



# ICA - TURKEY NATIONAL REPORT 17'



# Abbreviation

T.C:	Republic of Turkey
KGM:	General Directorate of Highways
PPP:	Public- Private Partnership
BOT:	Built-Operate-Transfer
#:	Number
TL:	Turkish Liras (Turkey Currency)
ETC:	Electronic Toll Collection
OGS:	Auto – Pass System with active label
HGS:	Fast-Pass System with passive label (sticker)

## Introduction

General Directorate of Highways is the policy & decision maker related to issues about all the access road including motorways in Turkey. About 90 % of the motorways and most of the public roads are operated by General Directorate of Highway on behalf of Republic of Turkey (Municipalities have also control over the public roads). Remaining 10 % of the motorways which corresponds to 367 km over 2657 km are conceded by private sector as of Jan. 01.2018. Since 2012, private sector has started to participate in motorway concession with PPP projects in which BOT business model is preferred. Together with private sector participation, the burden of new infrastructure investments has shared between public-and private sector. Accordingly, new infrastructure investments by private sector has accelerated the amount of investment to be made whereas shortened the period for investments. Still the length of the motorways in Turkey is not adequate and is far beyond the Europe average. This simply means that, investments on infrastructure especially on transportation will continue with a sharper increase.

## The Network

As of 1.1.17, the length of the Public Roads including both tolled motorways and state roads were 67.161 km whereas that of length have reached to 67.620 km as of 1.1.2018



Figure 1: Republic of Turkey Road Map

Motorways were 2542 km and 251,5 out of 2542 km have been conceded by private sector as of 1.1.2017

Motorways are 2657 km and 367 out of 2657 km have been conceded by private sector as of 1.1.2018.

<b>Roads</b>	<b>2016</b>	<b>2017</b>	<b>Increase</b>
Public Roads (motorways, state roads, province roads)	67.161	67.620	0,68 %
Motorway (tolled+untolled)	2.542	2.657	4,3 %
Tolled Motorway conceded by KGM	1060,5	1060,5	-
Tolled Motorway conceded by private sector with BOT	251,5	367	31,5 %

Table 1: Length of Motorways w.r.t. years

It is understood from “Table 1” that yearly increase in the tolled motorway length from 2016 to 2017 is 115 km and all of this increase is clearly due to private sector.

<b>Motorway</b>	<b>2016</b>	<b>2017</b>	<b>Increase</b>
<i>Motorways</i> <i>All Public Roads</i>	3,78 %	3,93 %	4,3 %
<i>Tolled Motorways</i> <i>All the motorways</i>	51,6 %	53,7 %	5 %
<i>Tolled Motorways(by Private Sector)</i> <i>All the Tolled Motorways</i>	19 %	26 %	27 %

Table 2: Increase in the length of the tolled motorways w.r.t. years

“Table 2” indicates that private sector share on the tolled motorway has reached 26 % as of 01.01.2018. This percentage will increase more sharply in the next decade considering the motorway constructions carried out by private sector to be open soon, the liberalization of Transportation Services, new transportation infrastructure investments by both public and private sector and the Turkey’ thesis to become transit center of international transportation on the year 2023.

It is expected to reach the motorway length about 5027 km on the way through 100th anniversary of Turkey Republic, 2023, including the motorways conceded by Private Sector. The length of the motorway with BOT business model is also expected to reach 2737 km as of 2023



Figure 2: Motorways in Turkey

- Tolled Motorways
- Motorways on Construction with BOT Business Model (683.5 km)
- Tendering Projects (330 km)
- Planned Projects for 2023 (1386 km)

It is planned to be 202 km out of 683.5 km (motorways on construction), 91 bridges & viaducts 38 km long and 23 tunnels 47 km long ready for operation in 2018.

14 km of new section that will be in operation in 2018 belongs to ICA network

## Revenues

*Tolled Motorways Revenues in Turkey excluding privately operated motorways*

Year	Bosphorus Bridges		Motorway		Total	
	Revenue(Euro)	# Car	Revenue(Euro)	# Car	Revenue(Euro)	# Car
2016	90.289.399	134.920.661	283.989.583	282.311.520	374.278.937	417.232.181
2017	97.521.896	149.409.456	294.930.264	308.930.213	392.452.161	458.339.669

Table 3: Motorway and Bridge Revenues

Note: VAT is excluded

Euro to TL Exchange rate at 2016 3.2174

Revenues are collected through Turkish currency on motorways and bridges and conversion of those revenues to Euro currency is based on currency Exchange ratio at the first weekday of the 2016 and 2017 that correspond to 4<sup>th</sup> and 2<sup>nd</sup> of the January respectively. Exchange ratios are taken from Central Bank of the Republic of Turkey.

