------|-------|
| Vehicle traffic | -46% | -73% |
| Pedestrian traffic | -43% | -73% |
| Speeding | +6% | +5% |
| Average Speed | +6% | +11% |
| Casualty Road Accidents | -43% | -67% |



Mobility Interventions

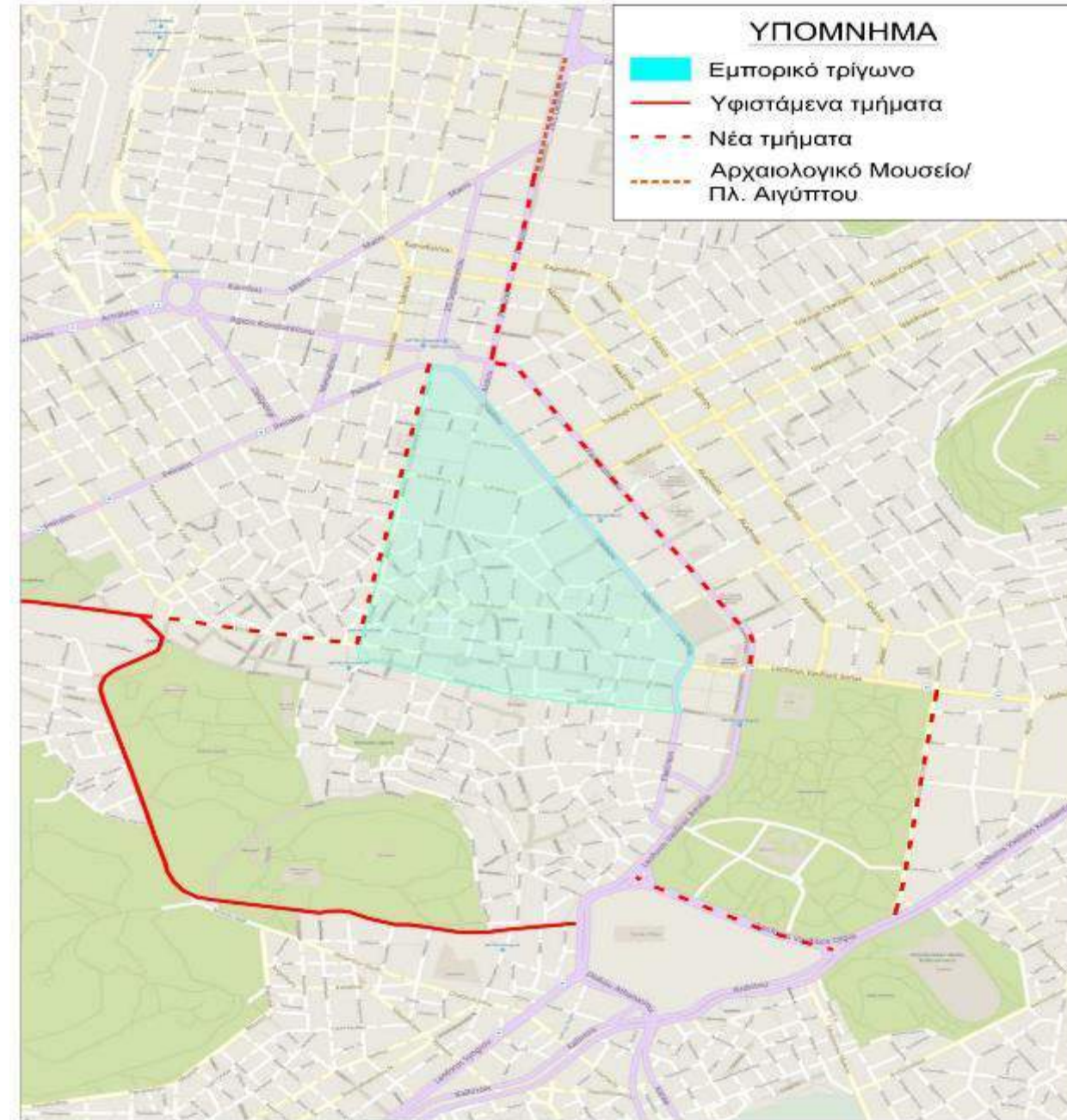
- 
- A detailed, light-colored map of a city street grid, showing a dense network of roads and avenues. The map is partially obscured by a dark blue rounded rectangle containing the text.
- Increase of Sidewalks in Central Axes
 - Roads free of private vehicles
 - Areas free of private vehicles
 - Promotion of Public Transport and Cycling

