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Pilot Assessment of Athens Great Walk

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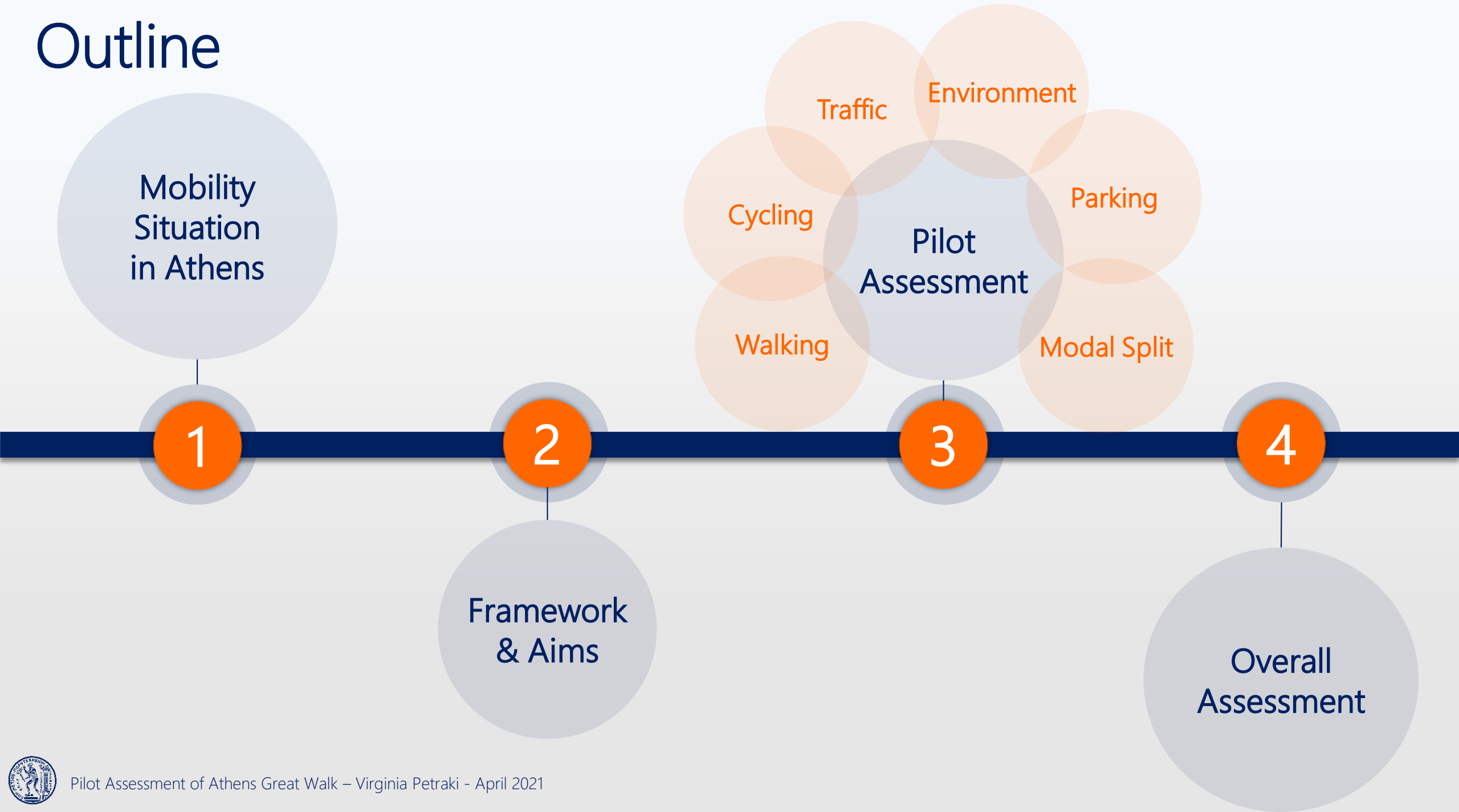
Outline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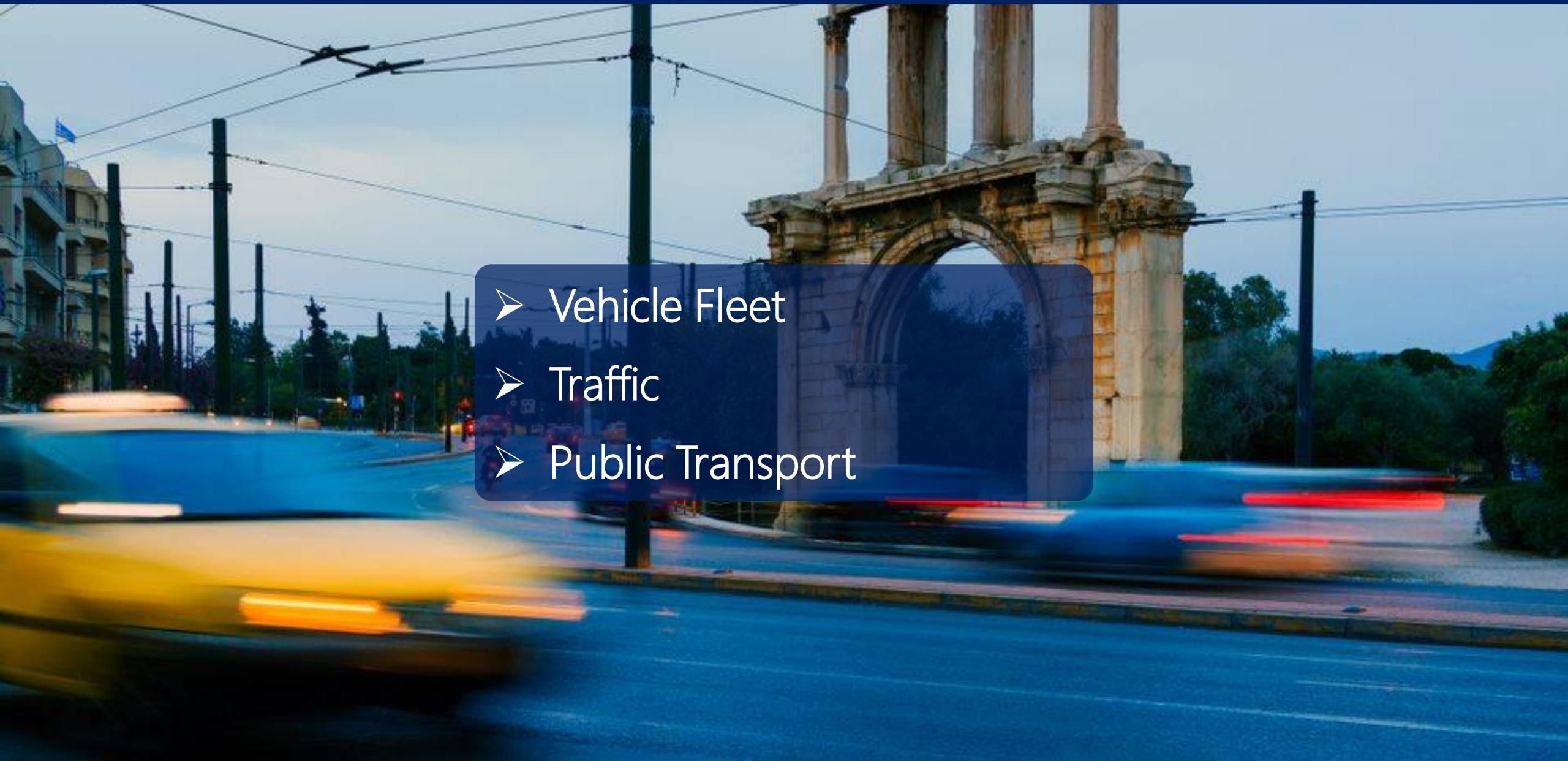
Overall Assessment

