



Athens, October 2022

Road Safety

Key Performance Indicators

Roadside Observations - Spring 2022



HELLENIC REPUBLIC
Ministry of Infrastructure and Transport



With the support of the
Greek Police



The Baseline Project



The Baseline Project

➤ Objective

Collection of road safety Key Performance Indicators (KPIs) in the European Union

➤ Partners

29 partners from 19 EU Member States

Greece:

Ministry of Infrastructure and Transport
National Technical University of Athens

With the support of the Greek Police

➤ Duration

27 months (July 2020 – October 2022)



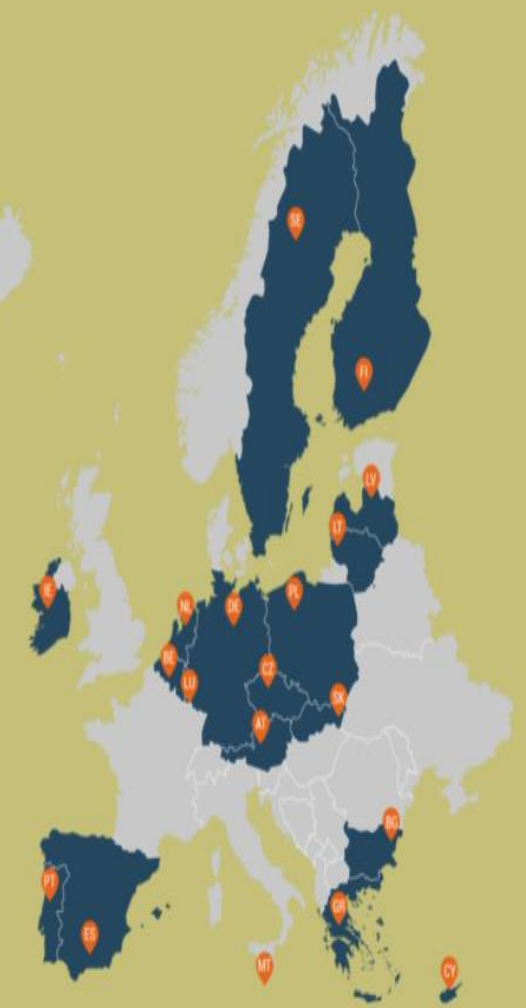
HELLENIC REPUBLIC
Ministry of Infrastructure and Transport



Baseline
Partners

19
EU members

29
partners



Baseline



Methodological Framework



Methodological Framework (1/2)

- In the framework of the European project “Baseline”, **roadside observations** were carried out for 5 Road Safety Key Performance Indicators (Spring 2022):
 - Speed
 - Safety belt use
 - Protective equipment use
 - Driving under the alcohol influence
 - Distraction
- On-road observations were conducted in 14 cities at **150 locations by road type** (May - June 2022):
 - Urban Roads
 - Interurban Roads (except motorways)
 - Motorways



Methodological Framework (2/2)

- All roadside observations were conducted during the day, on weekdays and weekends, in **good weather conditions**.
- The **duration** of the observations' sessions was 3 hours for all performance indicators.
- For speed, suitable locations were selected in **free-flowing** traffic conditions.



Speed



Speed (1/2)

Road Type	Percentage of vehicles within speed limits			Average Speed (km/h)	Standard deviation (km/h)	V85** (km/h)
	KPI	Lower limit	Upper limit			
Urban roads	55.8%	55.0%	56.6%	48.4	9.3	57.0
Interurban roads*	84.0%	83.4%	84.6%	66.9	10.2	76.5
Motorways	76.9%	75.9%	77.8%	103.3	14.9	117.8

- The KPI for speed is defined as **the percentage of vehicles traveling within legal speed limits.**
- In the urban road network, the **lowest percentage** of vehicles travelling within the speed limits is observed (55.8%), compared to the motorways (76.9%) and the interurban network (84.0%).

* The interurban road network includes roads outside of residential areas, with a speed limit of 90 km/h, excluding motorways

** The speed below which 85% of drivers drive



Speed (2/2)