Framework of Interventions

The interventions are part of the **new policy of upgrading the Public Space** in Athens consisting of two major urban interventions:

- **The Athens Great Walk**
(upgrade and regeneration of road and pavement infrastructure)
- **Commercial Triangle and Plaka free of vehicles** (special traffic and parking regulations)

Regain of public space from passenger cars



Ultimate Purpose of Interventions

➤ New quality in urban mobility

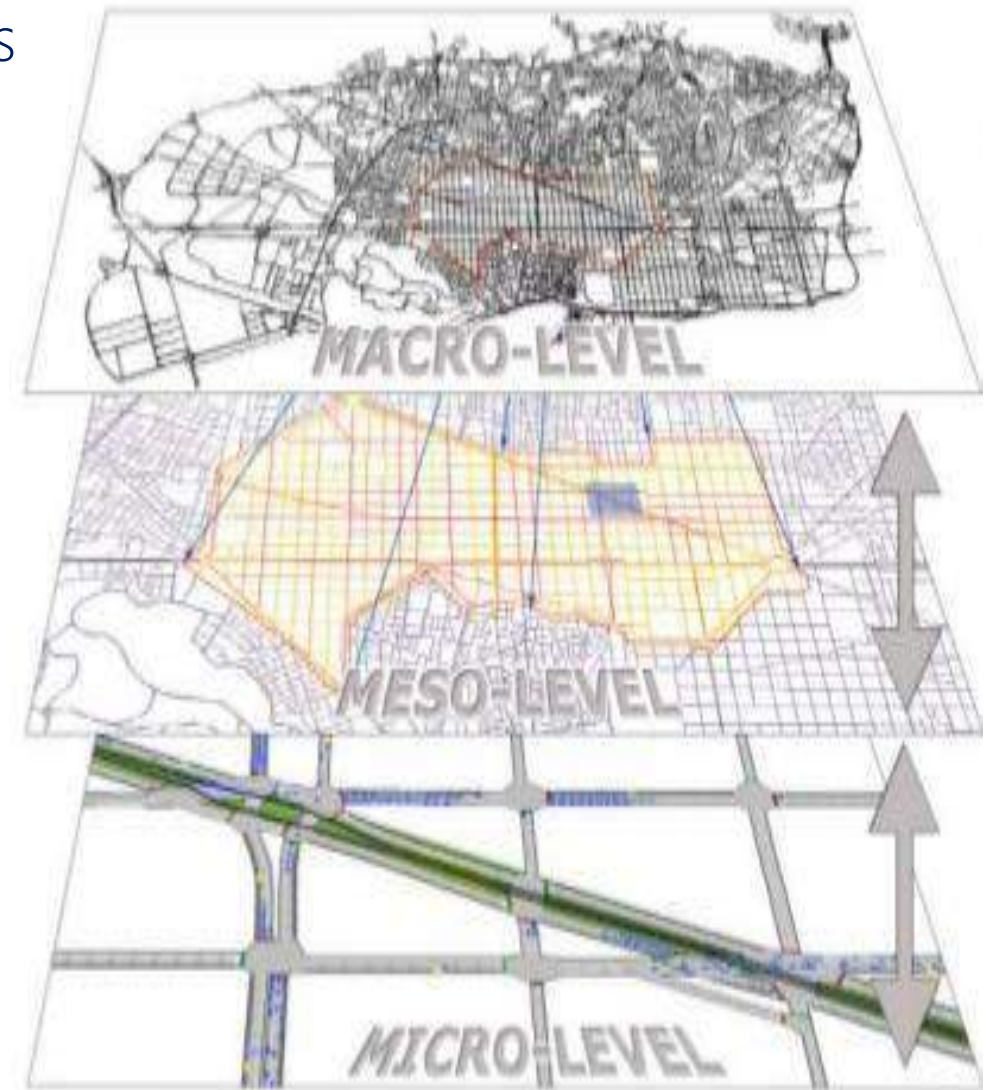
- Comfortable Trips
- Green Trips
- Safe Trips
- Market stimulus (trade, tourism)
- New modern image of the city

- The proposed interventions are part of the new mobility policy of Athens City, and are harmonized with both the under development **Sustainable Urban Mobility Plan** and the related trends in European cities.