Current Mobility Situation in Athens

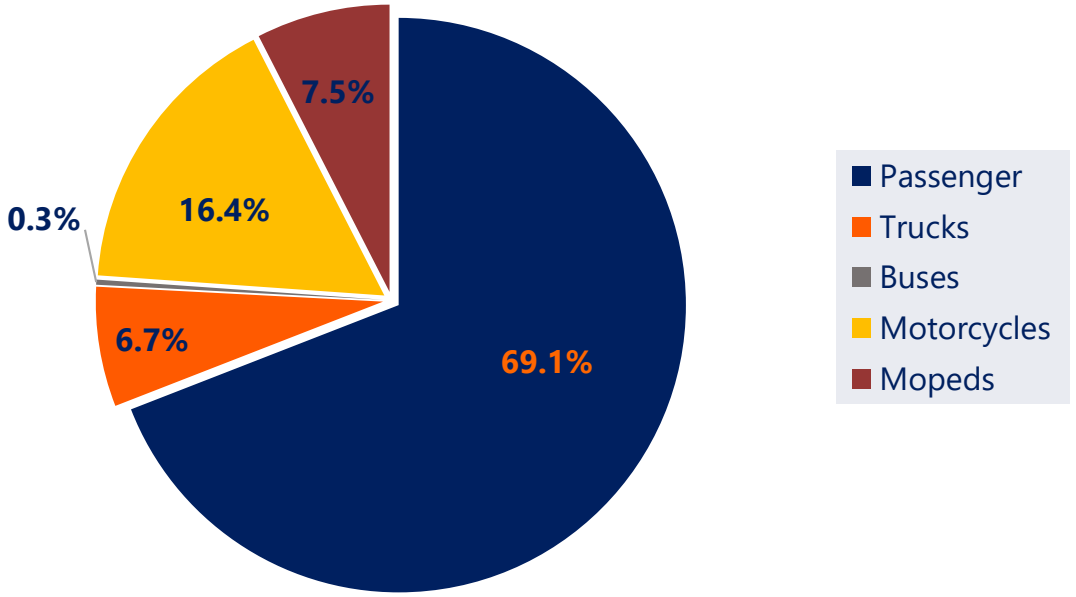


- Vehicle Fleet
- Traffic
- Public Transport

Vehicle Fleet

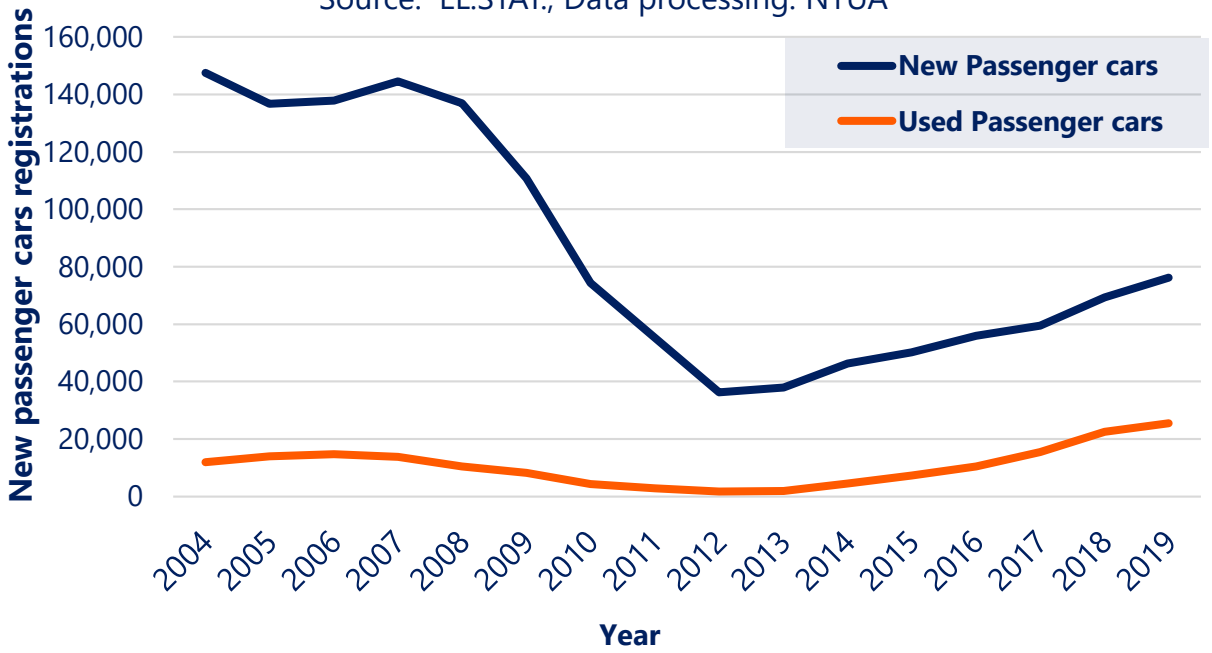
Vehicle fleet by transport mode

Source: EL.STAT., Data processing: NTUA



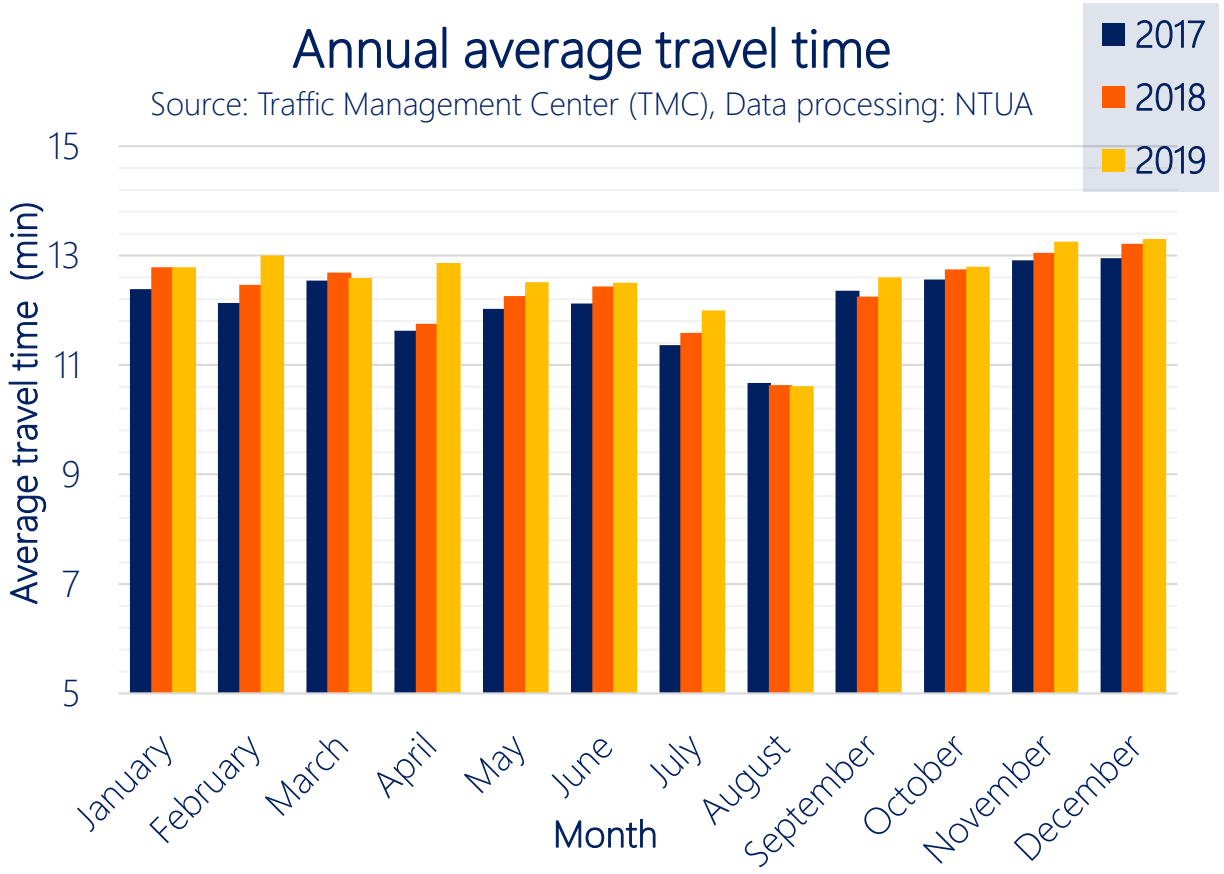
New passenger cars registrations

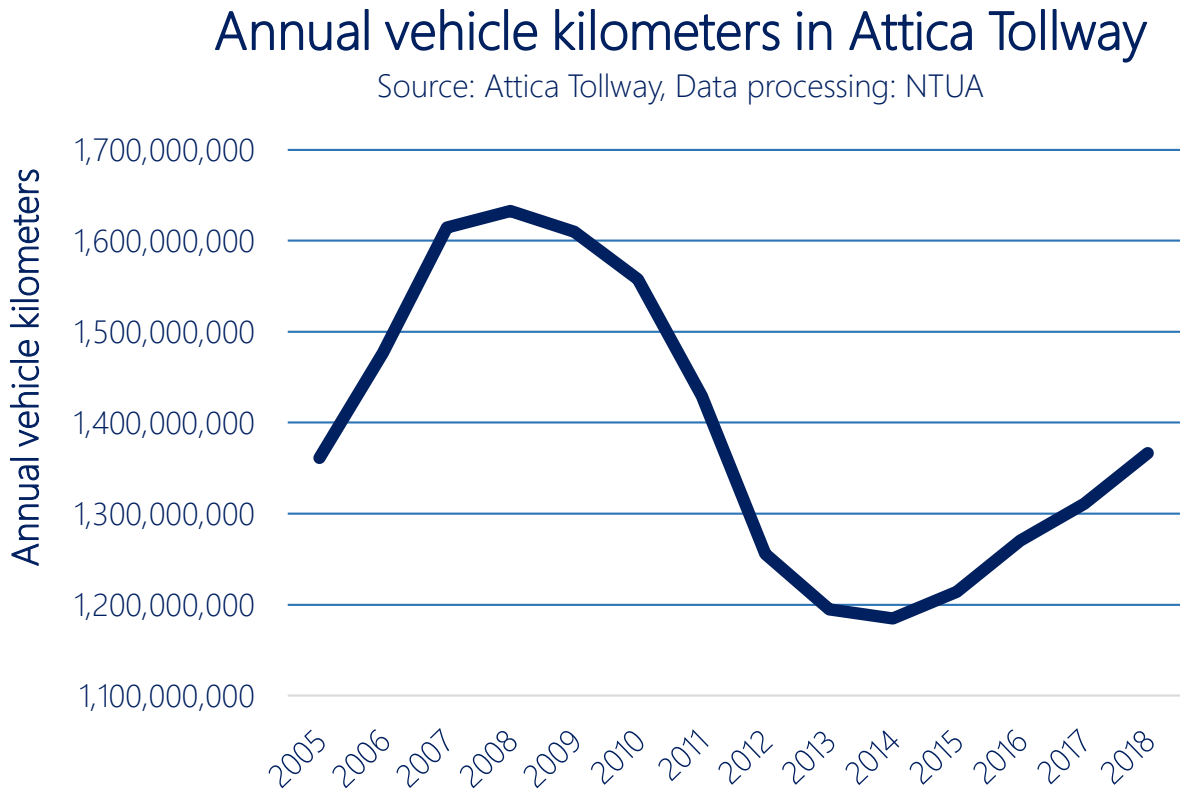
Source: EL.STAT., Data processing: NTUA



- Passenger cars constitute 69% of the total vehicle fleet, while two-wheelers constitute 24%
- There are approximately 14.000 taxis operating in Athens
- During 2009-2013, a reduction of new passenger cars and motorcycles registrations identified
- During 2019, Public Transport fleet consisted of 1.725 thermal and 291 electric buses
- Since early 2019, micromobility services are operating in Athens