Τύπος Οδού	Percentage of vehicles within speed limits			Average Speed (km/h)	Standard deviation (km/h)	V85** (km/h)
	KPI	Lower limit	Upper limit			
Urban roads	55.8%	55.0%	56.6%	48.4	9.3	57.0
Passenger Private Car	55.8%	54.9%	56.8%	48.4	9.2	57.2
Motorcycle	46.8%	44.3%	49.4%	51.5	10.9	60.3
Vans / Light Trucks	66.3%	64.1%	68.6%	44.5	8.3	52.5
Buses / Heavy Trucks	83.1%	79.9%	86.3%	38.8	5.5	43.7
Interurban roads*	84.0%	83.4%	84.6%	66.9	10.2	76.5
Passenger Private Car	84.7%	84.1%	85.4%	67.8	10.6	78.0
Motorcycle	71.4%	68.1%	74.7%	71.1	11.9	82.0
Vans / Light Trucks	87.7%	86.3%	89.2%	64.1	9.9	73.9
Buses / Heavy Trucks	80.0%	76.7%	83.3%	61.2	6.5	66.2
Motorways	76.9%	75.9%	77.8%	103.3	14.9	117.8
Passenger Private Car	76.2%	75.0%	77.4%	109.6	16.0	125.4
Motorcycle	84.8%	77.5%	92.0%	106.3	14.4	117.0
Vans / Light Trucks	89.9%	88.2%	91.6%	91.3	15.5	107.1
Buses / Heavy Trucks	68.1%	65.6%	70.5%	80.5	8.9	87.6

➤ Fewer passenger cars and motorcycles drive within the permitted speed limits on the urban network (55.8% and 46.8%) compared to motorways (76.2% and 84.8%) and the interurban road network (84.7% and 71.4% respectively).

* The interurban road network includes roads outside of residential areas, excluding motorways

** The speed below which 85% of drivers drive



Safety Belt Use



Safety Belt Use

Road Type	Safety Belt Use Percentage (Passenger Private Cars)	Lower limit	Upper limit
Urban roads	71.2%	70.4%	72.0%
Interurban roads*	70.3%	69.4%	71.2%
Motorways	83.5%	82.6%	84.4%
Total	71.0%	70.5%	71.5%

Time Period	Safety Belt Use Percentage (Passenger Private Cars)	Lower limit	Upper limit
Weekday	69.8%	69.2%	70.4%
Weekend	73.6%	72.5%	74.7%
Total	71.0%	70.5%	71.5%

* The interurban road network includes roads outside of residential areas, excluding motorways

- The KPI for seat belt use is defined as **the percentage of passengers who use their seat belt correctly.**
- Safety belt usage by passenger car drivers is **significantly lower on the urban and interurban road network**, with rates of 71.2% and 70.3% respectively, compared to motorways (83.5%).



Front Passenger Seat Belt Use

Road Type	Front Passenger Seat Belt Usage Rate	Lower limit	Upper limit
Urban roads	72.4%	71.7%	73.1%
Interurban roads*	70.8%	70.0%	71.6%
Motorways	85.3%	84.6%	86.1%
Total	71.8%	71.4%	72.3%

Time Period	Front Passenger Seat Belt Usage Rate	Lower limit	Upper limit
Weekday	70.6%	70.1%	71.2%
Weekend	74.5%	73.6%	75.4%
Total	71.8%	71.4%	72.3%

- Front seat passengers use the seat belt **similarly to drivers** at 71.8% versus 71.0%.
- A **higher seat belt usage is detected on the motorways** (85.3%), compared to the urban and interurban road network (72.4% and 70.8%, respectively).

* The interurban road network includes roads outside of residential areas, excluding motorways



Rear Passenger Seat Belt Use

Road Type	Rear Passenger Seat Belt Usage Rate	Lower limit	Upper limit
Urban roads	54.6%	51.3%	58.0%
Interurban roads*	56.2%	52.4%	59.9%
Motorways	65.5%	60.8%	70.2%
Total	55.8%	53.5%	58.0%

Time Period	Rear Passenger Seat Belt Usage Rate	Lower limit	Upper limit
Weekday	52.4%	49.9%	55.0%
Weekend	63.1%	58.6%	67.6%
Total	55.8%	53.5%	58.0%

* The interurban road network includes roads outside of residential areas, excluding motorways

- Seat belt use by rear seat passengers is **very low** at just 55.8%.
- There is a **significant increase** in seat belt usage on **weekends** compared to weekdays, with percentages of 63.1% versus 52.4%.



Car Passenger Seat Belt Use

Road Type	Driver	Front seat passenger	Rear seat passenger
Urban roads	71.2%	72.4%	54.6%
Interurban roads*	70.3%	70.8%	56.2%
Motorways	83.5%	85.3%	65.5%
Total	71.0%	71.8%	55.8%

Time Period	Driver	Front seat passenger	Rear seat passenger
Weekday	69.8%	70.6%	52.4%
Weekend	73.6%	74.5%	63.1%
Total	71.0%	71.8%	55.8%

➤ Seat belt use by rear seat passengers is **much lower** (55.8%) compared to drivers and front seat passengers (71.0% and 71.8% respectively).