NTUA Traffic Simulation Model

- The **Integrated Traffic Simulation Model** for the Athens Network of the NTUA Department of Transportation Planning and Engineering was updated and used for the needs of the study (292 zones of origin-destination)
- An analysis at road network-level (**macro**), axes-level (**meso**) and selected junctions (**micro**) was performed
- The impact assessment was based on **6 selected Performance Indicators** by comparing current situation with a series of alternative scenarios while the best scenario was selected



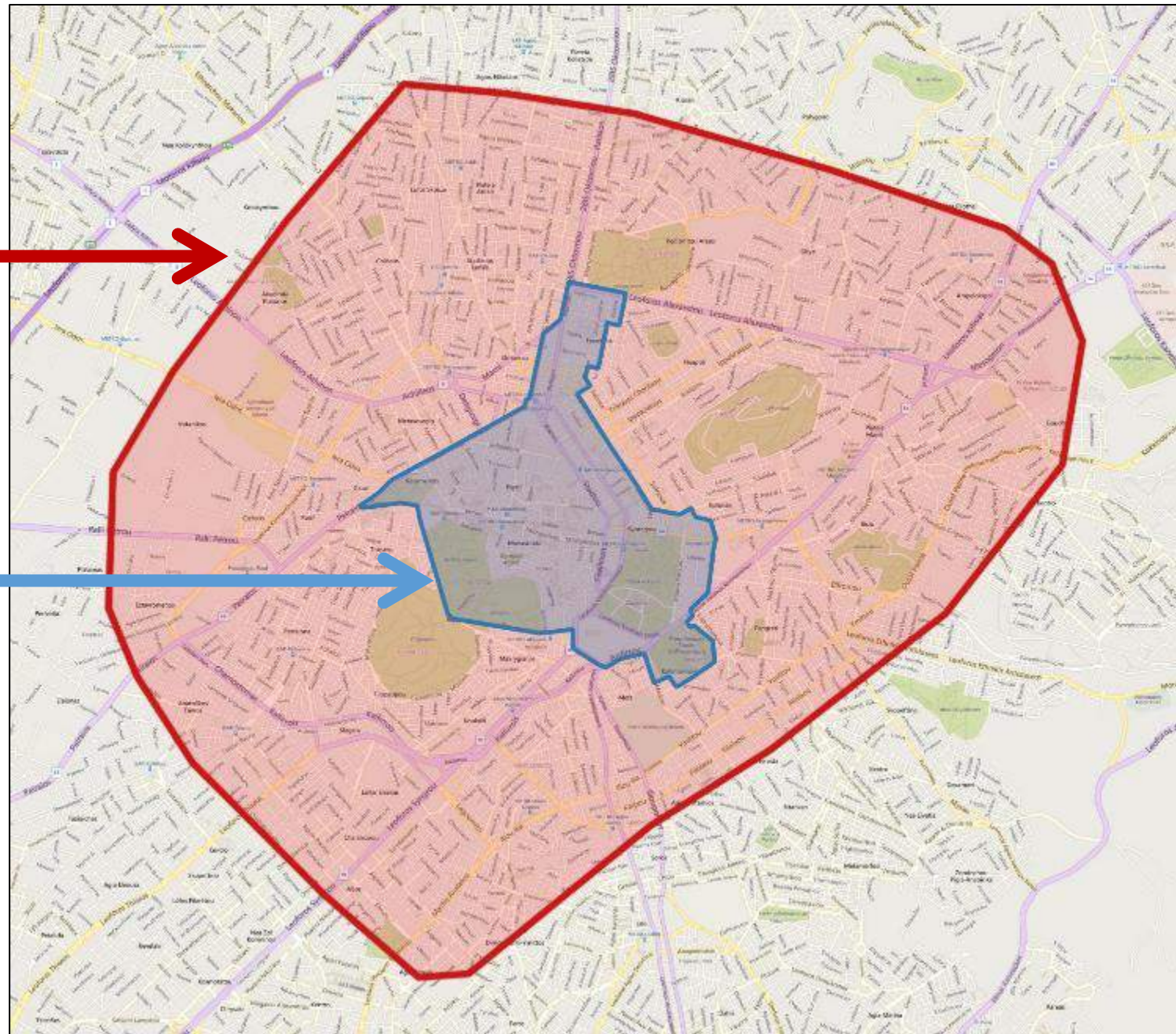
Analysis Areas

Wider
Area
Analysis

Intervention
Area



Scenario B0. All interventions
Scenario B1. Additional signaling upgrade
Scenario B2. Additional modal shift from
passenger cars to Public
Transport (within 6 months): ~7%