Traffic



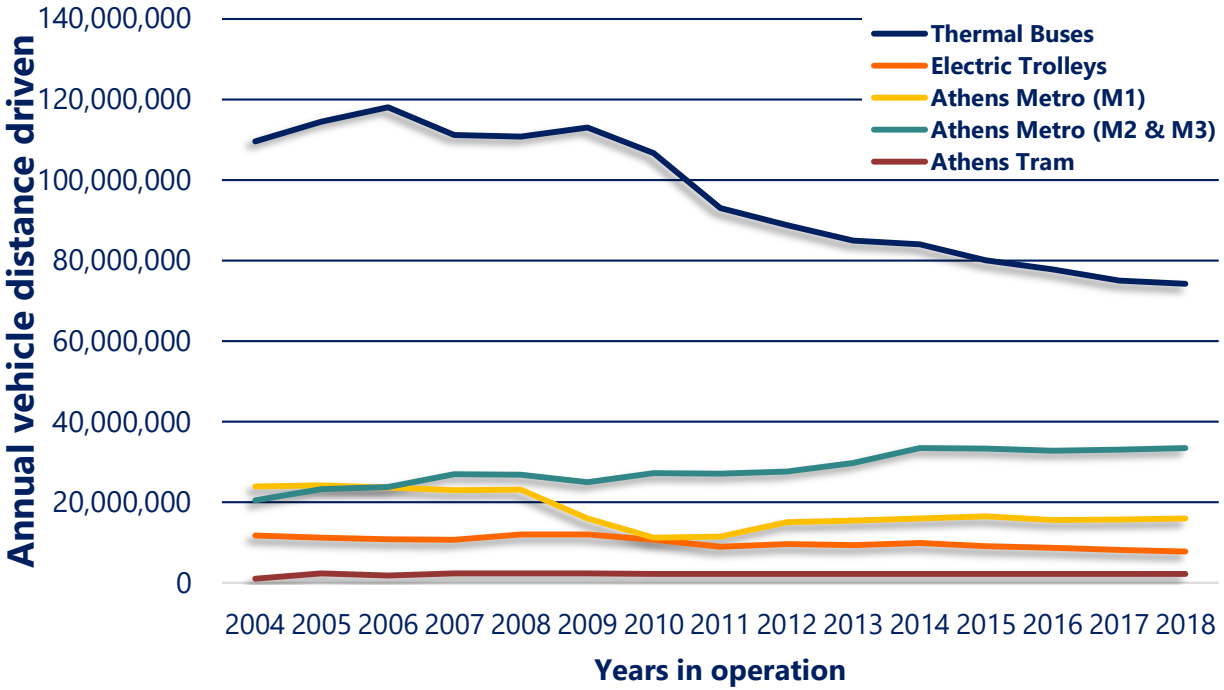


- The higher average travel time is in November and December, while the lower in August
- An increase in average travel time was identified in 2019, compared to the last three years
- A remarkable increase in annual vehicle kilometers in Attica Tollway was found during 2014-2018

Public Transport

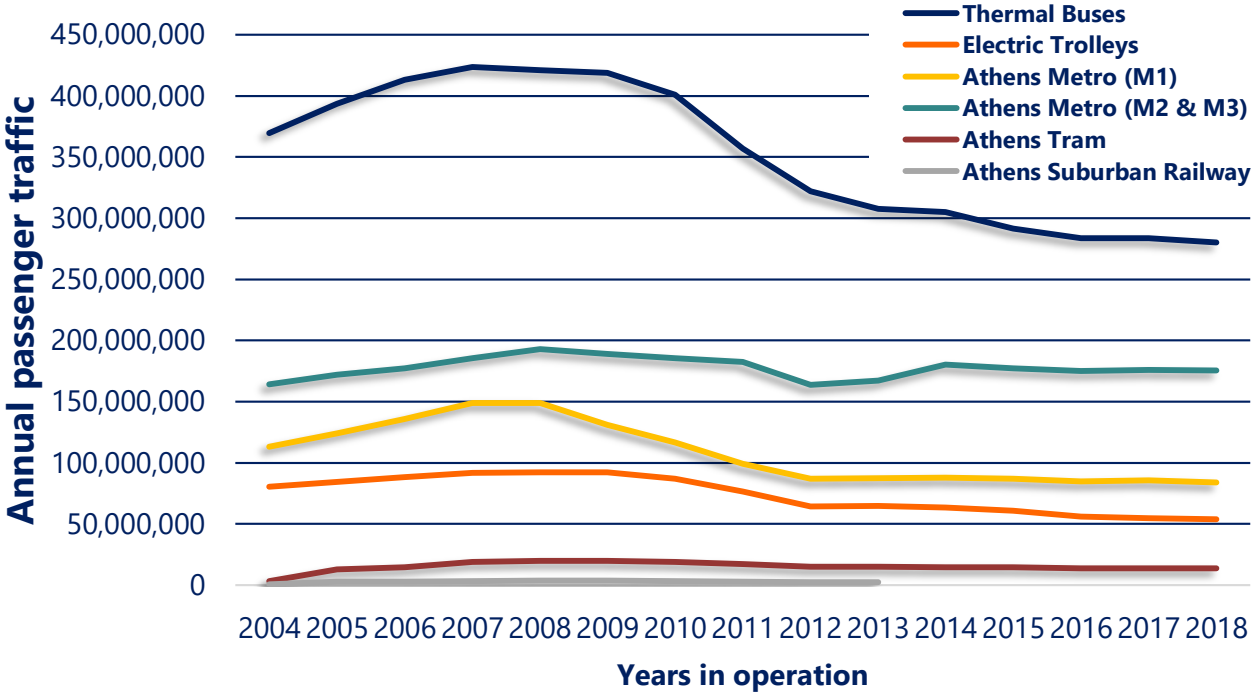
Evolution of annual vehicle distance driven of Mass Transit System

Source: OASA, Data processing: NTUA



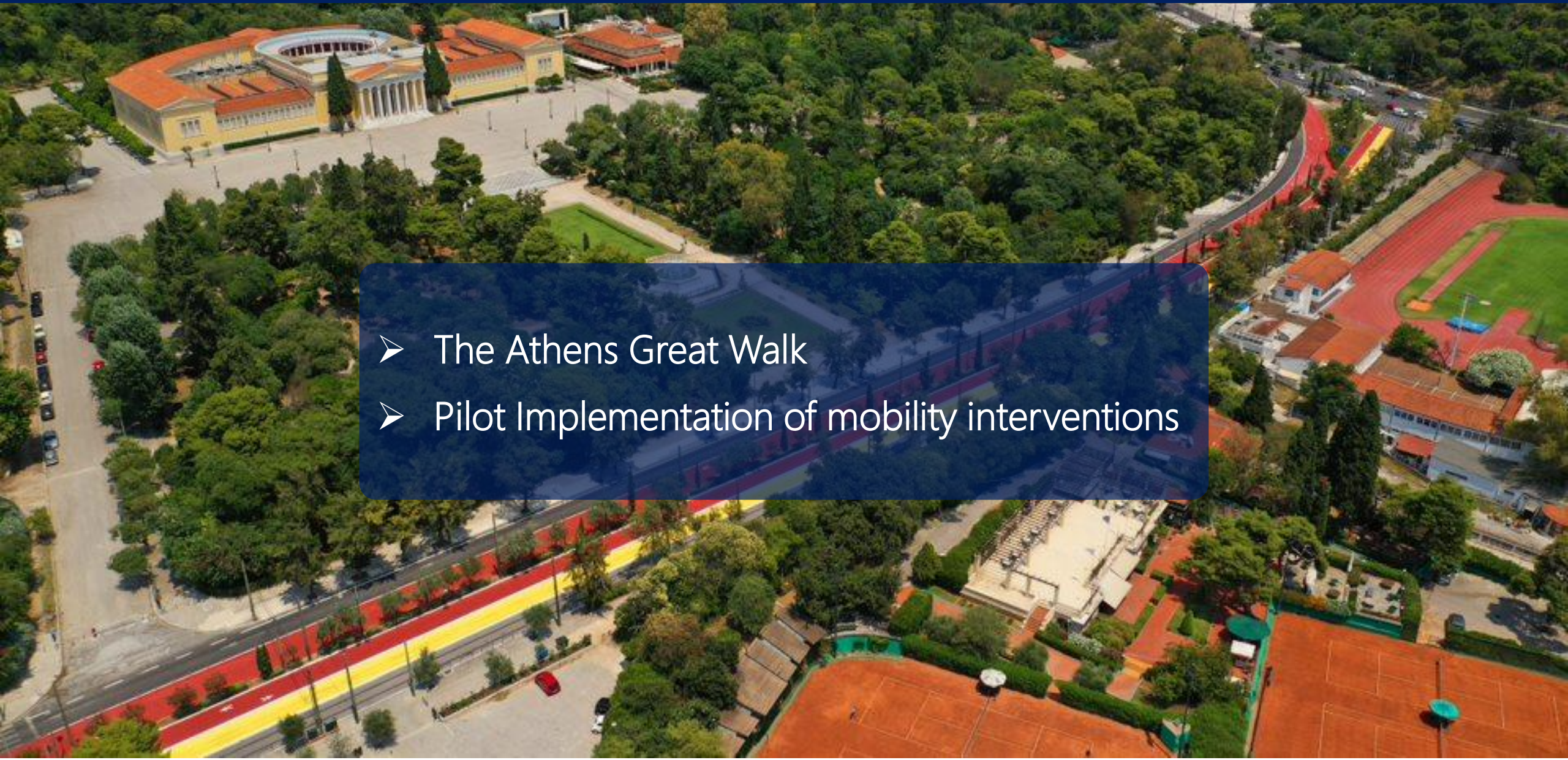
Evolution of annual passenger traffic of Mass Transit System