Euro to TL Exchange rate at 2017: 3.7153

Table 3 only includes the official data published by General Directorate of Highways about the motorways operated by KGM. It is unable to gather the revenue or traffic data of the other motorway concessions as it is treated as confidential

## Investments

ICA continues to its investments with the additional highway section “Hüseyinli-Şile” of the Northern Marmara Motorway in 2018. Additional part of the motorway will be 14 km long and planned to be finished before the last quarter of 2018.

Beside the 3<sup>rd</sup> Bosphorus Bridge and Northern Marmara Motorway, ICA has been constructing a new motorway project named “Menemen-Aliğa-Çandarlı Motorway” that just won the bid with Build-Operate-Transfer business model tendered for 10 years of concession including the construction phase. Project will cost about 400 million Euros. Project is planned to be finished in 2 years and remaining 8 years will be concession period. The project, which will link İzmir, Aliğa and Çandarlı Port with high quality roads, will also serve the north-south direction heavy vehicle traffic provided on the existing city roads and will relieve the urban traffic of İzmir. When the project starts operation, the northern axis of İzmir’s peripheral roads will be completed and the Istanbul - Bursa - İzmir Highway will be used more effectively.

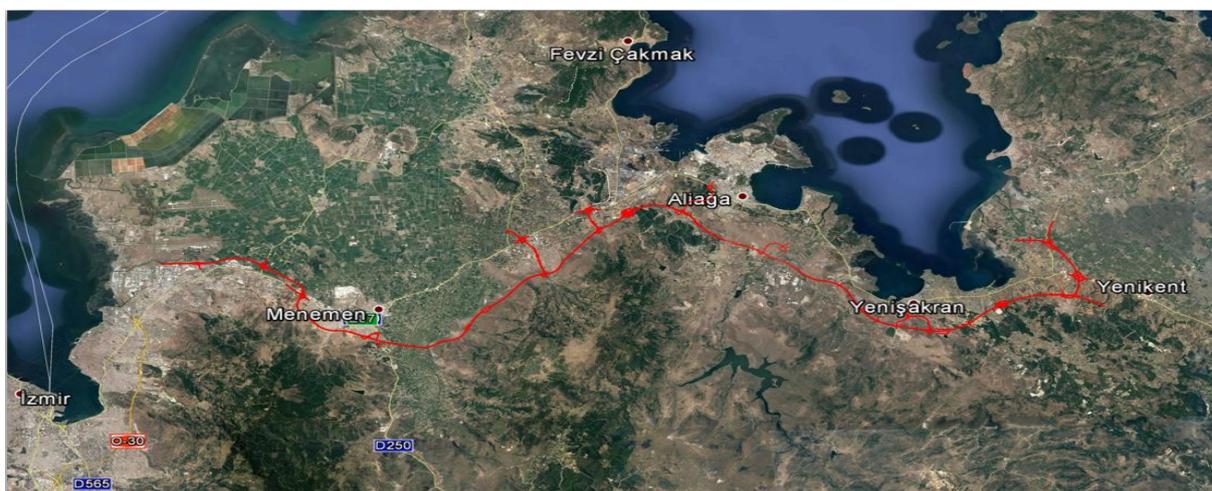


Figure 3: Menemen-Aliğa-Çandarlı Motorway Route

### Features of the “Menemen- Aliğa- Çandarlı” Motorway;

14 junction points,

3 service areas,

7 toll collection plaza,

10 viaducts and 11 bridges

Highway Strips: Main road 2x3 lane, connecting road 2x2 lane

Motorway length: 78 km (including connection roads)

### *Investment by State & Other Private Entities*

Amount of investment realized in 2017 and planned to be made in 2018 by private sector & government given as;

Euro to TL Exchange rate at 2017: 3.7153

Projects (2017)	Ongoing Projects (Euro) *1000	New Projects (Euro) *1000	Investment to be made in 2018 (Euro) *1000
Cost	2.112.140	237.229	2.397.191

Table 4: Investment on Transportation Projects (KGM, 2018)

## Financing

ICA 3rd Bosphorus Bridge & Northern Marmara Motorway is financed by loans and shareholder's equity. Project also includes government traffic guarantee for both bridge and the motorway sections.

Similar to ICA, most of the motorway projects operated by private sector in Turkey are guaranteed for vehicle passage. In case of a deficiency of vehicle pass, government compensates the difference between projected and realized pass.

## Traffic

The AADT of ICA given below is prepared in accordance with the method that all the other ASECAP Members apply as well. This method provides more consistent, sensible and comparable datas.