Mobility Interventions

a. Increase of Sidewalks in Central Axes

- Panepistimiou
- Syntagma Square

b. Streets free of private vehicles

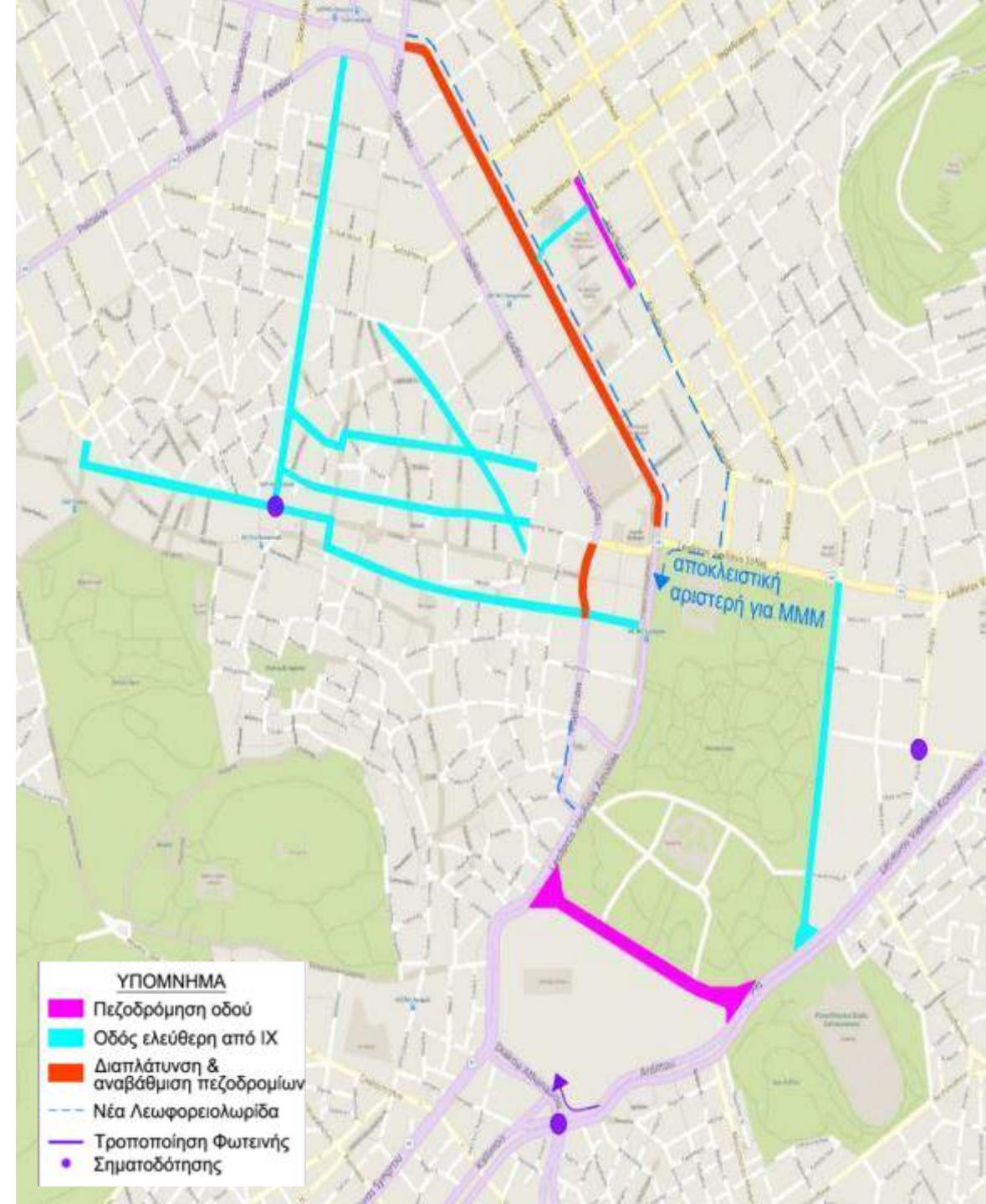
- Olgas Av. - Herodou Attikou
- Athinas - Ermou – Metropoleos