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

Framework & Aims
of Athens Great Walk Pilot Implementation



- The Athens Great Walk
- Pilot Implementation of mobility interventions

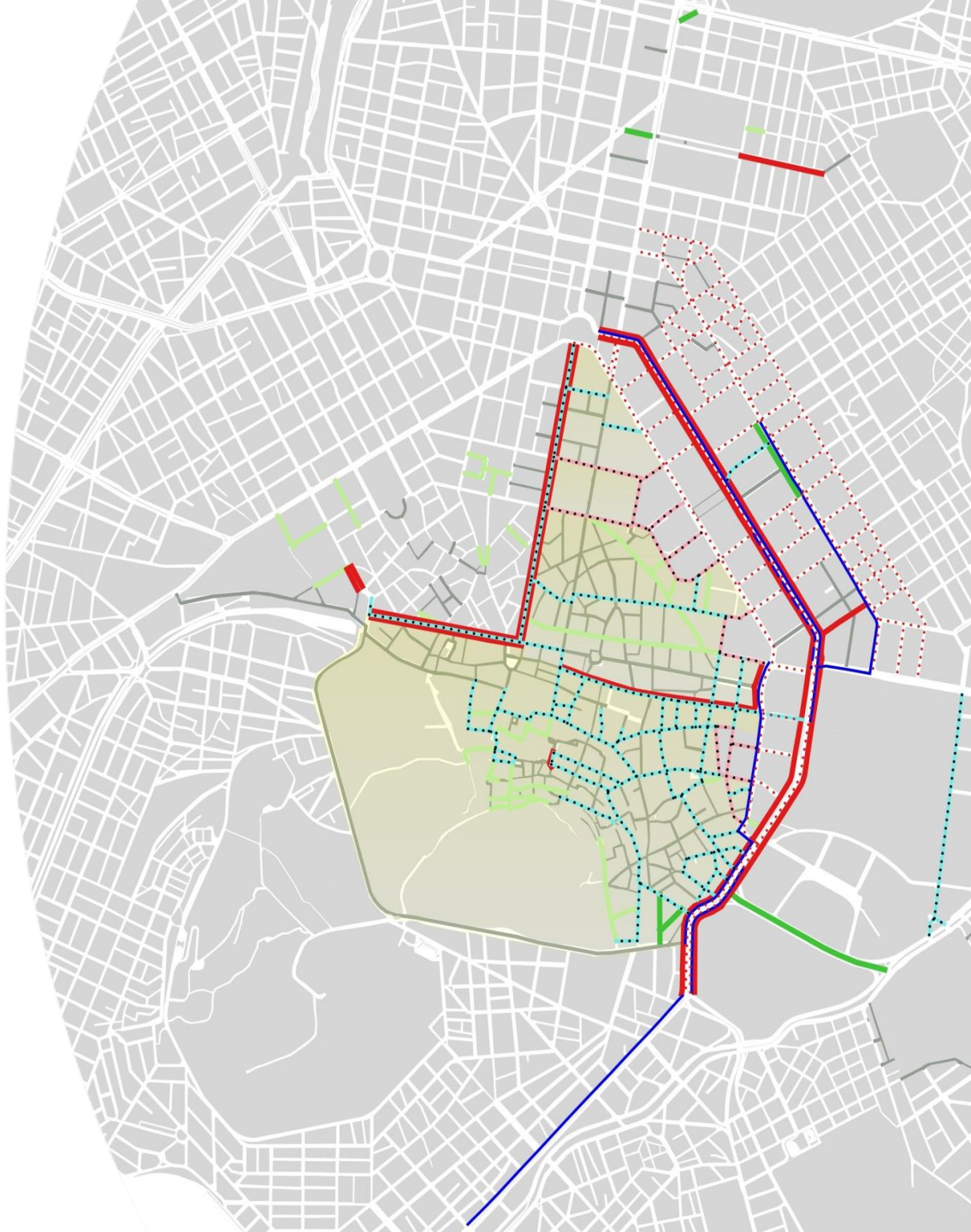
The Athens Great Walk

- Since Autumn of 2019, a series of traffic and parking interventions in the center of Athens has started to be examined as part of:
  - the **New Special Urban Plan** of Athens city center and
  - the **New Policy of Sustainable Urban Mobility** of the Municipality of Athens and **Upgrading the Public Space** in Athens
- The new mobility interventions consist a major urban intervention called as the Athens Great Walk
- The ultimate purpose of interventions is the new quality of urban mobility through:
  - Comfortable Trips
  - Green Trips
  - Safe Trips

  supporting the market of Athens (trade, tourism)

Mobility Interventions

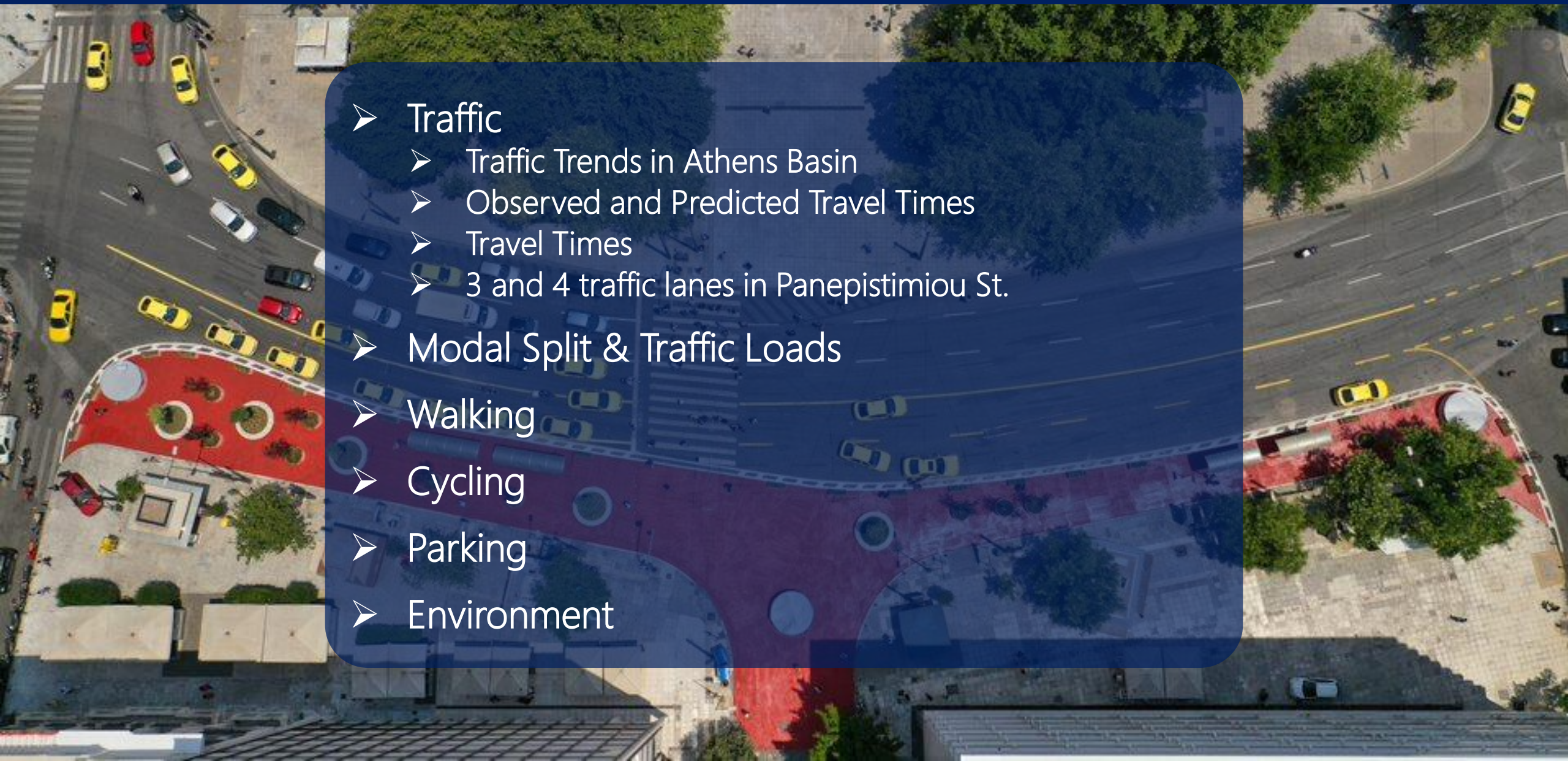
- Pedestrianisation
- Increase of Sidewalks in central road axes
- Streets free of passenger cars and motorcycles
- Areas free of passenger cars and motorcycles (Commercial Triangle, Plaka)
- Promotion of Public Transport and Cycling
- Speed Limit Reduction
- Improving Street Light Signaling
- Parking Policy



Pilot Implementation

- The pilot implementation is often used to evaluate in practice the planned interventions obtaining the necessary adjustments before the final studies
- In June 2020, it was decided the pilot implementation of a subset of mobility interventions within the framework of Athens Great Walk, following the example of several cities worldwide:
  - to support alternative transport modes considering the pandemic,
  - to assess the mobility interventions in practice,
  - to start public consultation and dialogue considering projects and not plans
- A series of interventions were implemented on a pilot basis:
  - Increase of sidewalks in Panepistimiou St., Syntagma Sq. and Ermou St.
  - Priority streets for pedestrians and cyclists
  - Exclusive bus and trolley lanes
  - Motorcycle, taxi and disabled parking management