Annual Average Daily Traffic	
Light Vehicles	17.339
Heavy Vehicles	13.672

Table 5: Traffic Data

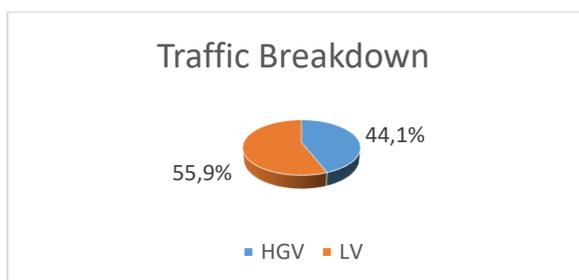


Figure 4: Distribution of Vehicles on ICA Motorway

Vehicle Classes 1-2 is considered according to KGM as; Light Vehicles (LV)

Vehicle Classes 3-4-5 is considered according to KGM as: Heavy Good Vehicles (HGV)

*Total Daily Average Transactions including Toll Plazas and Free Flow realized on the ICA Motorway = 250.512*

## Toll rates

### Vehicle Classification

VEHICLE CLASS	VEHICLE TYPE
1	TWO AXLE VEHICLES WHOSE AXLE SPACE IS SMALLER THAN 3.20m
2	INCLUDING EVERY KIND OF 2 AXLE VEHICLES OF WHOSE AXLE SPACE IS GREATER THAN 3.20m
3	EVERY KIND OF 3 AXLE VEHICLES
4	EVERY KIND 4 AND 5 AXLE VEHICLES
5	6 and OVER AXLE VEHICLES
6	MOTORCYCLES (ONLY FOR HGS CUSTOMERS)

Table 6: Vehicle Types vs Vehicle Classes

TOLL CLASSES	ICA YAVUZ SULTAN SELİM BRIDGE TOLL RATES(Euro)	OSMANGAZİ BRIDGE TOLL RATES (Euro)	Other Bosphorus Bridges (15 Temmuz and FSM Bridge) (Euro)	Eurasia Tunnel (Euro)
1	3,35	17,67	1,884	4,468
2	4,4508	28,27	2,242	6,7020
3	8,2835	33,564	5,989	
4	21,0177	44,52	11,978	
5	26,1417	56,187	15,95	
6	2,349	-	0,942	

Table 7: Toll Rates for Bridges

#### KEY HIGHLIGHTS

VAT for Bosphorus Bridges (Yavuz Sultan Selim, 15 Temmuz Şehitler Köprüsü, FSM Bridge) and for other bridges is 8 %

VAT for the motorways in Turkey is 18 %

Motorcycles who have 6th class HGS-OGS account pay half of 1st class vehicle's fee.

Class 3-4-5 vehicles are prohibited to use 15 Temmuz Şehitler and Fatih Sultan Mehmet Bridge for Bosphorus crossing

Class 2 vehicle is prohibited to use 15 Temmuz Bridge for Bosphorus crossing

Class 3-4-5-6 vehicles are prohibited to use Eurasia Tunnel

As the toll determination is set by the KGM with regard to PPP contracts, ICA has no authority for price arrangement.

As of 01.01.2017, for the motorways that are under the responsibility of KGM;

Since pricing also takes into account the car classification and geographical regions, new price adjustment for tolled motorway is different from previous structures. It is also aimed to reduce the traffic congestion by encouraging public transport in major cities with the new price setting, and consequently to protect the environment by minimizing harmful emissions. From this point of view, 1st and 2nd class vehicles that predominantly includes the automobile type vehicles fees are increased more than 3,4,5 class vehicles and on some motorways, no fee increase was made to the 3rd, 4th, 5th classes.

On Average, 1st & 2nd class vehicles toll rate increased 25% whereas remaining 3,4,5,6 class vehicles toll rate increased about 10 %

## Tolling system and tolling technologies used

As mentioned in the introduction part, almost 90 % of the motorways are conceded by KGM. For those motorways, revenue collection is completely carried out only by the ETC system so there is no cash collection toll plaza. It is a mandatory to use ETC System. Because of the explained situation, ETC system usage is a requirements and subscriber number reached **12.831.238** in number.

### ETC Subscriber

ETC Subscribers for tolled motorways in Turkey have reached to 12.831.238 as of 01.01.2018.

There are two kinds of ETC systems available in Turkey which are OGS system that is operated by KGM with the authorized banks and the HGS system that is operated by KGM with the PTT.

### OGS System

OGS (Auto-Pass System) Subscribers: 2.033.698

OGS is the acronym of DSRC toll collection systems.

### HGS System

HGS (Fast-Pass System) Subscribers: 10.797.540

HGS is the acronym of RFID toll collection systems

## ETC Pay Toll system – Technology

ETC is used for collecting tolls from motorways and bridges.

In Turkey, motorways network have 741 toll collection equipments in 96 toll plazas.

ICA's Motorway Network has 59 toll collection equipments in 10 toll plazas.