c. Areas free of private vehicles

- Commercial Triangle
- Plaka

d. Promotion of Public Transport and Cycling

- New bus lanes
- Cycle lanes in main axes
- Mixed traffic with low speeds

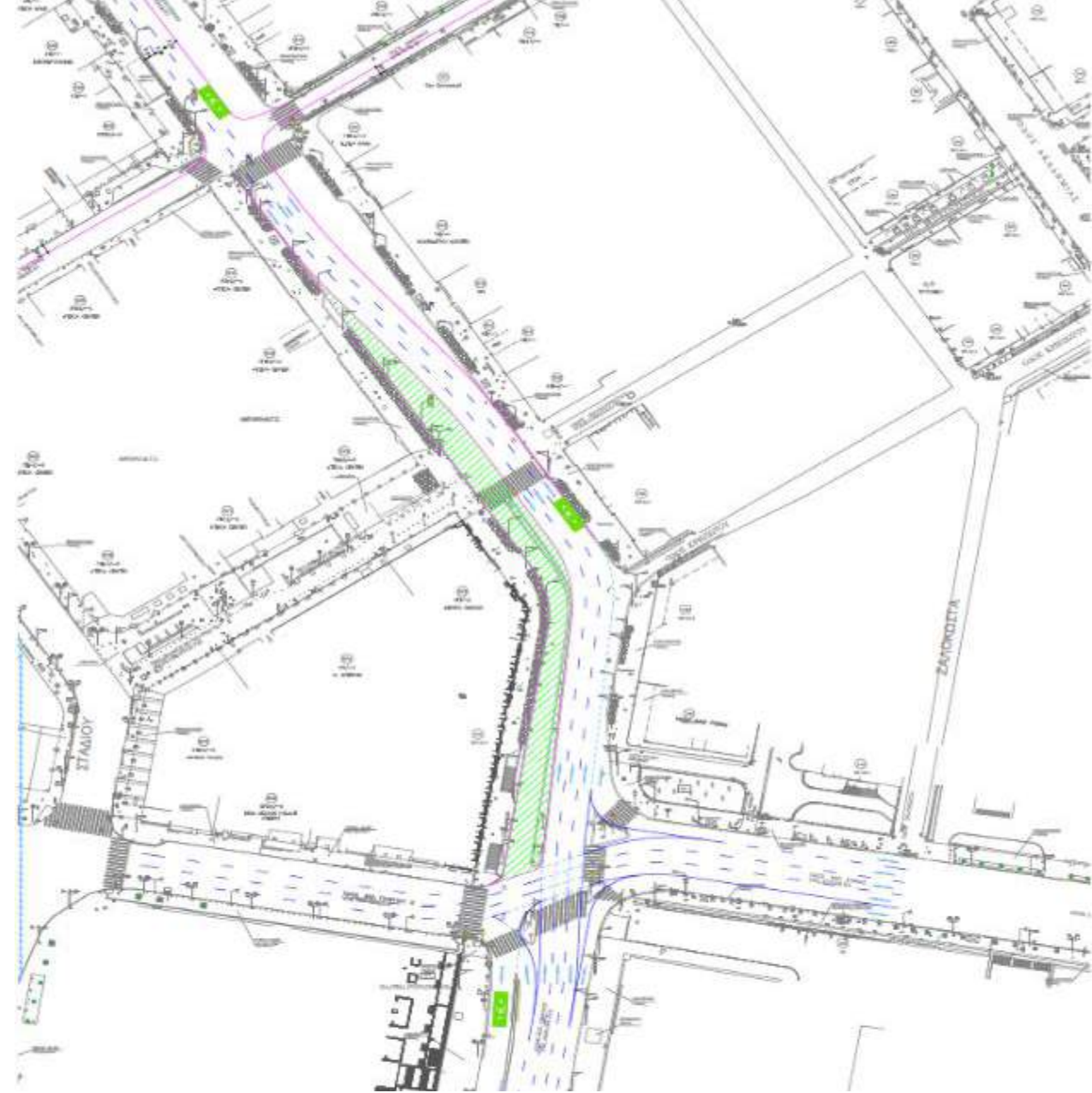


Panepistimiou – Increase of Sidewalk



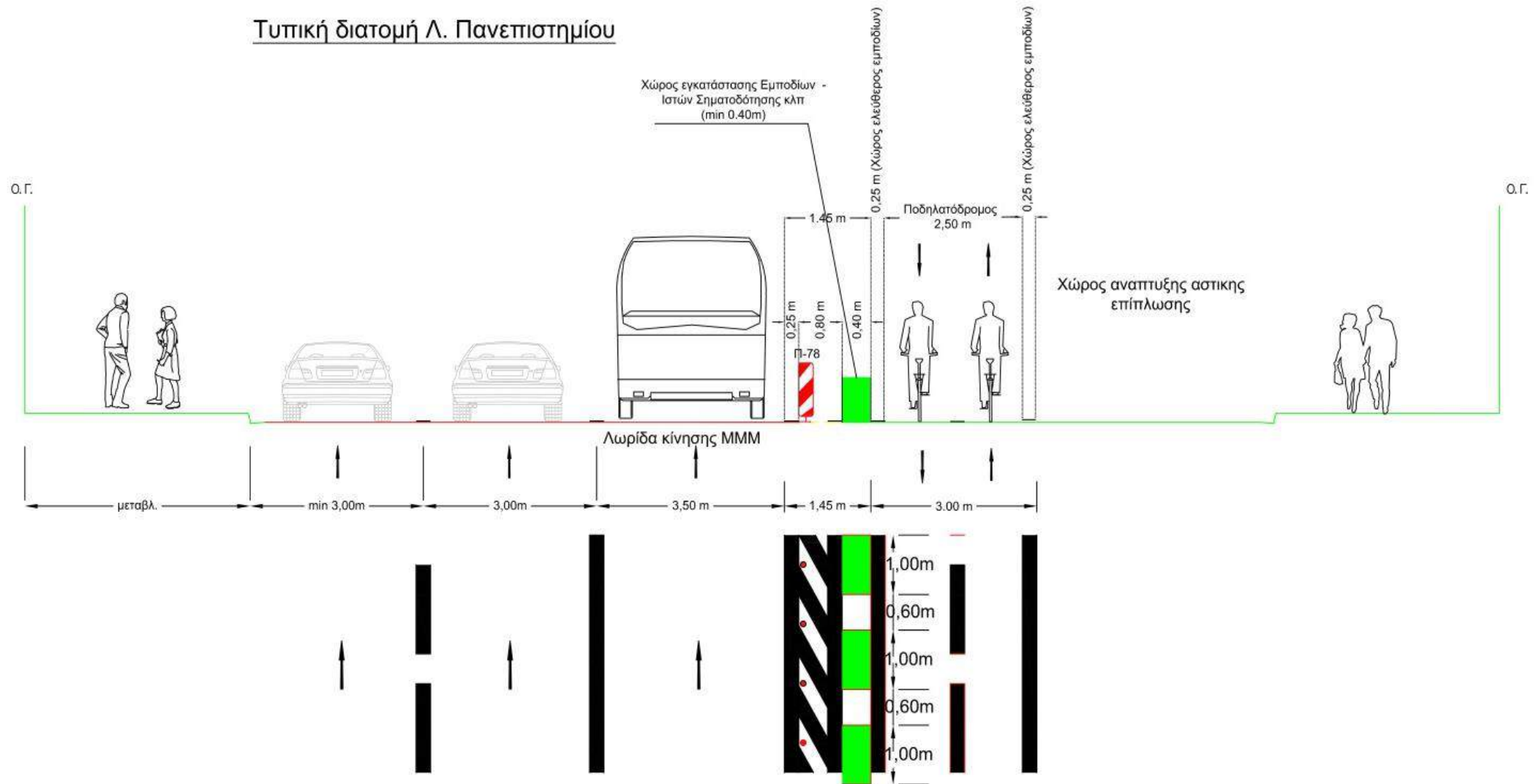
Panepistimiou - Increase of Sidewalk

- **New sidewalk** for the entire length, 3 lanes width
- **2 traffic lanes** for all vehicles
- **1 new** parallel flow **bus lane** (+28 routes)
- **Removal** of reverse flow **bus lane** (-3 routes)



Temporary Regulation at the entrance of Panepistimiou Street from Vas. Sofias Ave. and Amalias Ave.

Panepistimiou Street (indicative cross section)



Syntagma Square – Increase of Sidewalk

- New sidewalk for the entire length, 1-2 lanes width
- 3 traffic lanes for all vehicles
- 1 new bus lane
- 1 bus stop lane



Traffic Arrangements at Commercial Triangle and Plaka (1/2)

- The Commercial Triangle (Omonia, Syntagma, Monastiraki) and the area of Plaka **become free** of traffic and parking (cars and motorcycles) and are **attributed to pedestrians and bicycles**.
- **Bus traffic is allowed** on designated routes
- Only the following vehicle categories have **access** to the roads of the Commercial Triangle:
 - Emergency vehicles
 - Supply chain vehicles
 - Garbage vehicles
 - Utilities vehicles
 - Access to parkings
 - Residents and hotel visitors



Traffic Arrangements at Commercial Triangle and Plaka (2/2)