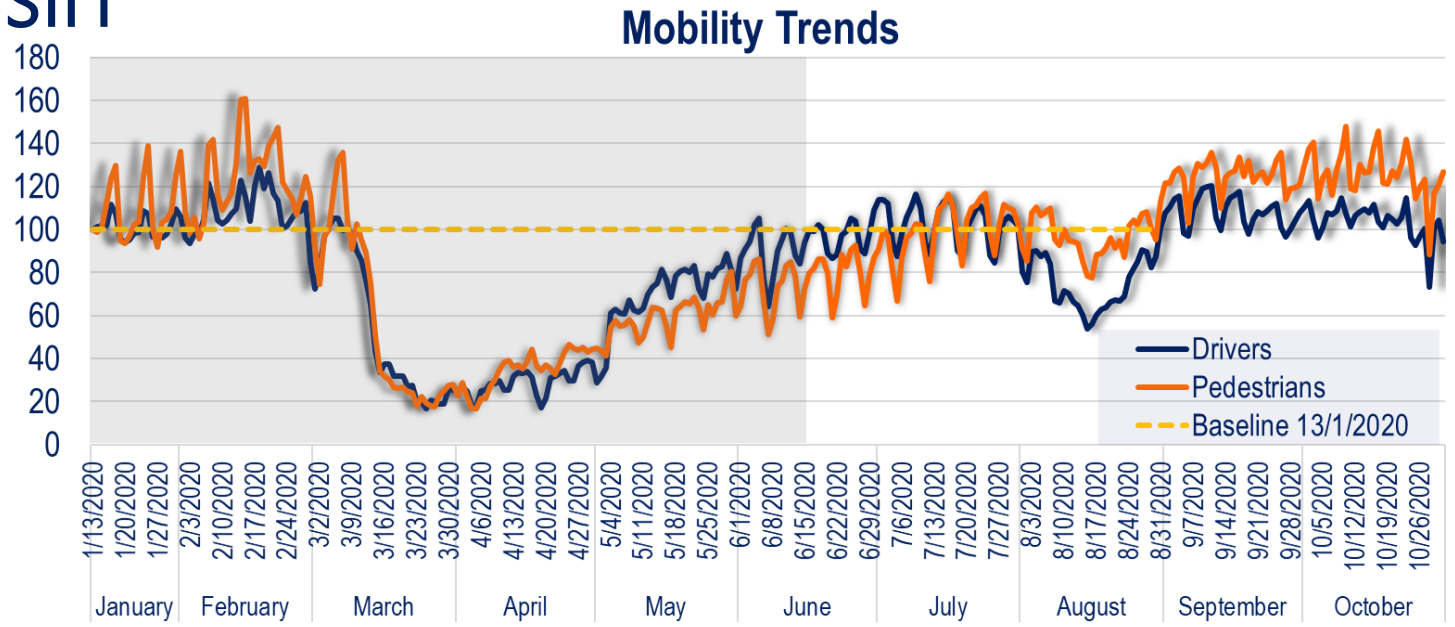
Pilot Assessment

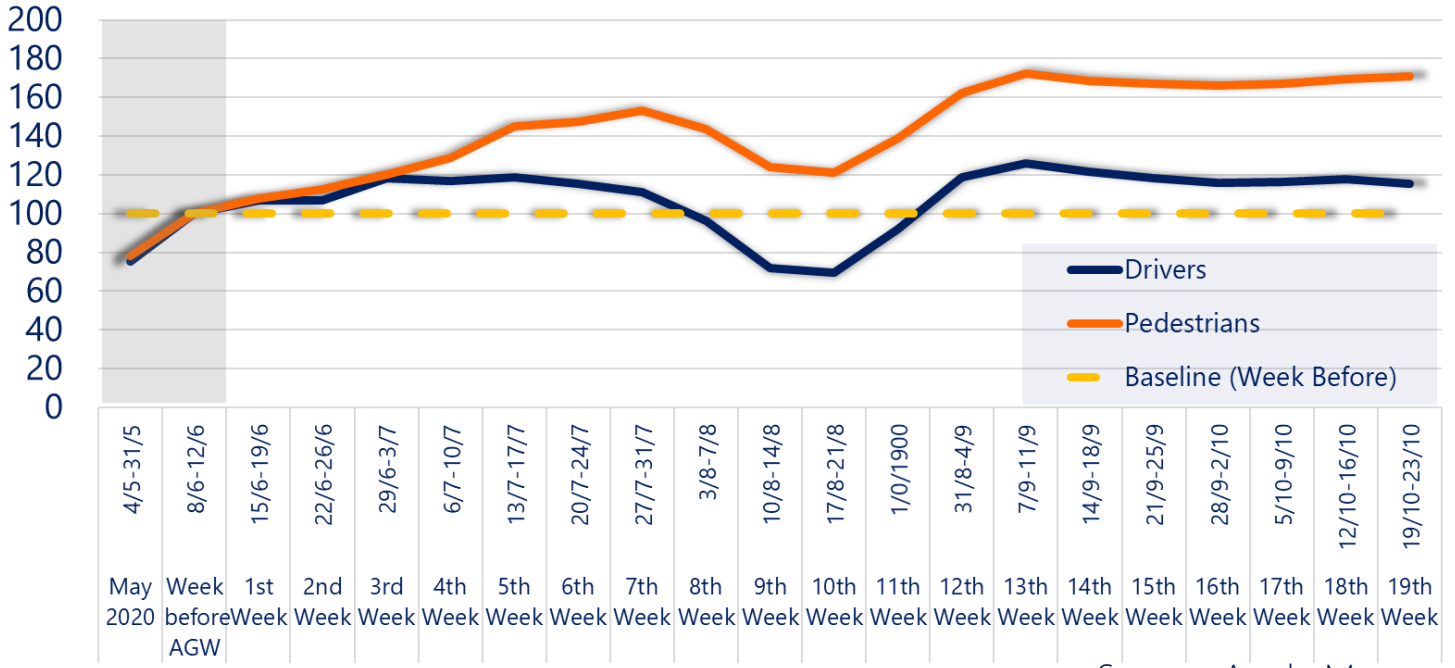


- Traffic
  - Traffic Trends in Athens Basin
  - Observed and Predicted Travel Times
  - Travel Times
  - 3 and 4 traffic lanes in Panepistimiou St.
- Modal Split & Traffic Loads
- Walking
- Cycling
- Parking
- Environment

Traffic Trends on Athens Basin

- Drivers and pedestrians mobility in Athens decreases significantly during the first restriction on mobility due to the pandemic (February, March, April)
- There is a recovery on May and June close to the typical levels for the respective time period
- From the 2nd week of June 2020 and for the next 7 weeks, drivers and pedestrians mobility is gradually increasing
- On September and October the traffic reaches the traffic level of the first two months of 2020, as well as the typical levels for the season





Source: Apple Maps

Comparison of Observed and Predicted Travel Times

- The observed travel times confirm the predictions of the traffic simulation model of NTUA, as presented in the relevant table (with an exception the Vas. Amalias Av.)

	Model Predictions			Observations			Difference
Route	**Existing A**	**Scenario 3 traffic lanes**	**Dif.**	**Before AGW**	**1st-7th week**	**Dif.**	**Observations - Predictions**
Central Road Axes							
Panepistimiou (from Vas. Sofias to Patision)	**2.9**	**5.1**	**2.2**	**2.7**	**3.9**	**1.2**	**-1.1**
Akadimias (from Patision to Vas.Sofias)	4.9	4.9	0.0	4.9	4.4	**-0.5**	-0.5
Solonos (from Vas. Sofias to Patision)	**4.4**	**5.1**	**0.7**	**7.1**	**7.2**	**0.1**	**-0.6**
Stadiou (from Aiolou to Vas. Georgiou)	3.3	3.7	0.4	2.7	2.6	**-0.1**	-0.5
Entry Road Axes							
Vas. Sofias (from Vas. Konstantinou to Panepistimiou)	**3.4**	**3.1**	**-0.4**	**4.6**	**4.4**	**-0.2**	**0.2**
Vas. Sofias (from Kifisias to Vas. Konstantinou)	5.5	5.0	-0.5	4.3	4.1	**-0.1**	0.4
Vas. Amalias (from Ath. Diakou to Panepistimiou)	**1.9**	**2.0**	**0.1**	**3.6**	**5.2**	**1.6**	**1.5**
Patision (from Alexandras to Stadiou)	2.7	2.6	-0.1	3.0	3.2	**0.1**	0.2
Exit Road Axes							
Vas. Sofias (from Panepistimiou to Vas. Konstantinou)	**4.4**	**4.9**	**0.5**	**5.2**	**4.4**	**-0.8**	**-1.3**
Vas. Sofias (from Vas. Konstantinou to Kifisias)	4.4	4.3	-0.1	5.7	5.2	**-0.5**	-0.4
Vas Amalias (from Filellinon to Ath. Diakou)	1.6	2.2	0.6	1.3	1.4	**0.1**	-0.5
Filellinon (from Vas. Georgiou to Vas. Amalias)	1.8	3.2	1.5	1.3	1.4	**0.1**	-1.4
Ring Road Axes							
Vas. Konstantinou (from Arditou/ Ath. Diakou to Vas. Sofias)	**2.0**	**1.9**	**-0.1**	**6.7**	**7.0**	**0.2**	**0.3**
Vas. Konstantinou (from Vas. Sofias to Arditou/ Ath. Diakou)	3.8	3.9	0.0	5.6	4.8	**-0.8**	-0.9
Alexandras (from Kifisias to Patision)	**9.0**	**9.6**	**0.5**	**7.8**	**9.0**	**1.2**	**0.6**
Alexandras (from Patision to Kifisias)	7.1	7.2	0.1	9.2	9.8	**0.7**	0.6

Source: Google Directions API

Travel Times

Central Road Axes

- Expected traffic congestion in Panepistimiou St. that stabilized after the first week
- Limited traffic variation in the other central road axes

Entry Road Axes

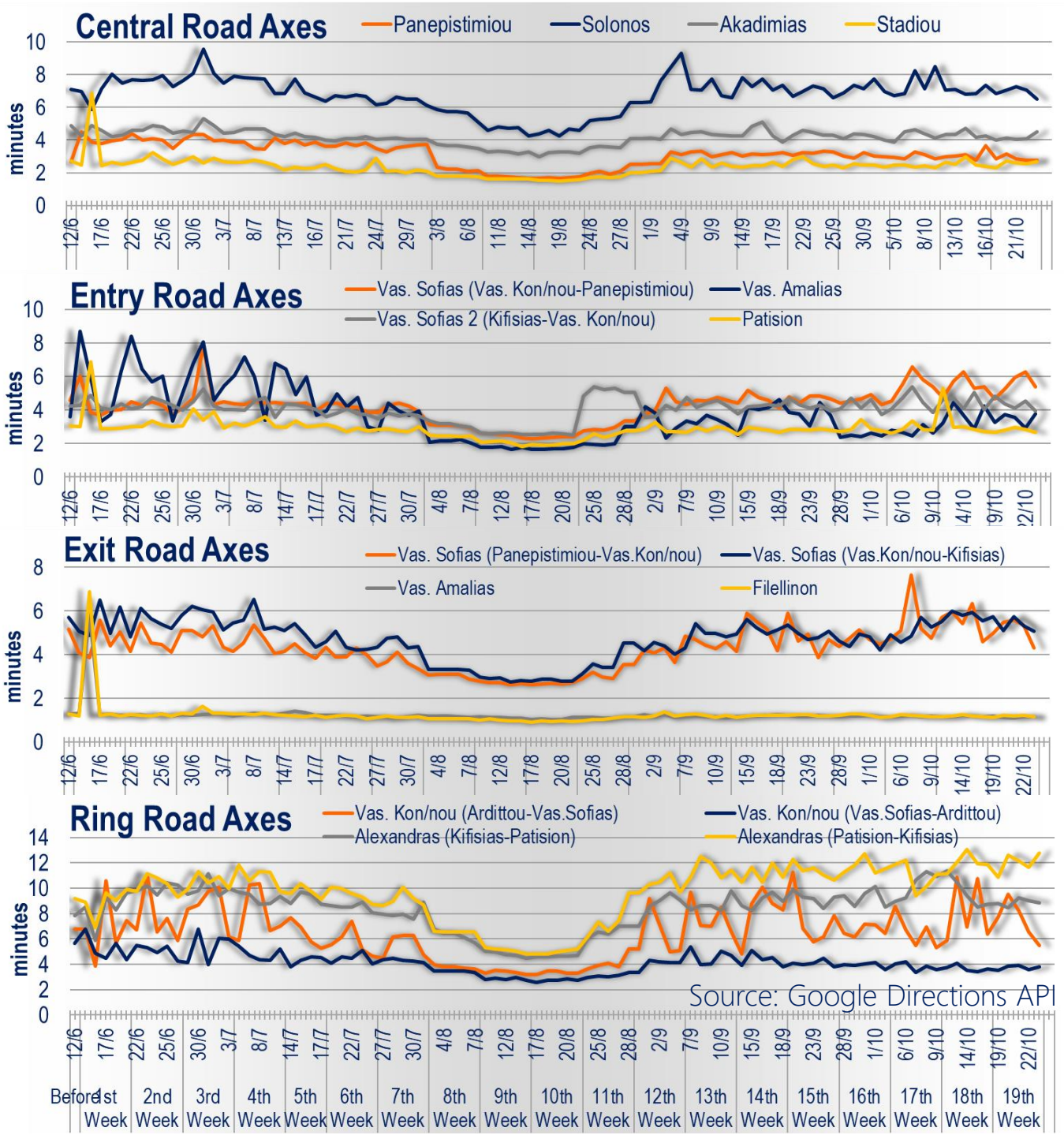
- Similar traffic conditions in the entry road axes comparing to the period before the pilot implementation of mobility interventions
- Except from Vas. Amalias Av. (Ath. Diakou-Panepistimiou), which presents traffic congestion especially during the first weeks

Exit Road Axes

- The travel times do not change significantly after the pilot implementation of interventions

Ring Road Axes

- There is a traffic congestion during the morning peak hours especially on the two routes of Alexandras Av.