➤ On weekends there is an increase in seat belt usage **among all car passengers** compared to weekdays.

* The interurban road network includes roads outside of residential areas, excluding motorways



Helmet Use



Helmet Use by Motorcycle Drivers

Road Type	Helmet Use Percentage Motorcycle Driver	Lower limit	Upper limit
Urban roads	75.5%	73.8%	77.2%
Interurban roads*	83.7%	81.1%	86.3%
Motorways	94.9%	91.7%	98.0%
Total	80.3%	79.0%	81.6%

Time Period	Helmet Use Percentage Motorcycle Driver	Lower limit	Upper limit
Weekday	80.9%	79.4%	82.4%
Weekend	79.0%	76.2%	81.9%
Total	80.3%	79.0%	81.6%

* The interurban road network includes roads outside of residential areas, excluding motorways

- The KPI for the use of protective equipment is defined as **the percentage of two-wheeler riders who use a protective helmet.**
- Helmet use by motorcycle drivers **is lower on the urban road network (75.5%),** compared to the interurban network and motorways (83.7% and 94.0%, respectively).



Helmet Use by Motorcycle Passengers

Road Type	Helmet Use Percentage Motorcycle Passenger	Lower limit	Upper limit
Urban roads	60.5%	55.9%	65.0%
Interurban roads*	68.7%	61.4%	76.0%
Motorways	91.7%	-	-
Total	65.5%	61.8%	69.3%

Time Period	Helmet Use Percentage Motorcycle Passenger	Lower limit	Upper limit
Weekday	68.2%	64.0%	72.4%
Weekend	60.0%	51.7%	68.2%
Total	65.5%	61.8%	69.3%

* The interurban road network includes roads outside of residential areas, excluding motorways

- Motorcycle passengers **use helmets less** than drivers, with percentages of 65.5% versus 80.3%.
- Helmet use by motorcycle passengers is **lower on interurban and urban roads**, with rates of 60.5% and 68.7% respectively, compared to motorways (91.7%).



Driving Under the Influence of Alcohol



Driving Under the Influence of Alcohol

Road Type	Percentage of drivers within the legal alcohol concentration limit	Lower limit	Upper limit
Urban roads	98.9%	98.3%	99.4%
Interurban roads*	98.8%	97.8%	99.8%
Motorways	99.1%	98.4%	99.8%
Total	98.8%	98.4%	99.2%

Χρονική Περίοδος	Percentage of drivers within the legal alcohol concentration limit	Lower limit	Upper limit
Weekday - day	99.6%	99.2%	100.0%
Weekday - night	98.9%	98.3%	99.4%
Weekend - day	99.5%		
Weekend - night	96.2%	94.2%	98.3%
Total	98.8%	98.4%	99.2%

* The interurban road network includes roads outside of residential areas, excluding motorways

- The KPI for driving under the influence of alcohol is defined as **the percentage of drivers driving within the legal blood alcohol concentration limit.**
- The performance index of driving under the influence of alcohol **is lower on weekend nights** (96.2%) compared to the other time periods.



Distraction



Distraction (1/2)

Road Type	Percentage of drivers not using a handheld device	Lower limit	Upper limit
Urban roads	91.7%	91.3%	92.1%
Interurban roads*	94.1%	93.7%	94.5%
Motorways	93.1%	92.7%	93.6%
Total	92.6%	92.3%	92.8%

Time Period	Percentage of drivers not using a handheld device	Lower limit	Upper limit
Weekday	92.7%	92.4%	93.0%
Weekend	92.3%	91.7%	92.9%
Total	92.6%	92.3%	92.8%

* The interurban road network includes roads outside of residential areas, excluding motorways

- The KPI for driver distraction is defined as **the percentage of drivers not using a handheld device while driving**.
- The driver distraction performance index is **lower in the urban road network** (91.7%) compared to the motorways (93.1%) and the interurban road network (94.0%).



Distraction (2/2)