- Stadiou, Sofokleous and Evripidou Streets **remain open** to traffic while Athinas and Metropoleos Streets are closed.
- **Provision of defined routes** serving:
 - Access to public and pPrivate parking spaces
 - Hotels
 - Residents
- Possibility of entrance by **invitation**
- Access will be controleld at the **first phase** by the Municipal Police and at the **second phase** with automatic digital control (cameras)
- Special supply chain **rules**



Taxi Traffic and Stop Regulations

- Entrance to the Commercial Triangle and Plaka after **invitation** and control, only for disembarkation and boarding of passengers
- Waiting areas in designated **central locations around** the Commercial Triangle and Plaka
- **Right turn** from Othonos to Vas.Amalias (on bus lane)



Cycling Promotion

- **Exclusive movement** of bicycles on selected axes (Olgas - Herodes Atticus, Mitropoleos) and at the Commercial Triangle and Plaka
- Cycle Lanes on **main axes**:
 - Panepistimiou
 - Athinas
 - Ermou
- Safe **mixed traffic conditions** of bicycles and other vehicles with low speeds in the intervention area



Conclusions

- 
- Significant Benefits
 - Brave choices
 - Estimated Impact
 - Emblematic Significance

Significant Benefits

The proposed mobility interventions in Athens :

- will assist **dealing better with the corona crisis** (fewer accidents and hospital relief, alternative modes of transport, social distance for pedestrians)
- will achieve the completion of the **Great Athens Walk** and will assist freeing the **Commercial Triangle and Plaka** from private vehicles
- are introducing new and **sustainable mobility practices** in Athens with substantial priority in public transport, pedestrians and bicycles
- take advantage of the opportunity for their **smooth (trial) implementation** during the period of gradual recovery from the coronary crisis



Brave choices

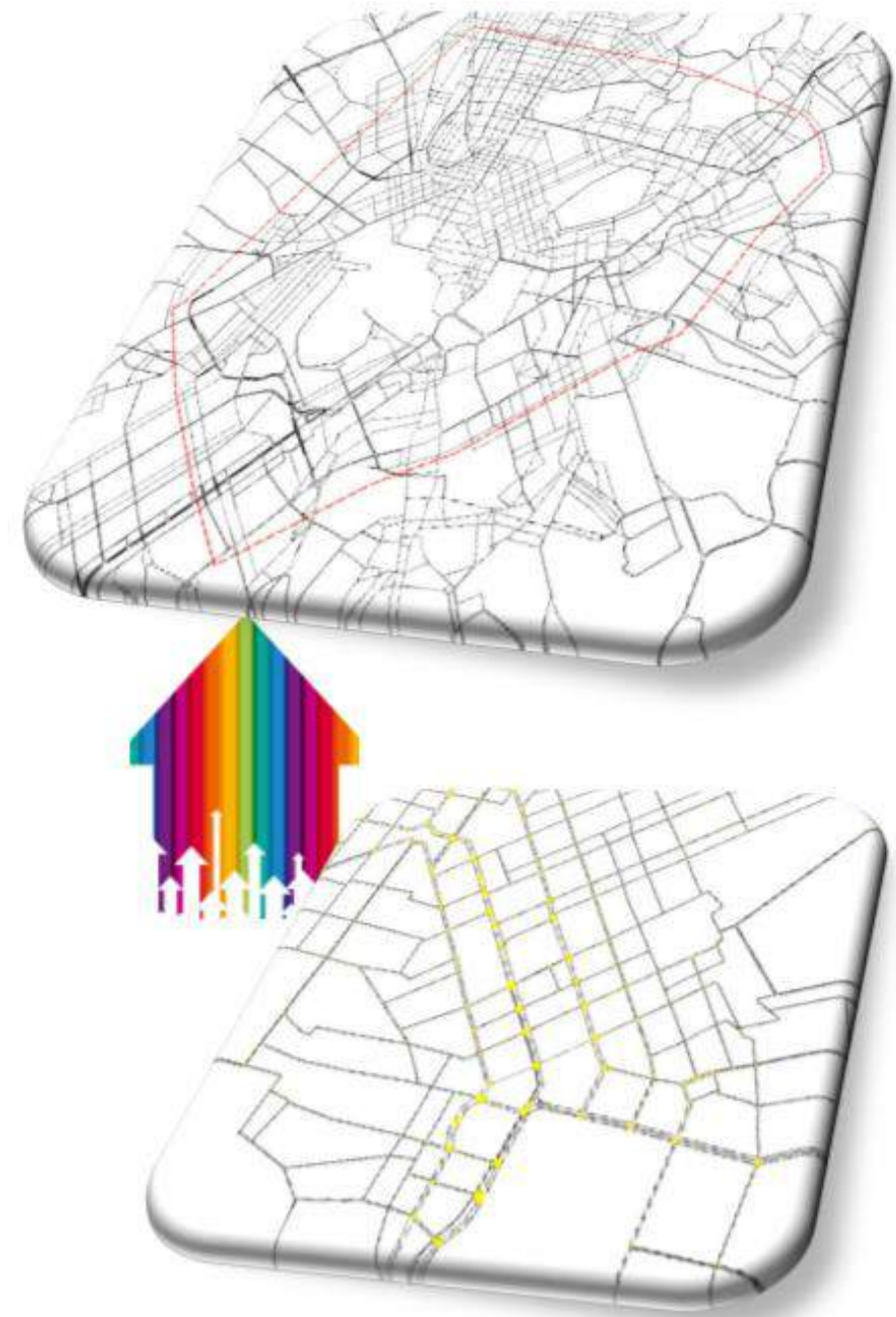
- The new traffic lanes for pedestrians and bicycles in emblematic places of the center of Athens (Syntagma - Panepistimiou) demonstrate the **new mobility policy** of Athens City
- Traffic regulations leading to reduction of average speed at city center are a **fundamental choice of protecting human life** against the reckless and dangerous speed of vehicles
- The completed Great Walk will make Athens even more attractive as a **unique tourist destination**, with a pleasant tour around the places where democracy was born
- The release of the Commercial Triangle and Plaka by private vehicles proves that the city can operate differently **focusing on humans instead of vehicles**