Traffic Comparison on Panepistimiou St. during the operation of 3 and 4 traffic lanes

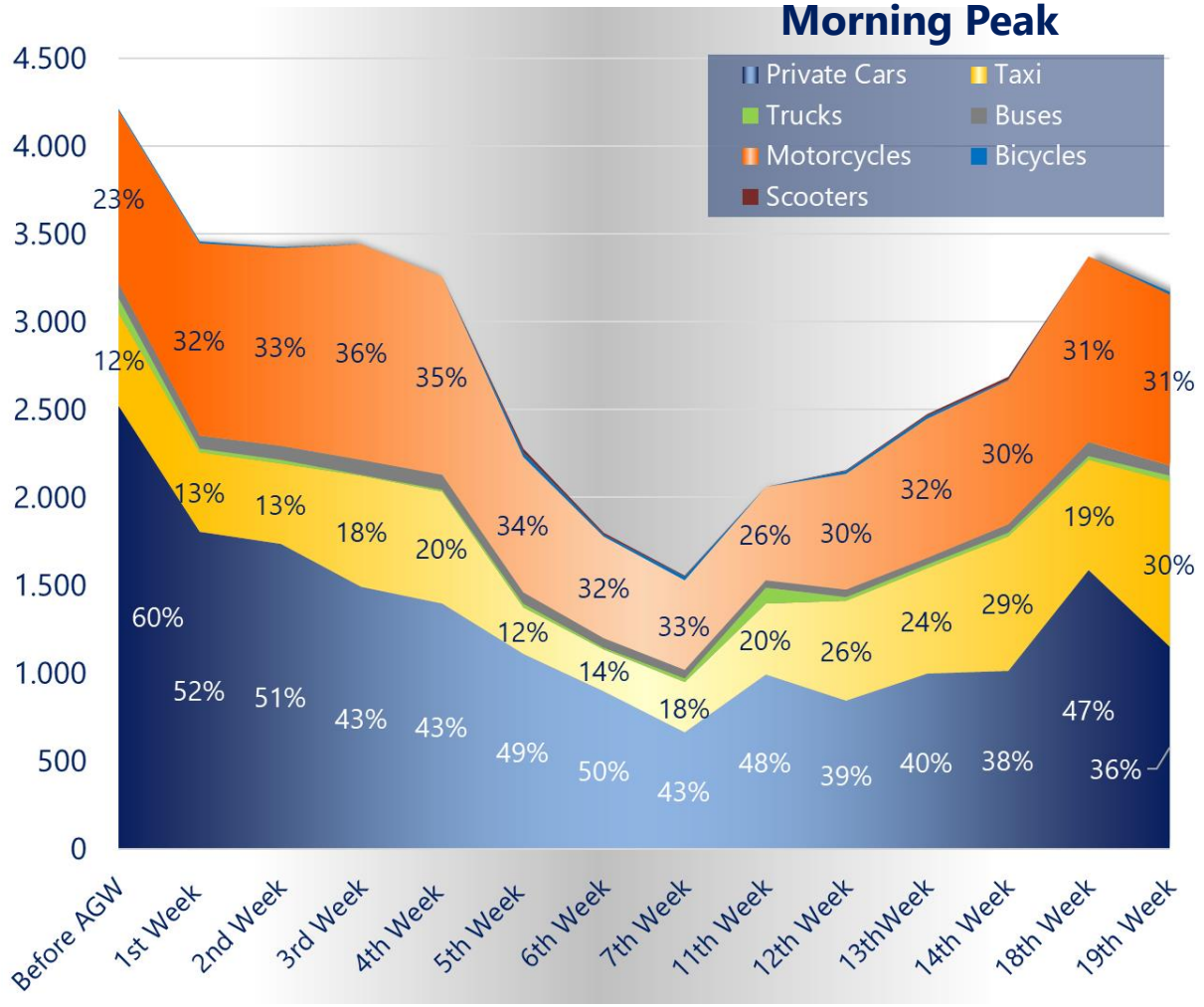
- The travel time on Panepistimiou St. during the 1st period (3 traffic lanes) increased by 1.1 minutes while during the 2nd period (4 lanes) increased by 0.4 minutes
- The traffic conditions on the entry road axes are the same as before. The travel time on Vas. Amalias is reduced by 1.4 minutes with the addition of the fourth traffic lane
- The influence of the mobility interventions on the majority of the exit road axes is negligible
- Regarding the ring road axes, on Vas. Konstantinou Av. (Arditou-Vas. Sofias) and Alexandras Av. (Patision - Kifissias) the travel times were increased during the 2nd period of operation

	Observations (min.)			**Difference** (min.)	
	Before AGW	**1ST period**	**2nd period**	**Before AGW**	**Before AGW**
Route	**12/6/20**	**13/7-17/7/20**	**14/9-18/9/20**	**1ST period**	**2nd period**
Central Road Axes					
Panepistimiou (from Vas. Sofias to Patision)	**2.7**	**3.8**	**3.1**	**1.1**	**0.4**
Akadimias (from Patision to Vas.Sofias)	4.9	4.2	4.5	-0.7	-0.4
Solonos (from Vas. Sofias to Patision)	**7.1**	**6.9**	**7.5**	**-0.2**	**0.4**
Stadiou (from Aiolou to Vas. Georgiou)	2.7	2.3	2.4	-0.4	-0.3
Entry Road Axes					
Vas. Sofias (from Vas. Konstantinou to Panepistimiou)	**4.6**	**4.2**	**4.6**	**-0.3**	**0.0**
Vas. Sofias (from Kifisias to Vas. Konstantinou)	4.3	4.2	4.2	-0.1	-0.1
Vas. Amalias (from Ath. Diakou to Panepistimiou)	**3.6**	**5.3**	**3.9**	**1.7**	**0.3**
Patision (from Alexandras to Stadiou)	3.0	3.0	2.8	0.0	-0.3
Exit Road Axes					
Vas. Sofias (from Panepistimiou to Vas. Konstantinou)	**5.2**	**4.1**	**5.0**	**-1.1**	**-0.2**
Vas. Sofias (from Vas. Konstantinou to Kifisias)	5.7	4.9	5.2	-0.8	-0.5
Vas Amalias (from Filellinon to Ath. Diakou)	1.3	1.3	1.2	0.0	-0.1
Filellinon (from Vas. Georgiou to Vas. Amalias)	1.3	1.2	1.2	-0.1	-0.1
Ring Road Axes					
Vas. Konstantinou (from Arditou/ Ath. Diakou to Vas. Sofias)	**6.7**	**6.2**	**8.1**	**-0.5**	**1.4**
Vas. Konstantinou (from Vas. Sofias to Arditou/ Ath. Diakou)	5.6	4.3	4.3	-1.3	-1.3
Alexandras (from Kifisias to Patision)	**7.8**	**9.0**	**8.9**	**1.1**	**1.1**
Alexandras (from Patision to Kifisias)	9.2	9.7	11.1	0.5	1.9

Source: Google Directions API

Modal Split & Traffic Load

	Traffic Load per hour			Modal Split		
Morning Peak Period (08:00-10:30)						
	Before	**1st -19th week**	**Difference %**	**Before**	**1st -19th week**	**Difference**
Private Cars	2,522	1,162	-54%	59.8%	44.4%	-15.5%
Taxi	524	509	-3%	12.4%	19.5%	7.1%
Trucks	86	24	-71%	1.9%	1.0%	-1%
Buses	84	60	-29%	2.0%	2.3%	0.3%
Motorcycles	984	838	-15%	23.4%	32.0%	8.7%
Bicycles	12	11	-11%	0.3%	0.5%	0.2%
Scooters	2	5	164%	0.0%	0.2%	0.2%
Total	**4,214**	**2,609**	**-38%**			
Afternoon Peak Period (11:00-15:00)						
Private Cars	1,710	990	-42%	43.3%	38.6%	-4.7%
Taxi	850	558	-34%	21.5%	22.8%	1.2%
Trucks	56	25	-51%	1.3%	1.0%	-0.4%
Buses	66	68	3%	1.7%	2.8%	1.1%
Motorcycles	1,256	868	-31%	31.8%	33.9%	2.1%
Bicycles	10	14	41%	0.3%	0.6%	0.4%
Scooters	2	6	221%	0.1%	0.3%	0.2%
Total	**3,950**	**2,529**	**-36%**			



- Reduction of the hourly traffic load of passenger cars (morning peak) by 54% (from 2,522 to 1,162) and during the afternoon peak by 42% (from 1,710 to 990)
- Reduction of the share of passenger cars (morning and afternoon peak), from 52% (4,232 cars per hour) in the period before the pilot implementation of interventions to 42% (2,252 cars per hour)
- Increase in the use of taxi from 17% to 21% and in the use of motorcycles from 27% to 33% (morning and afternoon peak)
- By reactivating the bus lanes, a significant increase in the percentage of use of buses and trolleys is expected

Walking

Panepistimiou St.