Figure 5: ETC System working principle

Based on DSRC (Dedicated Short Range Communications) technology

Implemented for pre-paid, post-paid and exempted users

Payment without stopping for all vehicle categories for free-flow transactions

The speed of passing vehicles is limited to 30 km / h for safety reasons

### Safety

Facts related to safety issues on the 3rd Bosphorus Bridge and Northern Marmara Motorway since 2016 August is given as,

Accidents	With Property Damage	571
	With Injuries	166
	With Fatalities	13

Table 8: Accidents in Number

Motorway accident statistics are recorded and marked with GIS (Geographical Information Systems) in order to evaluate the accident datas. The frequency of the accidents on the specific location can easily be detected. Periodically, this accident statistics are evaluated and required mitigation measures and precautions are taken to minimize contingency of accidents by traffic management department.

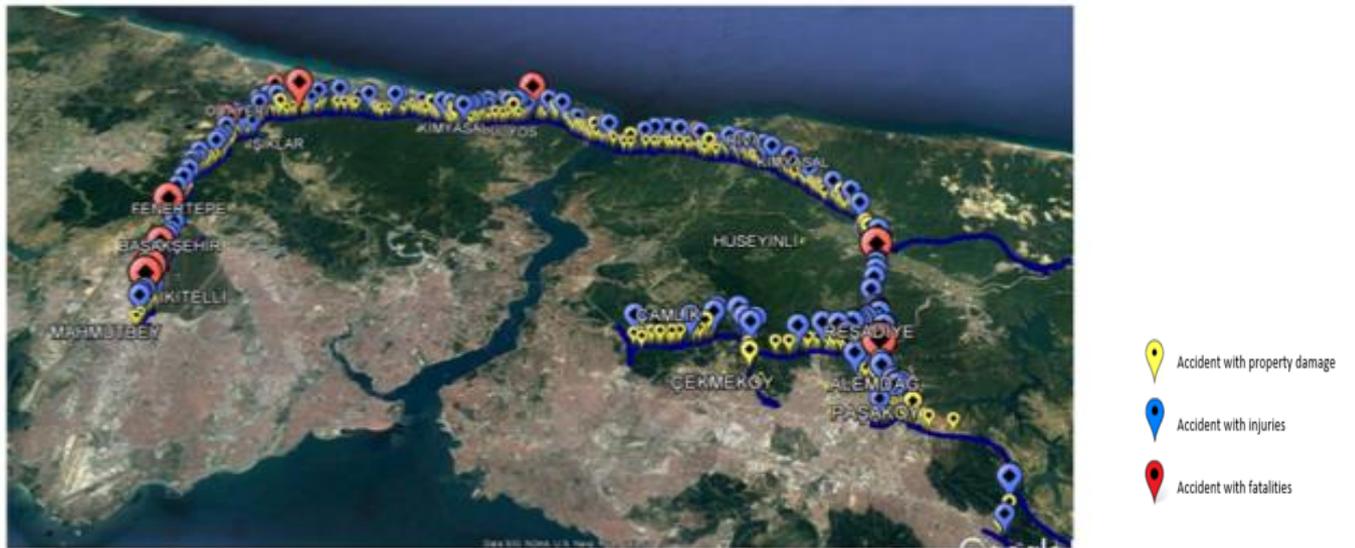


Figure 6: Accident distribution on ICA Motorway

MAIN ASECAP KEY FIGURES	
Country / Year	Turkey 2017
Network length (km)	143
1 x 1 lanes (km)	20.6
2 x 1 lanes (km)	46
2 x 2 lanes (km)	13.9
2 x 3 lanes (km)	2.9
2 x 4 lanes (km)	95
No. of km in construction	14
Forecasts of opening motorway sections in 2018	17
Annual toll revenues (in millions of euros)	N.A
VAT %	%8 for Bridge %18 for Motorway
Permanent staff	541
Average daily traffic (LV)	17.339
Average daily traffic (HV)	13.672
Average daily traffic (LV+HV)	31.012
Total number of accidents	689
No. of personal injury accidents	166
No. of dead	13
Fatality rate (No of dead/per km)	6.1 *10 <sup>-9</sup>
Km travelled (106 x km)	676,4
Number of toll transactions (Total)	18.511.198
Number of free-flow transactions (Total)	72.940.154
Number of toll transactions (Light vehicles)	11.551.024
Number of toll transactions (Heavy vehicles)	6.961.542
No. of toll stations	10
No. of ETC subscribers (Light vehicles)	N.A
No. of ETC subscribers (Heavy vehicles)	N.A
No. of toll lanes	59
No. of ETC lanes	56
No. of ETC subscribers (Total)	N.A
No of service areas(equipped with petrol stations)	6
No. of restaurants	13
No. of hotels	-

## REFERENCES

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