Strategic Transport Planning in Athens

P. Papantoniou, G. Yannis
National Technical University of Athens

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

- Vehicle fleet
- Road Infrastructure
- Traffic
- Parking
- Road Safety
- Public Transport
- Supply chain
- Environment
- Intelligent Transportation Systems
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%.
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
➢ 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.

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**Average travel time**

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

<table>
<thead>
<tr>
<th>Route</th>
<th>Average travel time (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kifisou Avenue (from Metamorfosi to Athinon Avenue)</td>
<td>~12  (2008-2019)</td>
</tr>
<tr>
<td>Katehaki (from Kaisariani to Mesogeion Avenue)</td>
<td>~10  (2008-2019)</td>
</tr>
<tr>
<td>Mesogeion Avenue (from Stavros to Katehaki)</td>
<td>~9   (2008-2019)</td>
</tr>
<tr>
<td>Mesogeion Avenue (from Katehaki to Syntagma)</td>
<td>~8   (2008-2019)</td>
</tr>
<tr>
<td>Kifisias Avenue (from Katehaki to Syntagma)</td>
<td>~6   (2008-2019)</td>
</tr>
</tbody>
</table>
Traffic (2/3)

Average traffic variation per hour
Source: Traffic Management Center (TMC), Data processing: NTUA

Average driving speed (km/h)
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
➢ 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.
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.
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.
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).
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)

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

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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
➢ During 2018, the highest NO\textsubscript{2} 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

Public Transport
OASA telematics

Road Infrastructure
Crosswalk

Parkaround
Cityzen
Parkguru

Pame Stasi
Athens Transportation
Moovit
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
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

<table>
<thead>
<tr>
<th>Road Accidents</th>
<th>March</th>
<th>April</th>
<th>Change</th>
<th>March</th>
<th>April</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2019</td>
<td>2020</td>
<td></td>
<td>2019</td>
<td>2020</td>
<td></td>
</tr>
<tr>
<td><strong>Fatal</strong></td>
<td></td>
<td></td>
<td>-53%</td>
<td></td>
<td></td>
<td>-87%</td>
</tr>
<tr>
<td><strong>With serious injuries</strong></td>
<td>13</td>
<td>10</td>
<td>-23%</td>
<td>14</td>
<td>6</td>
<td>-57%</td>
</tr>
<tr>
<td><strong>With light injuries</strong></td>
<td>432</td>
<td>275</td>
<td>-36%</td>
<td>442</td>
<td>164</td>
<td>-63%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>460</td>
<td>292</td>
<td>-37%</td>
<td>471</td>
<td>172</td>
<td>-63%</td>
</tr>
</tbody>
</table>

Source: Attica Traffic Police
### Change in Traffic Parameters

#### Change of Traffic Parameters compared to February

<table>
<thead>
<tr>
<th>Parameter</th>
<th>March</th>
<th>April</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle traffic</td>
<td>-46%</td>
<td>-73%</td>
</tr>
<tr>
<td>Pedestrian traffic</td>
<td>-43%</td>
<td>-73%</td>
</tr>
<tr>
<td>Speeding</td>
<td>+6%</td>
<td>+5%</td>
</tr>
<tr>
<td>Average Speed</td>
<td>+6%</td>
<td>+11%</td>
</tr>
<tr>
<td>Casualty Road Accidents</td>
<td>-43%</td>
<td>-67%</td>
</tr>
</tbody>
</table>
Mobility Interventions

➢ 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.
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.
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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 private parking spaces
  • Hotels
  • Residents

➢ Possibility of entrance by **invitation**

➢ Access will be controlled 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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