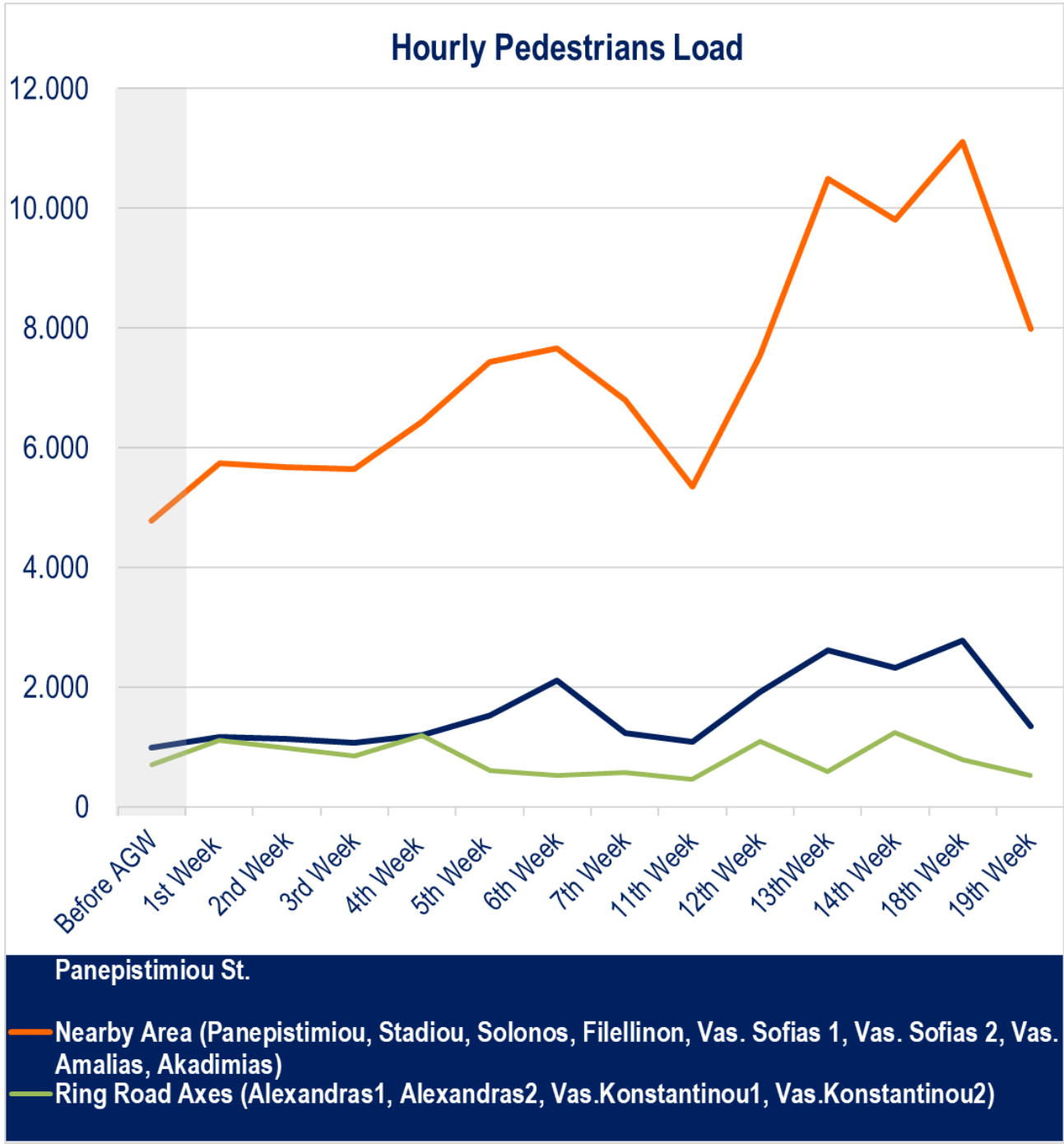
- Significant increase in walking by 56% compared to the week before the implementation of interventions

Nearby Area

- Average weekly increase in walking, on the road axes of Panepistimiou, Stadiou, Solonos and Filellinon in total, by 47% compared to the period before the implementation of interventions
- The increase can be attributed to the widening of the sidewalks on Panepistimiou St., Syntagma Sq. and Ermou St.

Ring Road Axes

- Increase in walking on Alexandra Av. and Vas. Konstantinou Av. by 18.3% compared to the week before the implementation of interventions
- The highest hourly pedestrian load is observed in the 14th week of pilot implementation of the Athens Great Walk

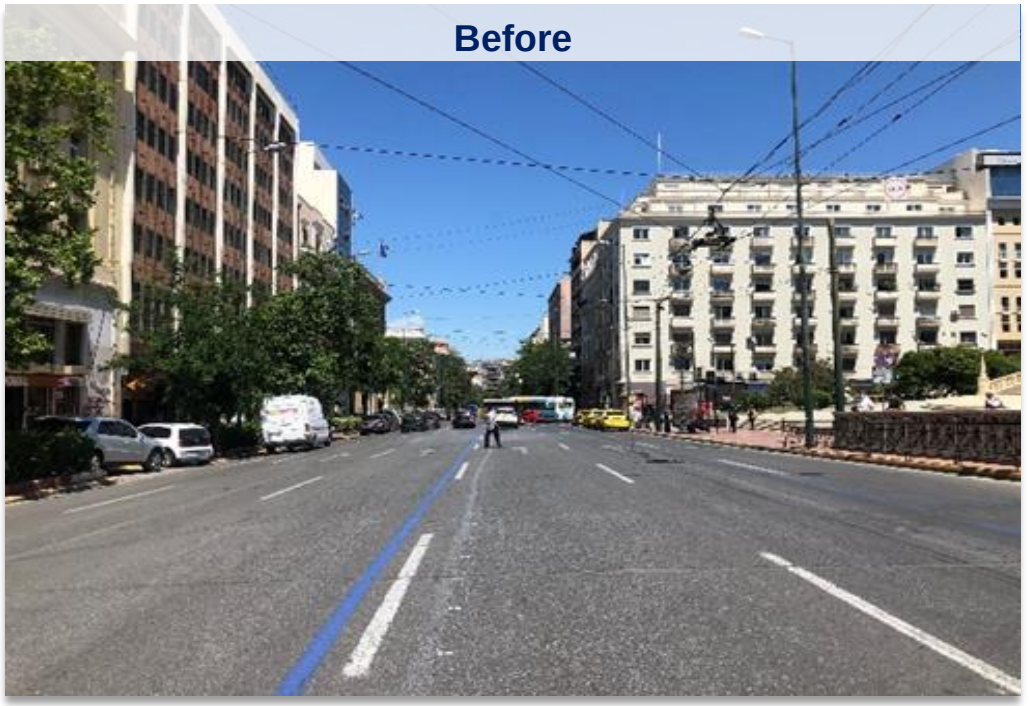


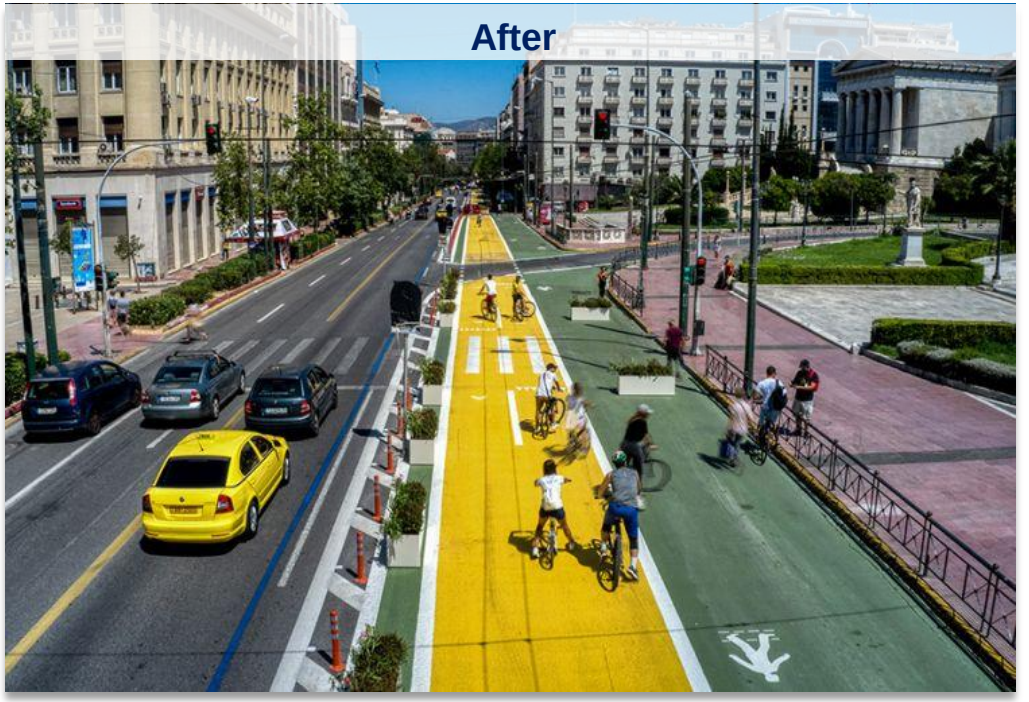
Cycling - Panepistimiou St.

- One of the purposes of the mobility interventions in the center of Athens, was to enhance sustainable mobility by using bicycles
- A special two-way traffic lane was created for bicycles on Panepistimiou St.
- There was an increase in bicycle mobility in the afternoon by 50% - 60%
- The highest bicycle load is observed in the 5th week (mid-July) of the examined period

Hourly Bicycle Load - Afternoon Peak														Average		
Before AGW	1st Week	2nd Week	3rd Week	4th Week	5th Week	6th Week	7th Week	11th Week	12th Week	13thWeek	14th Week	18th Week	19th Week	1st-7th Week	13th-19th week	Except from 11th &12th Week
10	8	2	2	0	44	34	24	10	12	16	14	16	8	**16**	**15**	**16**

	Difference (%)
Before AGW- Av. 1st-7th week	60%
Before AGW - Av. 13th -19th week	50%
Before AGW - Av. Except from 11th &12th Week	60%