Estimated Impact

Traffic impact results indicate that:

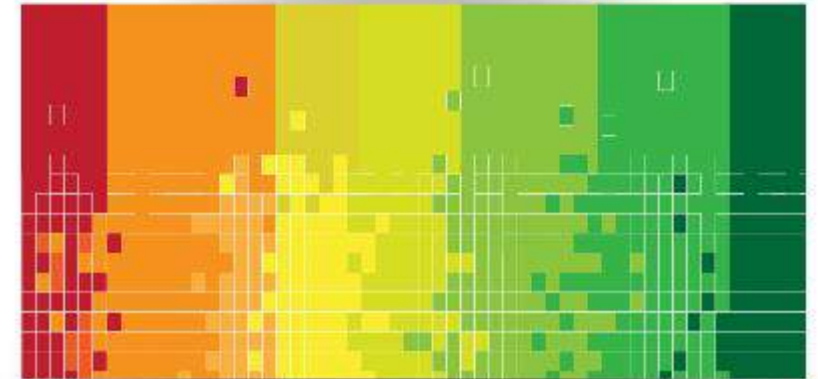
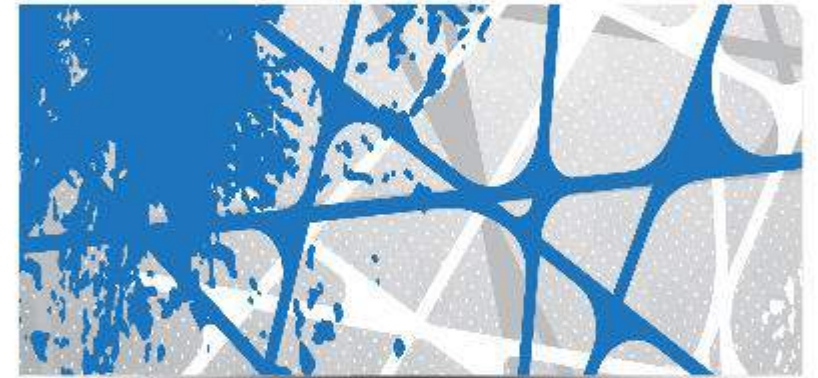
- the **negative impact** of interventions on traffic is **limited** in the area of Syntagma and Panepistimiou, it is also very limited in the Athens ring and negligible outside the ring
- the **positive impact** of interventions is significant for bus users (many faster routes), pedestrians and cyclists and therefore for the **economy and quality of life** in Athens
- traffic in the area is expected to be **re-balanced soon** as car occupants will choose new routes, different hours or different means of transport (estimated increase modal shift to Public Transport of 7%)



Emblematic Significance

The proposed mobility interventions in Athens:

- have significant **social, economic and environmental** benefits
- lead to quite limited and short **traffic impact**
- open emblematically the way, for the implementation of the new policy of **sustainable urban mobility** at Athens City and throughout the wider Athens area





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