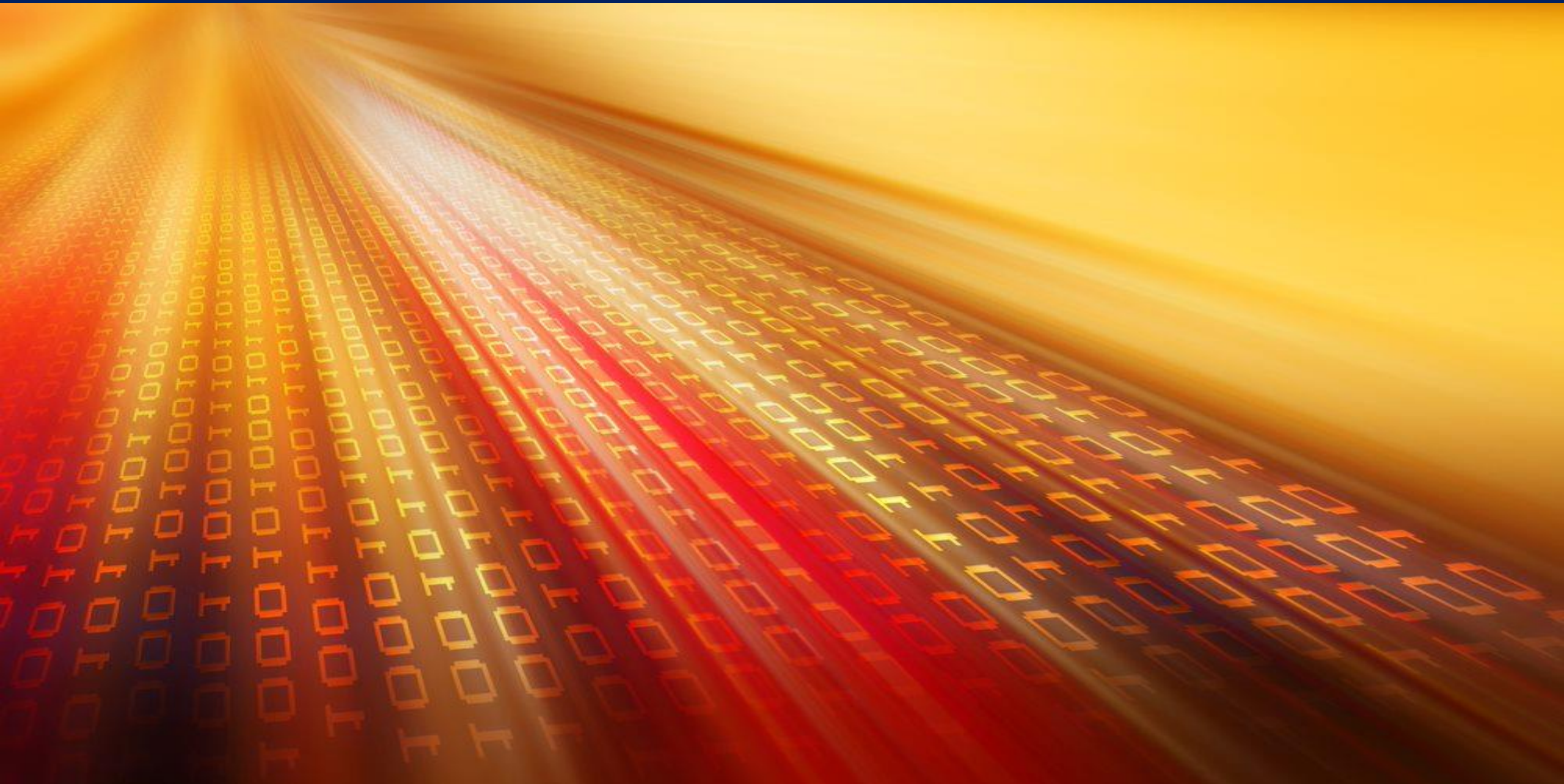
Vehicle Type	Percentage of drivers not using a handheld device	Lower limit	Upper limit
Urban roads	91.7%	91.3%	92.1%
Buses	93.5%	91.4%	95.7%
Light Trucks	93.8%	92.9%	94.8%
Passenger Private Cars	90.8%	90.3%	91.3%
Interurban roads *	94.1%	93.7%	94.5%
Buses	98.6%	97.1%	100.0%
Light Trucks	94.0%	93.0%	95.0%
Passenger Private Cars	94.0%	93.6%	94.5%
Motorways	93.1%	92.7%	93.6%
Buses	90.6%	86.7%	94.5%
Light Trucks	93.7%	92.9%	94.5%
Passenger Private Cars	93.1%	92.5%	93.7%
Total	92.6%	92.3%	92.8%

- The lowest percentages of not using a mobile phone or other hand-held device while driving are observed for **passenger private cars on the urban road network (90.8%)** and for **buses on the motorways (90.6%)**.

* The interurban road network includes roads outside of residential areas, excluding motorways



Conclusions



Conclusions

- The correlation of the Key Performance Indicators with the characteristics of road crashes is expected to lead to very useful conclusions about **the real dimension of the problem and the causes of road crashes**.
- The detailed results for the KPIs of Driver Behavior are valuable information for **documenting targeted road safety actions**.





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