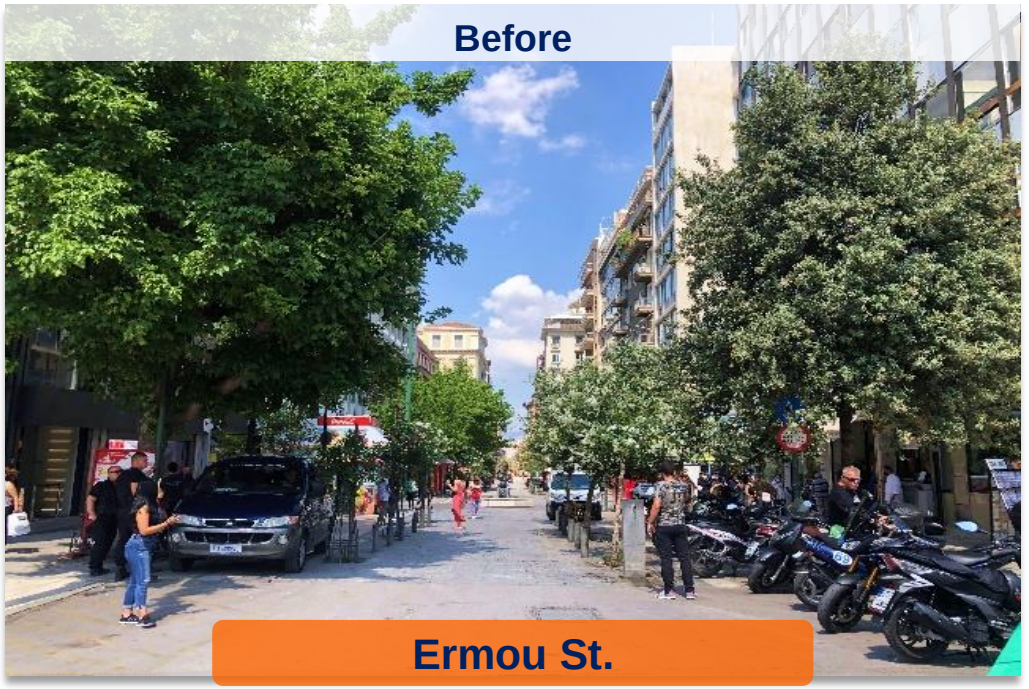


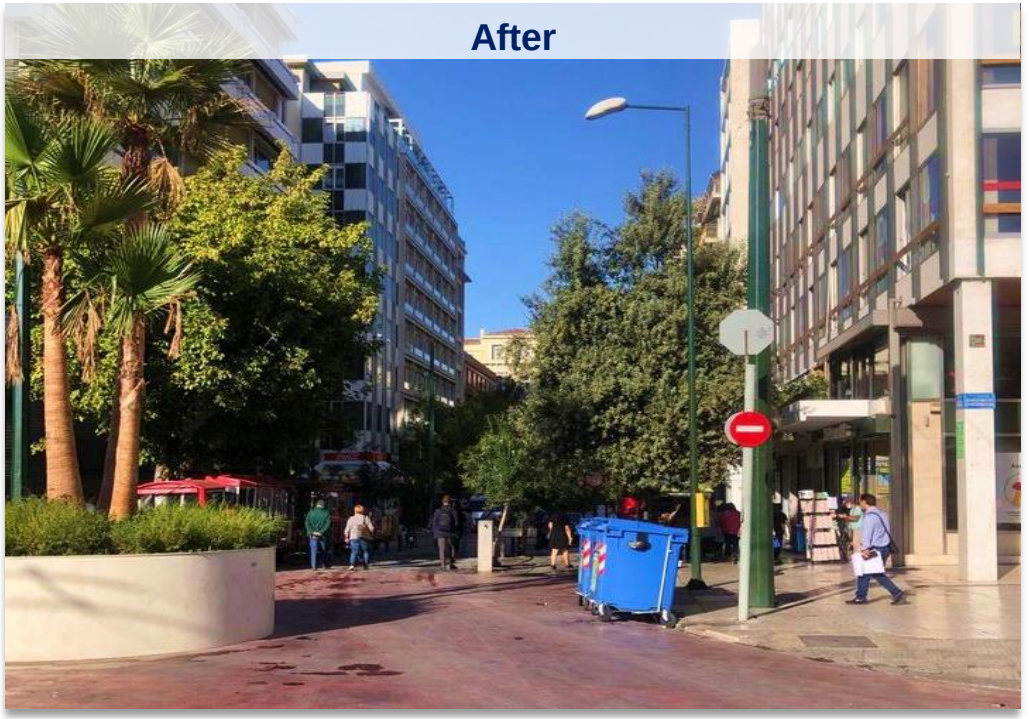


Motorcycles Parking

- To reduce the inconvenience of pedestrians from the illegal parking of motorcycles on the sidewalks, 919 new motorcycle parking spaces created on the road and it was observed:
  - Reduction of illegally parked motorcycles on the road and sidewalk, by 31% (from 1,744 to 1,205)
  - Regarding the legal parking spaces of motorcycles, there is an overall increase of 66% (from 775 to 1,289)

Area	Before		After		Difference (%)	
	Legal	Illegal	Legal	Illegal	Legal	Illegal
Commercial Triangle	408	1,043	889	669	+118%	-36%
Panepistimiou	63	92	96	52	+52%	-43%
Irodou Attikou	0	7	0	5	-	-29%
Psyri	250	244	250	210	0%	-14%
Plaka	54	358	54	269	0%	-25%
Total	**775**	**1,744**	**1.289**	**1.205**	**+66%**	**-31%**



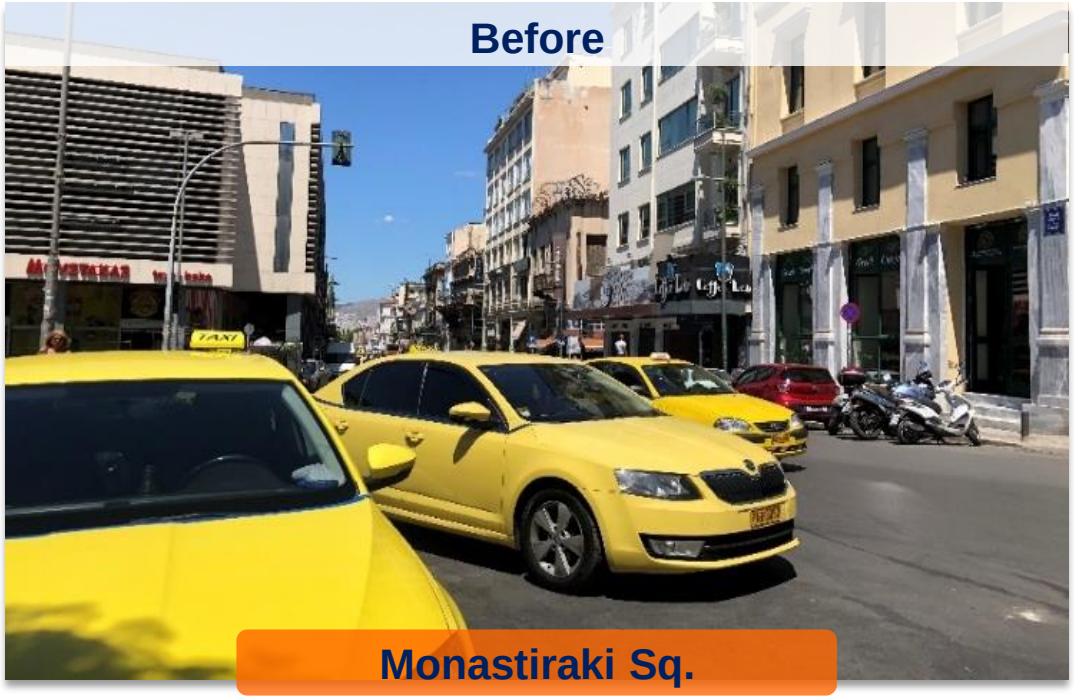


Taxi Stand

- By implementing the new mobility interventions in Athens center, taxi stands have doubled

	Before	After
Commercial Triangle		
Othonos (to Amalias Av.)	11	11
Dragatsiniou (to Stadiou)	2	2
Sofokleous (to Athinas)	0	5*
Evripidou (to Athinas)	0	5*
Omonoia (to G. Septemvriou)	3	3
Omonoia (to Stadiou)	3	3
Ag. Asomaton	0	3
Monastiraki Sq.	0	8
Total	**19**	**40**
Panepistimiou St.		
Omirou (to Panepistimiou)	0	3
Palama	4	4
Ippokratous (to Panepistimiou)	6	6
Sina (to Panepistimiou)	0	5*
Total	**10**	**18**
Grand Total	**29**	**58**

* final implementation is pending



Environment

- Reduction of the traffic load per week on Panepistimiou St. (Vas. Sofias-Patision), in relation to the period before the pilot implementation of mobility interventions, by 37.3%
- The above reduction of traffic led to a reduction of pollutant loads (total pollution load, CO2 emissions) from vehicle traffic per week, compared to the period before the pilot implementation of mobility interventions, by 26.7% and 27.35% respectively
- The main result of pollutant emissions reduction is the reduction of air pollution and the improvement of air quality

Pollutant loads (tn)

	Before AGW	1st Week	2nd Week	3rd Week	4th Week	5th Week	6th Week	7th Week	8th Week	9th Week	10th Week	11th Week	12th Week	13th Week	14th Week	Avg.	Dif. Before AGW-Avg,
Total pollutant load	1,43	1,33	1,37	1,38	1,36	0,98	0,85	0,75	0,65	1,06	0,98	1,03	1,09	0,70	1,17	1,05	-26,70
CO2 Emissions	1,40	1,29	1,33	1,34	1,32	0,95	0,82	0,73	0,63	1,03	0,96	1,00	1,06	0,68	1,14	1,020	-27,35

Overall Assessment

- Summary of Pilot Assessment Results
- Conclusion

Summary of Pilot Assessment Results

The advantages and disadvantages of the traffic and parking interventions of Athens Great Walk

Advantages

- Improved service level for bus and trolley passengers, as they do not have to get on/ off between taxis and other illegally parked vehicles
- Significant increase in walking on Panepistimiou St. and in the nearby area of the center of Athens (+50%)
- Pedestrians on Ermou St. have more space so they can move more comfortably and more safely
- Increase in cycling on Panepistimiou St.
- Removal of illegally parked cars and taxis from Panepistimiou St. and Syntagma Square, without provoking public reactions
- Better organized taxi stand by doubling the number of stand places compared to the period before the parking interventions
- Better parking service for people with disabilities by creating 17 new special parking spaces
- Reduction of the share of passenger cars on Panepistimiou St. (-12%) with a corresponding increase of the percentage of taxis (+6%) and motorcycles (+6%)
- Reduction of traffic speed on Panepistimiou St. resulting in more comfortable travel for all (especially pedestrians, cyclists and PT passengers) without road accidents
- Significant reduction of traffic noise and air pollution

Disadvantages

- The disadvantages include the temporary (4 weeks) traffic congestion on a number of road axes such as:
  - Panepistimiou St.
  - Vas. Amalias Av.
  - Vas. Konstantinou Av.
  - Alexandras Av.
- The traffic conditions in the majority of road axes after 3 months appear significantly improved and similar to the traffic conditions before the pilot implementation of the traffic and parking interventions in the center of Athens

Conclusion

- The goals and predictions of the new traffic and parking interventions in the context of Athens Great Walk, are implemented by relatively fast adaptation of mobility to the new traffic conditions
- For the first time, the focus on sustainable mobility policy is on people and the environment, in contrast to the unilateral priority in private car traffic
- There are already significant changes in the habits of the citizens by shifting to more environmentally friendly modes of transport
- These encouraging results provide an opportunity for the expansion of the new policy of sustainable urban mobility in all areas of the Municipality of Athens, aiming at the gradual implementation of an integrated network and bicycle lanes and more comfortable walking

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